

# Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

Dorothy Aluoch Oketch, Dr. Daniel Onguru, Dr. Sidney Ogolla, Geoffrey Andrew

**Abstract**— Preconception care involves the provision of health interventions to women and couples before conception and aims at improving their health status, reducing behaviors, individual and environmental factors that contribute to poor maternal and child health outcomes. It has potential to further reduce global maternal and child mortality and morbidity, especially in low-income countries where the highest burden of pregnancy-related deaths and disability occurs. Most often, preconception care is rarely delivered to women, and it is often ignored or minimized by both the patient and the provider. The factors contributing to the low uptake have not been extensively revealed, especially in the study region. The main objective of this study was to assess the uptake of preconception care services and associated factors among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital. A total of 241 women sampled by systematic random methods answered structured questionnaires, while 20 health care providers served as key informants. Quantitative data was summarized using descriptive statistics, and associations detected by chi-square test. Data findings were then presented using tables, graphs and pie charts. Qualitative data was subjected to content analysis, and themes derived, which were used to triangulate the quantitative results. All statistical analysis was done using SPSS v. 22. The uptake of preconception care services was low (65.8%), and majority were unaware of these services being at the facility. There was low level of knowledge on preconception care services (71.8%), although majority (45.4%) preferred the hospital as the source of information. The factors influencing the utilization of preconception care services included patient-related factors like chronic diseases, and cultural beliefs and practices, as well as health care provider-related factors like staff shortage, inadequate supplies and resources. There was a significant association between the level of knowledge on preconception care and the age of the woman ( $p=0.0001$ ), marital status ( $p=0.01$ ), educational level ( $p=0.002$ ), and occupation ( $p=0.001$ ). The uptake of preconception care services was low, with a concomitant low level of knowledge on preconception care services among women. Individual patient and healthcare related factors influence the utilization of preconception care services. The study recommends that the Ministry of Health should ensure the availability of adequate elements of preconception care, while prioritizing public health education on preconception care, empowering the healthcare providers, and involving stakeholders, so as to achieve a robust uptake.

**DOROTHY ALUOCH OKETCH**, School of Health Sciences  
Jaramogi Oginga Odinga University of Science and Technology  
**Dr. Daniel Onguru, PhD**, School of Health Sciences  
Jaramogi Oginga Odinga University of Science and Technology  
**Dr. Sidney Ogolla, PhD**, Centre for Global Health Research  
Kenya Medical Research Institute Kisumu  
**Geoffrey Andrew**, School of Health Sciences  
Jaramogi Oginga Odinga University of Science and Technology

**Index Terms**— Preconception care, environmental factors .

## I. INTRODUCTION

### 1.1 Background

Poor maternal health is one of the major risk factors related to adverse birth outcomes, especially among women entering pregnancy (Anderson *et al.*, 2006; Annadurai *et al.*, 2017; Barash & Weinstein, 2002; Beckmann *et al.*, 2014). Pre-natal care has been established as the standard prevention paradigm to reduce poor pregnancy outcomes (Atrash *et al.*, 2006; Beckmann *et al.*, 2014). However, public health professionals are realizing that pre-natal care alone is not sufficient to improve perinatal health and birth outcomes, and instead have emphasized the importance of pre-conception care (Bateson & Black, 2018, 2019; Beckmann *et al.*, 2014).

Preconception care (PCC) has been defined as any preventive, promotive or curative health care intervention provided to women of childbearing age in the period before pregnancy (at least 2 years) or between consecutive pregnancies, to improve health related outcomes for women (regardless of their pregnancy status), newborns or children up to 5 years of age (Dean *et al.*, 2014a, 2014b). Accordingly, PCC refers to the provision of biomedical, behavioral and social health interventions to women and couples before the occurrence of conception and aims at improving their health status, reducing behaviors, individual and environmental factors that contribute to poor maternal and child health outcomes. The well-being of women and children is one of the major determinants of the health of any population, and can help predict future public health challenges for families, communities, and the health care system (Waggoner, 2013; Wallace & Hurwitz, 1998; Witters *et al.*, 2010). Thus, one of the ways to achieve this is the embracement of PCC to increase the chances of health outcomes of pregnancy for both mother and child (Bateson & Black, 2018; Beckmann *et al.*, 2014).

Preconception care includes any intervention to optimize a woman's health before pregnancy with the aim to improve maternal, newborn and child health (Bateson & Black, 2019). It bridges the gap in the continuum of care, and addresses pre-pregnancy health risks and health problems that could have negative maternal and fetal consequences. It therefore has potential to further reduce global maternal and child mortality and morbidity (Beckmann *et al.*, 2014), especially in low-income countries where the highest burden of

# Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

pregnancy-related deaths and disability occurs (Ekem *et al.*, 2018; Goossens *et al.*, 2018; Goshu *et al.*, 2018). In most instances, preconception care is rarely delivered to women owing to the fact most women do have unplanned pregnancy outcomes (Arluck & Mayhew, 2018; Barash & Weinstein, 2002; Berghella *et al.*, 2010; Bille & Andersen, 2009; Brundage, 2002; Dorney & Black, 2018; Hall *et al.*, 2018), and it is often ignored or minimized by both the patient and the provider (Konchak, 2001).

