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Utilization of Preconception Care at Primary Healthcare Facilities in Kiambu County, Central Kenya

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ABSTRACT

Preconception care (PCC) encompasses healthcare services and interventions offered to individuals or couples prior to pregnancy, aimed at improving their health and supporting positive outcomes for both the mother and child. Increasing PCC use, is one possible way to address the high mother and infant mortality. Our study aimed at assessing the current state of PCC utilization at primary healthcare facilities in Kiambu County. A cross-sectional mixed-methods design was used in our study. Pregnant women receiving ANC services at the targeted primary healthcare facilities in Kiambu County and the healthcare workers working in these facilities comprised the study population for our study. The Mane algorithm was used to determine a sample size of 365 respondents. Questionnaires were used to gather quantitative data while key informant interviews and focused group discussions were used to collect qualitative data. SPSS version 29.0 was used to analyze the quantitative data and descriptive statistics like frequencies were used. Thematic analysis was used to analyze the qualitative data. Tables were used to display the results. Our study revealed PCC utilization rate of 40.4% with majorly short term utilization of between 1-3 month (40.7%). Commonly utilized PCC services include nutritional counselling (62.1%), vaccination (61.4%), lifestyle counselling and exercise & fitness advice at 60.7% respectively. The findings of our study showed utilization of PCC is low in Kiambu County and the PCC services offered were in line with the international recommendations. Thus, the County government, healthcare workers and community health promoters should focus on raising awareness about preconception care including tailored PCC care packages for the community to increase uptake of PCC service leading to better maternal and neonatal health outcomes.

Keywords: Preconception care, Utilization, Primary healthcare facilities.

1. Introduction

Preconception care (PCC) is a set of interventions that are to be provided before pregnancy, to promote the health and well-being of women and couples, as well as to improve the pregnancy and child-health outcomes(WHO, 2013). Numerous studies have demonstrated the benefits of PCC in enhancing fertility outcomes, reducing maternal and neonatal morbidity and mortality, and promoting healthier lifestyle among women intending to conceive. For instance, PCC has been associated with improved implantation and increased chances of pregnancy survival(Stephenson *et al.*, 2018), minimize maternal morbidity and mortality during pregnancy or delivery (Atrash *et al.*, 2006), it improves the lifestyle of the females willing to become pregnant and help them to cease unhealthy habits (Jones *et al.*, 2016). Additionally, preconception care allows the mother to have enough time to control pre-existing comorbidities such as diabetes, hypertension, or autoimmune disease and regulate environmental interventions such as vitamin intake, smoking cessation, and increasing the chance of breastfeeding post-delivery (Dorney & Black, 2018);Simon,2019;Whitworth & Dowswell,2009). Further, studies have shown that preconception care lowers the risk of neural tube defects and its recurrence (De-Regil *et al.*, 2015). Furthermore, preconception care decreases the prevalence of adolescent pregnancy encourages contraceptive use, promotes mothers' good nutritional status, sustains a healthy weight, and prevents communicable and transmittable diseases (Gautan & Dhakal, 2016). Despite all these benefits the utilization of preconception care is still very low especially in low and middle income countries. In sub-Saharan Africa, only 24.05% of women of reproductive age utilize PCC, and just 33.27% demonstrate adequate knowledge of it (Woldeyohannes *et al.*, 2023)). In Kenya, a study conducted in Ruiru found that only 38.3% of reproductive-age women had heard of PCC and only 19.8% utilized folic acid supplement(Chepngetich *et al.*, 2018.).In another study, just 20.2% of women attending reproductive health services at a selected hospital in Kenya were informed about PCC, with only 8.1% actively seeking preconception care (Madina Guye *et al.*, 2021). Further, in a study conducted in Kisumu, Kenya observed low PCC implementation with an overall prevalence of 39%, varying from 34% in primary-level facilities to 45% in referral facilities (Morema et al., 2022). Evidence suggests that effective PCC could reduce maternal and child mortality by 57% and maternal and child morbidity by 73% (Dean *et al.*, 2014). However, maternal mortality is unacceptably high. About 260 000 women died due to pregnancy and childbirth-related complications in 2023, with 92% of these death occurring in low- and lower-middle-income countries in 2023, and most of these death are due to preventable causes (WHO, 2025). In Kenya, the Kenya Demographic and Health Survey (KDHS) reported a

