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Hinderances to utilization of preconception care services among reproductive age of women attending Bushenyi Health Center IV Bushenyi – Ishaka Municipality Uganda

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Abstract

Background: 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 the pregnancy outcomes. One third of women in the world do not have access to pre-pregnancy with suitable and quality care. About 66% of the global maternal mortality rate were from sub-Saharan Africa where fewer pregnancies are planned and less than 10% of mothers get preconceptual care. Therefore, this study aimed to assess the hindrances of periconceptional services utilization. **Method:** An institution-based cross-sectional study was conducted in Bushenyi district South Western region of Uganda, from January 2024 to May 2024. A systematic sampling technique was used to select 71 women, and face to face interview was used to collect the data. The data were analyzed using SPSS version 26 software. **Results:** The study revealed that the majority, 47(66.2%), of respondents were aged between 26 and 35 years. About 32(45.1%), had attained secondary school, and 43(60.6%) of them knew about preconception care, while 61(85.9%) of the pregnancies were intended, and 49(69.0%) of the respondents, were get health-education on preconception care and its benefits.

Keywords: *Preconception care, Hindrances of preconception care, Preconception utilization, Preconception service*

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

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(WHO, 2016). It is cost-effective in preventing adverse pregnancy outcomes, especially for those with chronic medical disorder (Tieu *et al.*, 2017). Preconception care is a key entry point to increase other services such as antenatal care, skilled delivery, and postnatal care and reduce adverse pregnancy outcomes (Goshu *et al.*, 2018). Preconception care is a critical component of maternal and child health care service and it is a cost-effective first-line preventive strategy for birth defects and other pregnancy-related complications while it is a neglected (Mariyam and Dibaba, 2018; Kabede *et al.*, 2018).

Globally, a third of women in the world do not have access to pre-pregnancy with suitable quality (Demisse *et al.*, 2019). The risk of maternal and infant mortality and pregnancy-related complications can be reduced by increasing access to quality preconception (before pregnancy) and inter-conception (between pregnancies) care (WHO, 2016). In developed countries like USA, preconception care has focused on patients planning a pregnancy and has primarily been delivered at the wellness / preventive care visit. However, 45% of pregnancies are currently reported as unintended at the time of conception, the timing of addressing preconception risks poses a challenge (MacDorman *et al.*, 2016). Additionally, until they are pregnant, some individuals of childbearing age do not seek care for themselves or may have limited or no access to care (Kaiser Family Foundation, 2021).

In other countries like where studies have looked at the level of PCC have been found to be generally low, where in China, Malaysia, and Sir Lanka is 40.0% 44% and 27.2% respectively (Ayele *et al.*, 2021; Ding *et al.*, 2015; Abu *et al.*, 2018).

In Africa, PCC utilization remains low although there are variations in various countries, a case of Nigeria, Adeyemo and Bello (2021) revealed only 10.3% of mothers getting PCC before becoming pregnant. In Ethiopia, 13.4% (Amaje *et al.*, 2021). About 66% of the global Maternal Mortality Ratio (MMR) accounted form sub-Saharan Africa alone where fewer pregnancies are planned and less than 10% of mothers get preconceptual care (WHO, 2019). Sus-Saharan Africa (SSA) has achieved remarkable success in reducing neonatal and maternal mortality in recent decades, but still has very high neonatal mortality rates (29 deaths per 1,000 live births) and maternal mortality ratios (412 deaths per 100,000 live births) (USAID, 2022). One of the main reasons why maternal mortality is high in Sub-Saharan Africa is high rates of child marriage and unintended pregnancies apart from inadequate quality health care in time to address complications (Mamo *et al.*, 2021).

Preconception care should also include counseling on immunizations and couple have their immunization for tetanus-diphtheria-pertussis (Tdap), Measles-Mumps-Rubella (MMR), and varicella reviewed annually and updated as indicated (CDC, 2021). More so, suring preconception care, all individuals of reproductive age considering pregnancy should be advised to take a daily supplement (prenatal or multivitamin) of 400-800 micrograms (mcg) of folic acid and consume a balanced, healthy diet of folate-rich foods (Martinez *et al.*, 2020).

Preconception care is an approach to optimize pregnancy outcomes which is crucial for many countries, such as Uganda where maternal and perinatal mortality remains alarmingly high (Girma *et al.*, 2023). It is also a strategy for achieving sustainable development goal 3 (SDG 3) of reducing maternal mortality to less than 70 per 100,000 live births and newborn mortality to as few as 12 per 1,000 live births by 2030 (WHO, 2016; UN, 2023). If given attention, it contributes to the reduction of avoidable pregnancy risks, complications and poor outcomes (Nathan *et al.*, 2021; WHO, 2017). Despite these benefits, no comprehensive PCC program has been introduced and only few healthcare professionals are currently delivering PCC (vanVoorst *et al.*, 2016).