Globally, maternal and fetal health are threatened mostly because of lack of knowledge on preconception health care (PCHC) and practices carried out by women of reproductive age like smoking, alcohol consumption and recreational drug use as well as physical condition like obesity (Ayalew *et al.*, 2017; Coonrod *et al.*, 2009; Dunlop *et al.*, 2013). Many women are however, unaware of how their health before conception may influence their risk of having an adverse outcome of pregnancy (Ayalew *et al.*, 2017; Conway *et al.*, 1994; Coonrod *et al.*, 2009; Dunlop *et al.*, 2013). A study carried in Texas, USA revealed that most women often engaged in preconception care only after discovering that they were pregnant (Delissaint & McKyer, 2011).

Good health during pregnancy that includes nutritional counseling, screening for medical conditions, genetic counseling, and psycho-sexual counseling, updating immunizations and optimizing health status is most vital to the development of the baby. Thus, a mother should be healthy and avoid any practice that will endanger the fetus prior to conception (Ekem *et al.*, 2018; Farahi & Zolotor, 2013; Genuis & Genuis, 2017; Hemsing *et al.*, 2017; Hood *et al.*, 2007; Hoyt *et al.*, 2012).

In sub-Saharan Africa, there is poor preconception care practice (Young *et al.*, 2013) and this is due to low economic status, lack of health care providers, being illiterate and poor awareness about maternal health including preconception care (Mason *et al.*, 2014). This is in conformity with another study done which alluded to the fact that among women who become pregnant, health risks experienced in the preconception period often continue during pregnancy, such as the use of alcohol, tobacco and other substances, nutritional deficiencies, and chronic health issues (M'Hamdi H *et al.*, 2017; Mazza *et al.*, 2013; Wax *et al.*, 2014). In addition, the increasing prevalence of obesity and chronic conditions demand attention in the context of preconception care (Begum *et al.*, 2011). Likewise, Patabendige and Goonewardene (2013), conducted studies in Sri Lanka, Nigeria and Sudan and reported that women's preconception care knowledge and practice in developing countries including Africa is very low.

Kenya's implementation plan through the National Reproductive Health Strategy (NRHS) 1999-2003, identified the goal of safe motherhood and child survival as the reduction of both maternal and prenatal morbidity and mortality. Similarly, the government launched a Maternal and Newborn Health (MNH) Road Map in August 2010 whose

goal is to accelerate the reduction of maternal and newborn morbidity and mortality towards the achievement of the Millennium Development Goals (MDGs). The Kenya Demographic Health Survey (KDHS) 2008/09 shows that the neonatal mortality rate only reduced marginally from 33 to 31 per 1000 live births (KNBS & ICF-Macro, 2010). This has remained a challenge because the focus of MDG targets in under-five mortality was (33/1000) and infant mortality was (26/1000) by 2015 which could only be achieved by embracing preconception care. Kisumu County Multiple Indicator Survey done by UNICEF and KNBS in 2011 reported that for the ten years preceding the survey, the neonatal, infant and under-five mortality rates were 23, 75, and 105 deaths per 1000 live births respectively (KNBS, 2011).

## 1.2 Objective of the study

To determine the uptake of preconception care services among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County

## 1.3 Research Questions

a) What is the uptake of preconception care services among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County?

b) To establish the level of knowledge on preconception care services among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County

## II. METHODOLOGY

### 2.1 Research design

This study employed a facility based cross-sectional survey utilizing both quantitative and qualitative research methods to assess the preconception care services and health outcomes among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County. This is a one-time point study and provides a 'snap shot' and the outcome can be used for strengthening service delivery. The study was limited, however, by the fact that it was carried out at one time point and did not give indication of the previous attempts to improve on service delivery or future. This being so, it is impossible to infer causality and secondly being that it is a snapshot the situation may provide differing results if another time-frame was chosen.

### 2.2 Study Location

The study took place at Jaramogi Teaching and Referral Hospital in Kisumu County. This health facility is chosen as it has been elevated to a teaching and referral hospital, therefore, increasing the number of patients which can be accessed as far as the study is concerned. Therefore, the hospital is suitable as it has a large number of healthcare providers, therefore, increasing participants and therefore guarantee better results. In Kisumu County, there are 47 health facilities and JOOTRH is one of them with the highest number of

about 5 million, seeking health care at the facility. Being that majority of the inhabitants of surrounding region are of low socio-economic status; health-seeking is generally poor. They are mainly small-scale business people, fish mongers and jua kali artisans with a few white-collar jobs. There are also inadequate personnel in health sector to address some of the health challenges including PCC.

### 2.3 Target population

The study population was all women of reproductive age and a selected number of health workers doing PCC services. On this note, some healthcare providers giving PCC services to the women in the hospital were also interviewed to facilitate triangulation of data.

#### 2.3.1 Inclusion criteria

To be eligible for inclusion of this study;

- i. A woman of reproductive age seeking health services at JOOTRH
- ii. A woman must be residing within Kisumu County and aged between 15-49 years.
- iii. A woman must be willing to sign an informed consent document for the study.

#### 2.3.2 Exclusion criteria

This study excluded;

- i. Any woman excluded in 3.3.1 above
- ii. All women who are not clinically stable enough to take an interview
- iii. Any woman willing to participate but cannot sign the consent documents, and do not have a witness.