maternal mortality ration of 342 deaths per 100,000 live births, which is still far from the Sustainable Development Goal(SDG) target of 70 per 100,000 live birth by 2030. Similarly, neonatal and child mortality remain high. Globally, 2.3 million neonates died in their first month of life in 2022, with sub-Saharan Africa recording the highest neonatal mortality rate at 27 deaths per 1,000 live births (WHO, 2024). In Kenya, neonatal mortality stands at 21 per 1,000 live births, infant mortality at 32 per 1,000 live births, and under-five mortality at 41 per 1,000 live births, with slightly higher figures reported in Kiambu County (KDHS, 2022). These statistics underscore the urgent need for evidence based interventions such as PCC in order to improve maternal and child health outcomes. Therefore, our study aimed at assessing the utilization of PCC at the primary health care facilities in Kiambu County, which serves as first point of contact with the health care system for many women of reproductive age in Kenya.

2. METHODS

Study site, design, and population

Our study was conducted in Kiambu County, which is situated in the central part of Kenya. Eight primary healthcare facilities for our study were selected which included Muchatha dispensary, Ndumberi health centre, Kiandutu health center, Makongeni dispensary, Mataara dispensary, Ng'enda health centre, Kimbo health centre and Mugutha dispensary. A cross-sectional mixed-methods design was employed. Our study population comprised of pregnant women receiving antenatal care services at the selected primary healthcare facilities, as well as healthcare workers providing reproductive health services in those facilities.

Data collection

Data was collected using a structured questionnaire, Key Informant Interviews and Focused group discussions by the help of trained research assistants. Information gathered included sociodemographic data, PCC utilization, duration of utilization of PCC and the PCC services utilized.

Data Analysis

The collected data was thoroughly edited to ensure consistency across respondents and to identify any missing information. Following summarization and coding, statistical program SPSS, version 29.0, was utilized to analyze the data. In SPSS, quantitative data were coded and processed, and descriptive statistics like frequencies were used. Key Informant Interview (KII) and Focused group discussion data were cleaned and coded according to themes that surfaced, thematic analysis.

Ethical consideration

Ethical approval was obtained from the Institutional Research Ethics Committee (IREC) of Mount Kenya University (REF: MKU/ISERC/4685). A research permit was also acquired from the National Commission for Science, Technology, and Innovation (NACOSTI) (License No: NACOSTI/P/25/415419) and further permission from Kiambu County Government was Obtained.

Additionally, the primary healthcare facilities participated in our study were asked for permission. An informed consent statements were given to each participant prior to participation, which they read and sign. Participants had the freedom to choose whether or not to participate in the study, and participation was completely optional. Additionally, they were no repercussions for the participants who decided to leave the study at any point. Participants did not get any payment or other benefits in exchange for taking part in our study. Throughout the study, confidentiality was upheld, and participant anonymity were guaranteed. No identifying information, including audio or video recordings, were gathered without participants' express consent. All information gathered was only utilized for our study, and participant anonymity were maintained throughout its safe storage, analysis, and reporting.