Uganda has no policy on preconception health and care. There only exists highlights of guidelines on preconception care embedded in other national guidelines on PCC, as a result, Coverage of key indicators are still poor; preterm birth rates stand at 13.6 per 1000 live babies, 50% of newborn deaths result from adverse risk in pregnancy, 5.4 fertility rate, 34.8% contraceptive prevalence rates, 43% unintended pregnancies, 25% teenage birth rates, 1% use the ideal doze of folic acid despite 31% Anemia prevalence in pregnant women and 5.1 months is the medium duration for 1st ANC (MoH, 2017).

In areas where the phenomenon has been studied, utilization of preconception care is influenced by age, gender, educational status, income, marital status, history of family planning use, health condition, history of ANC visit, parity, pregnancy intention, and gravidity (Ding *et al.*, 2015; Abu *et al.*, 2018; Ayele, 2021; Okemo *et al.*, 2020).

The international attention to preconception care interventions dates to 1980 and continues today, with the Healthy People 2030 initiative focusing on reducing unintended pregnancies (Department of Health and Human Services, 2023). Hence, this study intends to determine the hindrance of utilization of preconception health care services in the study area. Records from Bushenyi HC, HMIS revealed that although preconception care are offered in maternal and child health packages, out of 4005 mother that received these services, only 15(0.37%) of mothers sought preconception care (HMIS Records, 2024).

Despite efforts to improve survival indicators, neonatal mortality rates have stagnated at 28 deaths per 1000 live births (2002-2006) to 27 deaths per 1000 live births (2012-2016), yet more than a half of neonatal causes of death in the rural are preventable by PCC (Ayebare *et al.*, 2018; Nathan *et al.*, 2021). This study mainly assessed hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District.

Findings of this study will help in modeling guideline for PCC in Ugandan education setting in order to make its practical implementation guidelines and learning content to training students and staffs and can be used as source of reference literature by other scholars studying implementation and utilization of PCC in other settings.

2. Materials and methods

2.1. Study design, setting and period

An institutional based cross-sectional study was conducted to assess the hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV at Bushenyi District from, January 2024 to May, 2024.

Bushenyi district is located at about 330 Km away from Kampala the capital city of Uganda. The main language spoken in Bushenyi district is Runyankole as Banyankole people are the main occupants of this area. Bushenyi is mostly an agricultural district, with adequate well distributed rains and fertile soils with which it is blessed. Bushenyi HC IV is a government health facility with other surrounding health facilities, serving Bushenyi district population of 241,500 people and as well as the surrounding districts. The Study population comprised of mothers of reproductive age attending MCH at Bushenyi HC, average number of mothers attending MCH clinic monthly being 86 mothers

2.2. Sample size determination, sampling procedure

The sample size was determined using the formula for simple random sampling using single proportion given by Yamane 1967 formula for calculating sample size. The study was chosen because estimated number of total target population was known.

$n = \frac{N}{1 + N(e\,\hat{}\,2)}$ Whereas: – n = sample size

N = Gross population (average number of mothers attending MCH clinic monthly being 86 mothers)

e = Level of precision estimated to be 0.05 at 95% confidence level.

$n = \frac{86}{1 + 86(0.05\,\hat{}\,2)} = 70.78 \sim 71$. Then, the final calculated sample size was 71.

2.3. Inclusion criteria

All mothers of reproductive age 15-49 years attending MCH who were available and consented, physically and mentally stable residing within the same catchment area to take part in the research study was considered.

2.4. Exclusion criteria

Mothers of reproductive age who were not in the right state of physical, mental health in this study were excluded.

2.5. Variables in the study

2.5.1. Dependent variable

- Utilization of preconception care.

2.5.2. Independent variables

- Scio demographic related hindrances.
- Social economic related hindrances.
- Health facility related hindrances.

2.6. Operational definitions

Demographic factors: Refer to those mothers' individual characteristics.

Health facility factors: Refers to those contributions arising from the Bushenyi HC IV and its settings.

Hindering: Refers to having negative influence on utilization of preconception care.

Preconception care: Refers to care given to a mother before becoming pregnant (Conceiving).

Social economic factors: Refers to characteristics relating to mothers' social circles as well as economic capacity.

Women of reproductive age: Refers to a female aged 15-49 years of age.

2.7. Study procedure, data collection tool

The questionnaire was adopted from different literature in English, then it was translated to local language by the expertise to enable understanding among mothers and was scrutinized by REC for school of nursing before it was used for data collection. The researcher and data collectors were responsible for distributing the questionnaires and collect them and ensure that they were kept in a safe and confidential place. A questionnaire with open and closed ended questions was used to collect data from the respondents and questionnaire was having closed ended questions covering different aspects of the objectives. It was also divided into subsections that is section A addressing demographic characteristics of mothers and section B social economic factors, section C health care related factors. the data was collected by two Diploma midwives and one Diploma nurse.