### 2.4 Sampling

#### 2.4.1 Sample size determination

The sample size calculation was done using Cochran formula. PCC prevalence in Kisumu County where the study was carried out is at 18.1%. PCC services in Kenya has not been documented. However, some literature reveals that PCC has a prevalence between 18.1%-45.7%.

$$n = Z^2PQ/d^2$$

where:

n = Desired sample size

Z= Z score at 95% CI (1.96)

P= proportion of eligible women estimated to receive PCC

Q= 1-p

d= margin of error (5%).

Applying the formula,  $n = 1.96^2 \times 0.181 \times (1-0.181)/0.05^2$

$$n = 227.79$$

A sample size of 228 was used for quantitative data. Additional 22 people which is about 10% of the sample size was added to cater for non-response giving a total of 250 women forming part of sample size. This is necessary.

#### 2.4.2 Sampling procedure

After determining the number of mothers to participate in the study, systematic random sampling technique was used to select the participants. Briefly, on a daily basis, the researcher arrived at the MCH before the start of operations. In collaboration with the in-charge, the researcher picked the 3<sup>rd</sup>

patient, skipped 2 patients, sampled the 6<sup>th</sup>, and the same repeated till 250 women were interviewed. On the other hand, purposive sampling was used to collect data from health workers directly working in the section.

### 2.5 Data collection Instruments

Semi-structured questionnaires were used to gather both quantitative and qualitative data from the selected women. Qualitative data was in addition be collected using observation and key informant interviews with health workers.

### 2.6 Reliability of the research instruments

Mugenda and Mugenda (2004) defines reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trial. The researchers pre – tested the instruments at Kisumu County Hospital. The reliability of the instruments was estimated after the pretest study using the Cronbach's reliability coefficient, which is a measure of internal consistency. Reliability test was done through Cronbach's coefficient which if found at 0.6-1.0 was considered since it indicated a high level of internal consistency for the study. George and Mallery (2003) argued that the closer the coefficient is to 1.0, the greater is the internal consistency of the items (variables) in the scale and therefore from the findings above, it indicated an excellent reliability.

### 2.7 Validity of the research instruments

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomena under study (Mugenda and Mugenda, 2004). In this study, the validity was taken to mean the extent to which the instruments cover the objectives. To determine the validity of the instruments, Expert opinion was sought from the supervisors and other lecturers in the Department of Public Health, who critically examined the items of the instruments and gave professional advice that was helpful in the modification and improvement of the questionnaires. In addition, the items in the questionnaires were made simpler. Finally, the items were arranged from simpler to complex.

### 2.8 Data Collection Procedures

In this study, the researcher used questionnaires and interview schedules. The semi-structured questionnaires were used to collect both quantitative and qualitative data from the women while KIIGs was used to collect data (mainly qualitative) from the healthcare providers providing direct care to the women during the period of study. The quantitative data addressed the socioeconomic and demographic attributes of the respondents, as well as the uptake of PCC. On the other hand, the qualitative data focused on helping identify the factors that drive or hamper the uptake of PCC, and included views, opinions, and suggestions. The questionnaires was administered in consultation and with the support of nurses, and the respondents were allowed 30-45 minutes to fill in the questionnaires and submit, while the interviews lasted about 30 minutes each, and was conducted within the health

# Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

facilities. Data collection was done for a period of about one month.

## 2.9 Methods of data analysis

Data was analyzed using quantitative and qualitative methods as follows:

2School of Health Sciences

Jaramogi Oginga Odinga University of Science and

**Table 1. Quantitative Data analysis matrix**

Research Objectives	Independent variable	Dependent variable	Statistical test
1. To identify the health outcomes	Health Outcomes	PCC	Descriptive statistics
2.To determine the preconception care services	PCC services	PCC	Descriptive statistics, Inferential statistics ( $\chi^2$ , Regression)

## 2.9.2 Qualitative data analysis

Content analysis was used to analyze qualitative data, as it helped identify key themes arising from the data, and enhance the chances of describing the attitudes and psychological states of the respondents (Boreus & Bergstrom, 2017). To achieve this, transcribed data was organized, and grouped according to themes, from which further analyses was conducted, including tests of association.

## 2.10 Ethical considerations

The study proposal was approved by the Board of Postgraduate Studies, JOOUST. Ethical approval for the study was obtained from JOOTRH Ethical Review Committee. The researcher met prospective respondents to explain intentions of the study and assure the respondents that information to be collected from them will be used only for the sole purpose of the study. Informed consent was administered to potential participants in a language they understand best then they were given time to make a decision to join the study or not. Written informed consent from all the participating participants was obtained. The participants were informed that participation in the research is voluntary and they can opt out at any time even after joining the study. The interviews were conducted in a private room and they were assured that any information they gave to the researcher will be treated with confidentiality. They were also informed that findings of the study will be disseminated to them and to relevant authorities like County Health Management Team, County Medical Officer of Health, local county government and Kenya Ministry of Health. Questionnaires were only administered after signing informed consent.