3. Results

3.1 Socio-Demographic characteristics of the respondents

The socio-demographic information of our study participants is presented in Table 1. A total of 359 study participants were enrolled into our study. Age categorization of the respondents showed that 172 (47.9%) were aged 18-29 years, 146 (40.7%) were aged 30-39 years while 41 (11.4%) were aged 40-49 years. The respondents in marital union were 200 (55.7%) while 159 (44.3%) were single. There were 281 (78.3%) respondents affiliated to Christianity, 58 (16.2%) affiliated to Islam and 20 (5.6%) affiliated to conventional beliefs. The study participants who attained primary level of education were 74 (20.6%), 143 (39.8%) had attained secondary education while those attained tertiary level of education were 142 (39.6%). There were 104 (29.0%) participants who were employed, 131 (36.5%) self-employed and 124 (34.5%) were unemployed. Of all the participants, 108 (30.0%) earned less than Ksh. 20,000, 157 (43.7%) earned Ksh. 20,000-39,999 while 94 (26.3%) earned Ksh. 40,000 or more. The participants living in urban areas were 198 (55.2%) whereas 161 (44.8%) lived in rural areas. A total of 233 (64.9%) respondents had three or fewer pregnancies, 115 (32.0%) had four to six pregnancies while 11 (3.1%) had 7 or more pregnancies.

Table 1- Socio-demographic characteristics of the respondents

Characteristics		Frequency	Percent
Age group	18-29 years	172	47.9%
	30-39 years	146	40.7%
	40-49 years	41	11.4`%
Marital status	Single	159	44.3%
	Married	200	55.7%
Religion	Christian	281	78.3%
	Muslim	58	16.2%
	Tradition	20	5.6%
Level of education	Primary	74	20.6%
	Secondary	143	39.8%
	College	94	26.2%
	University	48	13.4%
Employment status	Employed	104	29.0%
	Self-employed	131	36.5%
	Unemployed	124	34.5%
Household monthly income	< Ksh 20,000	108	30.0%
	Ksh 20,000-39,999	157	43.7%
	≥ Ksh 40,000	94	26.3%
Area of residence	Urban	198	55.2%
	Rural	161	44.8%
Number of Previous Pregnancies	≤ 3 pregnancies	233	64.9%
	4-6 pregnancies	115	32.0%
	≥ 7 pregnancies	11	3.1%

Data are presented as frequency and percentages (%). ≥; more than or equals to, ≤ less than or equals to, < less than, Ksh. Kenya Shillings.

3.2. Utilization of Preconception Care

The utilization of preconception care is presented in Table 2. Among the 359 respondents, 145 (40.4%) reported using preconception care prior to their current pregnancy. Of these, 59 (40.7%) used it for 1–3 months, 36 (24.8%) for less than 1 month, and 18 (12.4%) for more than 6 months. The commonly utilized preconception care (PCC) services reported were nutritional counseling accessed by 90 (62.1%) participants followed by vaccination services accessed by 89 (61.4%) participants. Lifestyle counseling and exercise & fitness advice were utilized by 88 (60.7%) participants each.

Table 2- Utilization of Preconception Care

Characteristics		Frequency	Percent
Utilized preconception care	Yes	145	40.4%
	No	214	59.6%
Duration of utilizing PCC	< 1 month	36	24.8%
	1≤3 months	59	40.7%
	4≤6 months	32	22.1%
	> 6 months	18	12.4%
Services included in PCC	Nutritional counseling	90	62.1%
	Family planning services	85	58.6%
	Screening for chronic health conditions	85	58.6%
	Vaccinations	89	61.4%
	Exercise and fitness advice	88	60.7%
	Counseling on mental health	85	58.6%
	HIV & STI prevention	86	59.3%
	Lifestyle counseling	88	60.7%

Data are presented as frequency and percentages (%) of characteristics of the PCC. PCC; Preconception Care, ≥; more than or equals to, ≤ less than or equals to, < less than., HIV; Human Immunodeficiency Virus, STI; Sexually Transmitted Infections.

The key informant interviews with healthcare workers in Kiambu County provide valuable insights into the utilization and determinants of preconception care (PCC) services in primary healthcare facilities. The healthcare workers highlighted various factors influencing the decision of women to utilize preconception care before pregnancy, the frequency of its utilization, and the duration of engagement with PCC services.

"Some women do seek preconception care, especially those who are planning pregnancies. However, it's not as common as we'd like. Most women come to us when they are already pregnant. Those who do seek care often are referred after counseling on the benefits of preconception care." (KII 1).