Simple random sampling method was used which selected the participants and gave all mothers equal chances of participation. Mothers were explained the purpose of the study and method of selection, 2 cardboards were sued where one was written on sample and the other non-sample, mothers were asked to choose randomly from these cards facing down without plier reading them, and those that chose sample were considered. This was continued until the number is realized.

2.8. Validity and reliability

Pre-testing of questionnaire was 10 questionnaires that were tested on 10 mothers from Kyabugyimbi HC IV to check completeness, relevancy of questions and any inconsistencies was addressed before real data collection is done on study population and their data were not used in the actual research data for analysis. information editing before leaving the area of study to ensure completeness of questionnaires and thereafter, they were kept under lock and key to keep them from unauthorized personnel. The electronic data was kept safely by use of passwords to protect it from un authorized personnel. A letter of introduction was obtained from research committee KIU-WC School of Nursing. The letter was used to introduce the researcher to the In-charge, Bushenyi HC IV seeking permission to carry out the study. The importance of the study was explained to the respondents before enrolment and only those willing to participate were enrolled after consenting to take part.

2.9. Data processing and analysis

Data was re-translated to English by expertise and coded by the researcher to ensure that it was analyzed. The Data was entered using epi info 2020 software, and then analyzed using Statistical Package for Social Scientists (SPSS) version 26.0 and then analytical values obtained were presented using text, chart graphical and table format of presentations to make them more informative.

3. Results

3.1. Socio-demographic characteristics

A total of 71 mothers participated in this study. The majority 47(66.2%), of respondents were aged between 26 and 35 years while the least 24(33.8%) of the respondents were between 18 and 25 years old. Most 32(45.1%), of the respondents had attained secondary or high school education and about 21(29.6%), of them were Protestants followers. Majority 58(81.7%), and 23(32.4%), of the respondents were married and peasants respectively. More than half 46(64.8%), of the respondents had 1 to 3 children, while 44(62.0%), of the respondents resided in urban areas (Table 1).

Table 1: Demographic hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District 2024

Variable	Category	Frequency	Percentage (%)
Age	18-25	24	33.8
	26-35	47	66.2
Level of Education	Primary	28	39.4
	Secondary / High school	32	45.1
	College / Pre-University	11	15.5
Religion	Catholic	20	28.2
	Protestant	21	29.6
	Muslim	10	14.1
	Adventist	6	8.5
	Pentecostal	14	19.7
Marital status	Married	58	81.7
	Single	13	18.3
Occupation	Employed	14	19.7
	Businesswoman	15	21.1
	Peasant	23	32.4
	Civil servant	11	15.5
	Housewife	8	11.3
Husbands' education level	Primary	19	32.8
	Secondary / High school	25	43.1
	College / Pre-University	14	24.1
Parity	0	7	9.9
	1-3	46	64.8
	3 and above births	18	25.3
Residence	Rural	27	38.0
	Urban	44	62.0

3.2. Social economic hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District

This study finds that majority 43(60.6%), of the respondents knew about Preconception Care (PCC), and more than half 43(60.6%), of the respondents had someone to discuss PCC, almost majority 52(73.2%), of the respondents reported that their cultural beliefs did not allow discussing unborn children (Table 2).

Results from Figure 1 above showed that majority, 23 (53.5%) of those who discussed PCC spoke with a health worker.

Table 2: Showing social economic hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District, 2024

Variable	Category	Frequency	Percentage (%)
Do you know about PCC?	Yes	43	60.6
	No	28	39.4
	Total	71	100.0
Have you got anyone to discuss with you about PCC?	Yes	43	60.6
	No	28	39.4
	Total	71	100.0
Do your cultural beliefs allow discussing unborn children?	Yes	19	26.8
	No	52	73.2
	Total	71	100.0
Was the pregnancy intended?	Yes	61	85.9
	No	10	14.1
	Total	71	100.0
In your setting, is there any place where you can get PCC services?	Yes	56	78.9
	No	15	21.1
	Total	71	100.0
Has your community participated in encouraging you to always seek health care services?	Yes	71	100.0
Do you have enough support about PCC from your husband?	Yes	39	67.2
	No	19	32.8
	Total	58	100.0