**Table 3.1 Socio-demographic Characteristics of Respondents (N=241)**

Variable	Frequency (%)	Variable	Frequency (%)
<b>Age Category(years)</b>		<b>Occupation</b>	
16-24	84(35)	Unemployed	93(39.1)
25-34	106(44.2)	Self employed	73(30.7)
35-44	43(17.9)	Employed	72(30.3)

Technology

## 2.9.1 Quantitative data analysis

Quantitative data collected was first edited and checked for completeness and then coded and entered into the computer for analysis. The Statistical Package for Social Sciences (SPSS) version 22 was used for data analysis. Both Descriptive and inferential methods of analysis was used to analyze data.

## III. RESULTS

### 3.1 Socio-demographic Characteristics of the Respondents

A total of 241 women of reproductive age and 20 healthcare providers participated in the study through researcher-administered questionnaire to obtain data on the uptake of preconception care services among women of reproductive age attending Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) Kisumu. Nearly all the respondents were Christians (93.3%) with only 6.3% being Muslims. About a third of the study participants were employed (30.3%) with 30.7% self-employed and another 39.1% unemployed. More than half of the women were married (62.9%), 30% single and (6.1%) widowed. On education level, about half of the participants (46%) had attained secondary level, 35.6% tertiary level, 15.9% with primary education and only 2.5% being with no formal education. The age distribution was that about half of the respondents were aged 25-34 years (44.2%), 35-44 years (17.9%), 16-24 years (35%) and those aged 45years and above were 2.9% of the respondents. Table 3.1 shows the socio-demographic characteristics of the participants.

45-49	7(2.9)		
<b>Marital Status</b>		<b>Religion</b>	
Single	72(30)	Christian	222(93.3)
Married	151(62.9)	Muslim	15(6.3)
Widowed	16(6.7)	None	1(0.4)
Divorced	1(0.4)		
<b>Education Level</b>		<b>Chronic disease</b>	
None	6(2.5)	No	193(81.8)
Primary	38(15.9)	Yes	43(18.2)
Secondary	110(46)		
Tertiary	85(35.6)		

### A. 3.2 Knowledge on Preconception Care Services

Knowledge level about the services may influence an individual to utilize the service. One of the study's objectives was to find out the knowledge level of the study participants on preconception care services. The respondents were asked questions ranging from whether they had heard about preconception care services and its various components. The same semi structured questionnaire was also used on health care providers.

#### 1) 3.2.1 Socio-demographic factors and knowledge of preconception care services

The knowledge level of the study participants was determined to assess preconception care utilization. Several knowledge

statements were used ranging from whether one had heard about preconception care services and the components of preconception care services. Over two third of the respondents (71.8%) had not heard of the pre conceptive care services save for only about a third of the respondents (28.2%) who had heard. There was a significant association of the factors (age category, marital status, education level, occupation) and having heard of preconception care services ( $p < 0.05$ ). There was no significant association between religion and having heard of preconception care services ( $p > 0.05$ ) Table 3.2 summarizes the findings.

**Table 3.2 Knowledge on preconception care services**

Variable	n	Ever heard of PCC services		P Value
		Yes (%)	No (%)	
<b>Age (years)</b>				
16-24	82	10(12.2)	72(87.8)	
25-34	103	36(35)	67(65)	
35-44	43	18(41.9)	25(58.1)	
45-57	7	4(57.1)	3(42.9)	<b>0.0001</b>
<b>Marital Status</b>				
Single	70	12(17.1)	58(82.9)	
Married	148	54(36.5)	94(63.5)	
Widowed	16	2(12.5)	14(87.5)	
Divorced	1	0	1(100)	<b>0.01</b>
<b>Education Level</b>				
None	6	1(16.7)	5(83.3)	
Primary	36	9(25)	27(75)	
Secondary	107	20(18.7)	87(81.3)	
Tertiary	85	37(43.5)	48(56.5)	<b>0.002</b>
<b>Occupation</b>				
Unemployed	91	13(14.3)	78(85.7)	
Self employed	71	27(38)	44(62)	

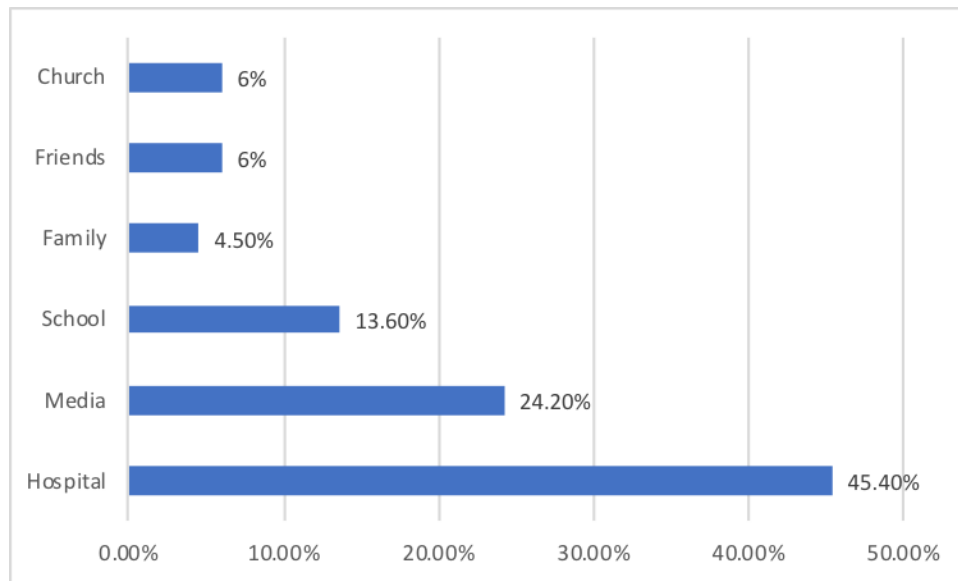
## Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