"We have seen a gradual increase in women seeking preconception care, especially in urban centers of Kiambu County. However, for many rural women, it is still not a common practice." (KII 2).

"The women who come in for PCC often visit for a brief period, particularly for counseling or a one-off check-up. Many do not come back regularly after the initial consultation, either due to lack of understanding about the benefits or competing priorities." (KII 5).

"Some women come back for follow-ups, especially those who are more health-conscious. However, even within this group, the commitment to sustained care beyond three months is not very common." (KII 6).

A number of women in the focus groups indicated that they had not utilized preconception care services prior to their current pregnancy. Many reported being unaware of the importance of preconception care, and others mentioned that they were only focused on prenatal care once they became pregnant.

"I did not know about preconception care until I was already pregnant. I only came to know about it from the nurse during my first visit." (FGD 2).

"I used to visit the clinic for advice on family planning, but not specifically for preconception care before pregnancy." (FGD 3).

"I only went for preconception care a few weeks before I conceived because my doctor advised me to start taking folic acid." (FGD 7).

Women in the focus groups expressed varying levels of awareness regarding the importance of nutrition before conception. Some mentioned that they received advice on healthy eating and the importance of folic acid from health providers, while others were unaware that nutritional counseling could improve their chances of having a healthy pregnancy.

"One of the most important services I received at the health facility was health education. They provided information on family planning, how to take care of my health before pregnancy, and what foods I should eat. They also talked about things like smoking and alcohol use, which I hadn't thought about before. I now know that preconception care is not just for women who are pregnant, but for anyone planning to have a baby. It was very useful because I didn't know that nutrition and exercise can play such a big role in a healthy pregnancy" (FGD 3)

"I learned a lot about the importance of proper nutrition before becoming pregnant. The health workers advised me to take folic acid and other vitamins to ensure that my body was prepared for pregnancy. They also gave me tips on how to eat well, including what foods to include in my diet for a healthy pregnancy. This kind of advice helped me feel more prepared and informed about the process." (FGD 7)

"I've heard about these services, but the problem is, not all health facilities offer them, or the services are limited. For instance, I had to travel quite far to get these services, and it wasn't always easy because of transport costs. Sometimes I also feel that the staff is too busy and doesn't have enough time to give all the advice they should. I think more women could benefit if the services were more widely available and accessible." (FGD 10).

4. DISCUSSION

4.1. Utilization of Preconception Care

Our study revealed that the utilization of preconception care was low, with less than half of the pregnant women utilized preconception care (PCC) services prior to their current pregnancy with majority utilizing it for less than three months. This finding aligns with results from a study conducted in Kedha, Malaysia, which similarly reported a low uptake of PCC (Abu Talib *et al.*, 2018). This suboptimal utilization of PCC observed may be attributed to poor integration of PCC into existing healthcare systems. Evidence from previous research indicate that in many low and middle income countries greater emphasis is placed on antenatal and postnatal care, while preconception care remains neglected, hence its limited uptake (Dean *et al*., 2014). Qualitative data corroborates with these findings where Key informant interview reported that PCC utilization is not commonly practiced and most women they present to health facility already pregnant. A contrasting study conducted in Iran demonstrated a significantly higher rate of PCC utilization, with more than half of the women reported they utilized PCC services (Latifnejad Roudsari *et al.*, 2016) . This variation in PCC utilization may be explained by the fact that nearly three quarters of the women in this study did not attain tertiary level of education. It has been reported that women with higher level of education tend to use preconception care services (Munthali *et al.*, 2021). Therefore, variations in preconception care uptake between countries highlights significant disparities in access to and utilization of services aimed at improving maternal and child health before pregnancy. To increase awareness, access and utilization of PCC there is need to enhance the integration of PCC into existing healthcare services across countries and empower women through education to understand the importance of PCC prior conceiving.

CONCLUSION AND RECCOMENDATION

The uptake of preconception care at the primary healthcare facilities remained low and often limited to short duration of use. This highlights the need for urgent and targeted interventions to enhance the utilization of PCC services.

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