Employed	72	27(37.5)	45(62.5)	<b>0.001</b>
<b>Religion</b>				
Christian	218	64(29.4)	154(70.6)	
Muslim	15	3(20)	12(80)	
None	1	0	1(100)	0.605

### 2) 3.2.2 Sources of information on preconception care services

While establishing the knowledge level of the participants on preconception care, participants were asked to indicate the best place they would consider in case they were to get

information on PCC. Majority of the study participants (45.4%) preferred the hospital and the smallest percentage of the respondents preferred their family (4.5%). Figure 3.1 shows the findings on the preferred sources of information on preconception care.



**Figure 3.1 Preferred sources of information on preconception care service**

### 3) 3.2.3 Components of healthcare in preconception services

The respondents were asked their understanding of care given to a person before becoming pregnant. Majority said it is healthcare given to women before pregnancy to prepare them curatively and promote healthy child bearing e.g. family planning. This makes sure the mother and unborn baby gets good health and their diseases prevented. This care also ensures the woman is fully prepared for the pregnancy journey. Some of their views are as below:

*“Healthcare given to women before pregnancy to prepare them curatively and promote healthy child bearing e.g. family planning.”* (31 year old, Seme resident)

*“It could be information on how to take care when pregnant.”* (24 year old, Nyalenda resident)

*“Health related issues concerning a woman who intends to be pregnant to prevent problems which may arise as a result of pregnancy or aggravated by pregnancy either to her or her baby”* (38 year old, Masogo resident)

*“Individual care for men and women that is focused on reducing maternal and foetal morbidity and mortality”* (35 year old, Buoye resident)

*“Matters pertaining to health related issues as far as being pregnant is concerned and what to do in case problems arise during pregnancy and on the child’s health too”* (google) (37 year old, Manyatta resident).

The last two respondents who answered correctly indicated that they got the answers online. However, a few respondents referred to preconception care as ante natal care services

offered to clients after conception as explained by the responses below:

*“Care given to a mother immediately after conceiving.”* (34 year old, Kibuye resident)

*“It is the care given to a mother in preparing her on how to take care of the unborn baby and herself after conception”* (25 year old, Kisumu resident)

Other similar responses were:

*“People go to clinic when already pregnant, pre natal care, ante natal care, I know of services given after being pregnant, going to clinic when pregnant etc”*

About one third (31%) of the respondents had no idea about PCC as indicated by their varied responses like:

*“I am not aware of any service given to a woman before she becomes pregnant”* (28 year old, Manyatta resident)

Quite a number of respondents similarly gave vague responses that included:

*“Cancer screening, child spacing, treatment, abstaining, using condoms, not having a child, visiting hospital, coming to the clinic, taking long to get pregnant, free services, being faithful to one partner, taking care while pregnant, clinic attendance, treatment of TB, HIV and adherence, etc”*

The study participants were also asked the components of healthcare addressed by preconception services. Family planning is the only component that the respondents got right (7.4%) however the majority of the respondents seemed not to have understood the concept as they referred mostly to services offered in the department dealing with ante natal care as well as family planning. These services include blood pressure check, weight measurements, ultrasound, antiretroviral drug and other medications adherence, couple counseling and blood grouping as they referred to them as the major components of preconception care. These ensure good health outcomes of the mother and her child during pregnancy and even after delivery. However, a good number of respondents stated that they were not aware of the preconception care components.

The respondents were asked their views on the time at which a woman intending to have a baby should be given information concerning the intended pregnancy and its

possible outcomes. Majority were of the view that this can be done anytime she visits the hospital because not all pregnancies are planned for, she can become pregnant at any time and she gets informed so that she will prepare properly to handle a pregnancy. Others felt that this information should be given before pregnancy while others stated that it is suitable after pregnancy. Their major explanation was that the information can be given before pregnancy since this will enable her health to be checked and advised accordingly for good outcome since she is not pregnant by that time. Further explanations were that the information should be given before marriage to avoid unwanted pregnancy and also others said after marriage before she gets pregnant. Another explanation was that the information is suitable to women when still doing family planning provided, they have attained the age that can support pregnancy during ANC visits. Another view was that information on intended pregnancy should be given at the first clinic visit to make the mother aware of the outcome of safe pregnancy. Other participants felt this information should be given during the second pregnancy because maybe she had complications during the first pregnancy. Below are some of their views:

*“Anytime, not all pregnancies are planned for.”* (19 year old, Muhoroni resident)

*“The moment she decides to have a baby. Her health is checked and advised accordingly for good outcome.”* (38 year old, Ahero resident)

*“Before conceiving. So that she's well informed about the possible complications that may arise with child birth.”* (26 year old, Millimani resident)

Health care providers were also asked their views on the time at which a woman intending to have a baby should be given information concerning the intended pregnancy and its possible outcomes. Their major view was that this should be done before conception and once she is ready to be pregnant to improve their health status before conception. Another view was that any woman of reproductive age should be given such information regarding intended pregnancy

## Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

because everyone chooses to have babies at their own time. Below is one of their views:

*“Before conception. To be psychologically prepared and to be fit both healthwise and physically.”* (23 year old female healthcare provider)

*“Any woman who is in adolescence stage. So that she becomes psychologically and physically prepared for the outcome.”* (53 year old female healthcare provider)

*“As soon as she is ready to be pregnant. To enter into pregnancy when ready”* (47 year old male healthcare provider)

*“2 weeks. As a pre conception measure”* (28 year old male healthcare provider)

Other responses from health care providers included:

*“In school, college, when they come and talk about it, any woman of reproductive age, anytime she wish to have a baby, 1 year before conception, months before conception, 13 to 49 years, pre conceptive period, 3 months before conception, in ante natal period, before getting pregnant.”*

### 4) 3.2.4 Women requiring preconception care services

The respondents were asked if there are special groups of women requiring preconception care services. About (50.7%) stated that indeed there were special groups of women requiring services. Their major reason of support for this special group was that most of the women who are intending to conceive may not know how to take care of themselves during pregnancy process. Generally, people are born with different health impairments e.g. those with disability so there is need for such services. Some were of view that those women who experienced complications during previous pregnancy need special attention. Women with chronic illnesses need special attention e.g. women with HIV can have their children born with the virus if they don't receive special attention. This has saved the lives of many babies born to HIV positive mothers. This is as explained by some of their views below:

*“Women living with HIV/AIDS.”* (Participant 4, 34 years, Nyamasaria resident)

*“Those women who are likely to develop complications like those with chronic illnesses.”* (Participant 44, 37 years, Okana resident)

*“Women with history of complications during pregnancy.”* (Participant 137, 31 years, Luanda resident)

About a third of respondents (31.1%) were of the opinion that there are no special groups of women requiring preconception care services. Their major views were that every woman is at risk in pregnancy hence all categories of women require special attention. Every woman is eligible because all can benefit from getting the information. Below are some of their views:

*“Every woman is eligible to get the information.”* (Participant 241, 30 years, Nyamware resident)

*“All women of reproductive age are eligible.”* (Participant 231, 32 years, Forems resident)

*“All women of reproductive age should get access to information because anybody maybe at risk.”* (Participant 45, 38 years, Masogo resident)

In a key informant interview asking if there are special groups of women requiring PCC services, majority of healthcare providers (75%) stated that there were indeed special groups of women requiring services. Their major reason was that any woman with comorbidities such as HIV, congestive cardiac failure, Sickle cell disease etc.) and bad obstetric history that may interfere with the health of the mother and child to be born need special attention so that they can be prepared of the risk and how to cope with the risk as explained by the respondents below:



“Yes, women with comorbidities such as HIV (CCF, sickle cell etc.) so that they can be prepared of the risk and how to cope with the risk.” (23 year old female healthcare provider)

“Yes, the special groups that requires are the mothers who have been done evacuation following an abortion.” (45 year old female healthcare provider)

Minority (25%) who answered *no* stated that all women of reproductive age are at risk hence all require services as stated by one of the health providers below:

“No, every woman of reproductive age requires preconception care. This is to help one plan well and be able to do child spacing accordingly.” (30 year old female healthcare provider)

“No, every woman is at risk therefore should get the right information” (47 year old male health care provider). Table 3.3 summarizes the findings.

**Table 3.3 Special groups of women requiring preconception care services**

Argument	Respondents		Healthcare providers	
	n	%	n	%
<i>There are special groups of women requiring PCC services</i>				
Yes	111	50.70	15	75
No	68	31.10	5	25
I don't know	40	18.30	0	0

#### IV. DISCUSSION

This study focused on the uptake of preconception care services and the level of knowledge on preconception care services among women of reproductive age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County, Kenya. The study involved 241 participants who were women of reproductive age between 15 and 49 years of which more than 90% were Christians owing to the fact that the region is Christian dominated. About 40% of the women were unemployed and more than half of them (62.9%) were married. Over two thirds of the women were aged between 16 to 34 years (79.2%) to symbolize that they were still young and among the childbearing age. The study also involved 20 healthcare workers from respective related departments.

The study also found out that more than half of the respondents were age between 25 to 34 years and similarly more than half of the participants had attained secondary education. Among this cohort however, few participants had knowledge of PCC and some of them addressed family planning as a component of PCC. An example is a 31 year old participant, a Seme sub location resident who said: “Healthcare given to women before pregnancy to prepare them curatively and promote healthy child bearing e.g. family planning”. This is in agreement with a study done in northwestern parts of Ethiopia, which revealed that women with secondary education, and aged 25 to 34 years were more likely to have better knowledge on preconception care with importance of family planning history (Ayalew *et al.*, 2017; Kassa & Yohannes, 2018).

The study found out that most of the study participants had no idea of the PCC services in the facility. Majority of them also did not know whether women access the PCC related services. Similarly, more than half of the healthcare providers acknowledged that the women sometimes access services

upon facility visit. This concurs with studies done by [Ayalew \*et al.\*, 2017](#); [Bateson & Black, 2019](#); [Bortolus \*et al.\*, 2017](#) which alluded to the fact that there ia lack of lack of awareness of preconception health relating to women, healthcare professionals. This could be a reflection that there is a gap in accessing PCC at JOOTRH, Kisumu.

The study found out that majority of participants mentioned lack of awareness/education on availability of PCC services, culture or tradition and religion (especially the Islamic religion) as some of the issues that may prevent a woman from getting information about the outcome of pregnancy before getting pregnant. This is contrary` to a study done in Iran on barriers of preconception health relating women where almost half of the women, 47.7%, had received PCC service and the factors that influenced the uptake of the services included their levels of education, income and the number of wanted pregnancies. This is in spite of the fact that almost all participants had attained at east formal education.

The study revealed that more than two thirds of the participants had not heard of PCC, meaning the level of knowledge on PCC services among women of reproductive age in JOOTRH, Kisumu is low. This is similar to findings from studies done in Ethiopia which revealed that the level of women’s knowledge towards preconception care was low in many settings (Ayalew *et al.*, 2017; Kassa & Yohannes, 2018). This as well concurs with another study conducted in Sri Lanka (Patabendige & Goonewardene, 2013), Nigeria (Ekem *et al.*, 2018; Umar *et al.*, 2019) and Sudan (Khalid *et al.*, 2015), by Patabendige and Goonewardene (2013), which found out that women’s preconception care knowledge and practice in developing countries including Africa is very low.

The study found out that more than half of the healthcare providers at JOOTRH, which is a public health facility,

# Uptake of Preconception Care Services among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

acknowledged that relevant information concerning common risk factors for pregnancy is not given to women who are eligible for PCC services. At the same time, most of them were not aware of the tools used to assess common risk factors of pregnancy as some echoed *ANC booklets, pregnancy tests, name, gravida, EDD, risk factors during pregnancy* among others. This concurs with studies done by Kassa *et al.* (2018) and Umar *et al.* (2019) which showed that there was low level of knowledge about PCC among a large proportion of the healthcare providers in public health facilities in Ethiopia.

## V. CONCLUSIONS

The uptake of various PCC services among women of reproductive age was low, and majority of participants had no idea of the availability of PCC services at JOOTRH. There was a low level of knowledge on PCC on the reproductive health services among the women of reproductive age who visited the facility, with most of them equating PCC services with Ante Natal Care (ANC) services.

## VI. RECOMMENDATIONS

1. The Ministry of Health should enhance its focus on PCC, and ensure all facilities are adequately supported to offer all the relevant services under PCC
2. The Ministry of Health should develop guidelines on PCC aimed at enhancing the dissemination of information related to PCC to the public, thereby raising the level of awareness and knowledge on PCC by the public

## REFERENCES

- [1] Aaron, E. Z., & Criniti, S. M. (2007). Preconception health care for HIV-infected women. *Top HIV Med*, 15(4), 137-141.
- [2] Abedini, L., Nekuei, N., Kianpour, M., & Jabbari, A. (2018). The Viewpoints of Managers and Healthcare Providers on Individual Barriers to Perform Preconception Care for Diabetic Women. *Iran J Nurs Midwifery Res*, 23(5), 338-343. doi: 10.4103/ijnmr.IJNMR\_166\_17
- [3] Agricola, E., Gesualdo, F., Pandolfi, E., Gonfiantini, M. V., Carloni, E., Mastroiacovo, P., & Tozzi, A. E. (2013). Does googling for preconception care result in information consistent with international guidelines: a comparison of information found by Italian women of childbearing age and health professionals. *BMC Med Inform Decis Mak*, 13, 14. doi: 10.1186/1472-6947-13-14
- [4] Agricola, E., Pandolfi, E., Gonfiantini, M. V., Gesualdo, F., Romano, M., Carloni, E., Mastroiacovo, P., & Tozzi, A. E. (2014). A cohort study of a tailored web intervention for preconception care. *BMC Med Inform Decis Mak*, 14, 33. doi: 10.1186/1472-6947-14-33
- [5] Al-Akour, N. A., Sou'Ub, R., Mohammad, K., & Zayed, F. (2015). Awareness of preconception care among women and men: A study from Jordan. *J Obstet Gynaecol*, 35(3), 246-250. doi: 10.3109/01443615.2014.958145
- [6] Allan, H. T., Mounce, G., Crespo, E., & Shawe, J. (2018). Preconception care for infertile couples: Nurses' and midwives' roles in promoting better maternal and birth outcomes. *J Clin Nurs*, 27(23-24), 4411-4418. doi: 10.1111/jocn.14586
- [7] Anderson, J. E., Ebrahim, S., Floyd, L., & Atrash, H. (2006). Prevalence of risk factors for adverse pregnancy outcomes during pregnancy and the preconception period--United States, 2002-2004. *Matern Child Health J*, 10(5 Suppl), S101-106. doi: 10.1007/s10995-006-0093-z
- [8] Annadurai, K., Mani, G., & Danasekaran, R. (2017). Preconception care: A pragmatic approach for planned pregnancy. *J Res Med Sci*, 22, 26. doi: 10.4103/1735-1995.200268
- [9] Ayalew, Y., Mulat, A., Dile, M., & Simegn, A. (2017). Women's knowledge and associated factors in preconception care in adet, west gojjam, northwest Ethiopia: a community based cross sectional study. *Reprod Health*, 14(1), 15. doi: 10.1186/s12978-017-0279-4
- [10] Barash, J. H., & Weinstein, L. C. (2002). Preconception and prenatal care. *Prim Care*, 29(3), 519-542.
- [11] Bateson, D. J., & Black, K. I. (2018). Pre-conception care: an important yet underutilised preventive care strategy. *Med J Aust*, 209(9), 389-391.
- [12] Bateson, D. J., & Black, K. I. (2019). Pre-conception care: an important yet underutilised preventive care strategy. *Med J Aust*, 210(9), 430-430 e431. doi: 10.5694/mja2.50155
- [13] Baxter, J. B., Wasan, Y., Soofi, S. B., Suhag, Z., & Bhutta, Z. A. (2018). Effect of life skills building education and micronutrient supplements provided from preconception versus the standard of care on low birth weight births among adolescent and young Pakistani women (15-24 years): a prospective, population-based cluster-randomized trial. *Reprod Health*, 15(1), 104. doi: 10.1186/s12978-018-0545-0
- [14] Boreus, K., & Bergstrom, G. (2017). Content analysis. Analyzing Text and Discourse: Eight Approaches for the Social Sciences, 23.
- [15] Borowski, K. S., Brost, B. C., Stewart, E. A., Hay, E. J., & Coddington, C. C., 3rd. (2015). Preconception risk stratification before fertility care. *Fertil Steril*, 104(1), 28-31. doi: 10.1016/j.fertnstert.2015.03.036
- [16] Bortolus, R., Oprandi, N. C., Rech Morassutti, F., Marchetto, L., Filippini, F., Agricola, E., Tozzi, A. E., Castellani, C., Lalatta, F., Rusticali, B., & Mastroiacovo, P. (2017). Why women do not ask for information on preconception health? A qualitative study. *BMC Pregnancy Childbirth*, 17(1), 5. doi: 10.1186/s12884-016-1198-z
- [17] Ekem, N. N., Lawani, L. O., Onoh, R. C., Iyoke, C. A., Ajah, L. O., Onwe, E. O., Onyebuchi, A. K., & Okafor, L. C. (2018). Utilisation of preconception care services and determinants of poor uptake among a cohort of women in Abakaliki Southeast Nigeria. *J Obstet Gynaecol*, 38(6), 739-744. doi: 10.1080/01443615.2017.1405922
- [18] Goossens, J., De Roose, M., Van Hecke, A., Goemaes, R., Verhaeghe, S., & Beeckman, D. (2018). Barriers and facilitators to the provision of preconception care by healthcare providers: A systematic review. *Int J Nurs Stud*, 87, 113-130. doi: 10.1016/j.ijnurstu.2018.06.009
- [19] Kassa, A., Human, S. P., & Gemed, H. (2018). Knowledge of preconception care among healthcare providers working in public health institutions in Hawassa, Ethiopia. *PLoS One*, 13(10), e0204415. doi: 10.1371/journal.pone.0204415
- [20] Kassa, A., & Yohannes, Z. (2018). Women's knowledge and associated factors on preconception care at Public Health Institution in Hawassa City, South Ethiopia. *BMC Res Notes*, 11(1), 841. doi: 10.1186/s13104-018-3951-z
- [21] Khalid, Y. M. A., Isra, M. H. E., Salah, M. I. M., Amel, K. M. S., & Awad, A. M. A. (2015). Knowledge, attitude and practice of preconception care among Sudanese women in reproductive age about rheumatic heart disease at Alshaab and Ahmad Gassimhospitals 2014-2015 in Sudan. *Basic Research Journal of Medicine and Clinical Sciences*, 4(7), 5.
- [22] Kim, S. Y., Deputy, N. P., & Robbins, C. L. (2018). Diabetes During Pregnancy: Surveillance, Preconception Care, and Postpartum Care. *J Womens Health (Larchmt)*, 27(5), 536-541. doi: 10.1089/jwh.2018.7052

- [23] Kim, Y. M., Zainullah, P., Mungia, J., Tappis, H., Bartlett, L., & Zaka, N. (2012). Availability and quality of emergency obstetric and neonatal care services in Afghanistan. *Int J Gynaecol Obstet*, 116(3), 192-196. doi: 10.1016/j.ijgo.2011.10.017
- [24] KNBS. (2011). *Nyanza Province Multiple Indicator Cluster Survey*. (KEN\_2011\_MICS\_v01\_M). Nairobi: GoK.
- [25] KNBS, & ICF-Macro. (2010). Kenya Demographic and Health Survey 2008-09. In MoH (Ed.). Calverton, Maryland: KNBS and ICF Macro.
- [26] Patabendige, M., & Goonewardene, I. M. (2013). Preconception care received by women attending antenatal clinics at a Teaching Hospital in Southern Sri Lanka. *Sri Lanka Journal of Obstetrics and Gynaecology*, 35(1), 7.
- [27] Umar, A. G., Nasir, S., Tunau, K., Singh, S., Ibrahim, U. A., & Hassan, M. (2019). Awareness and perception of preconception care among women in Usmanu Danfodiyo University Teaching Hospital Sokoto, North-Western Nigeria. *J Family Med Prim Care*, 8(5), 1696-1700. doi: 10.4103/jfmpc.jfmpc\_50\_19