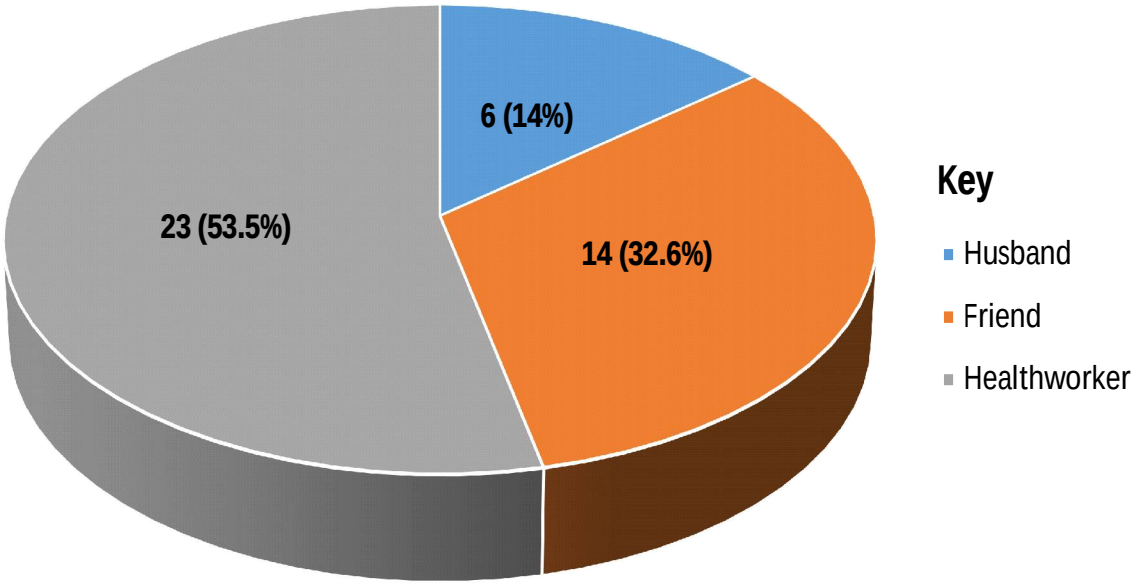

Figure 1: Showing person that discussed PCC

Results in Figure 2 above showed that the majority 11(25.6%) of the respondents identified screening for treatment of STIs as a component, while the least 7(16.3%) of the respondents mentioned both screening for HIV and counselling services.

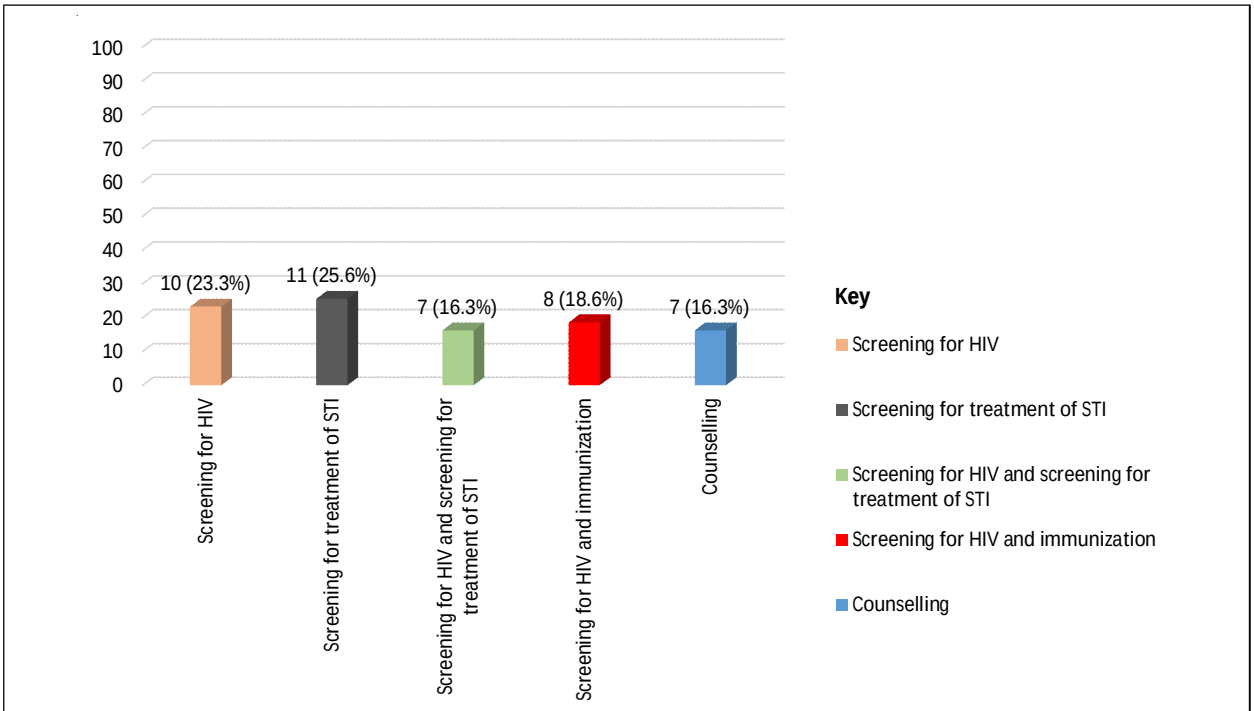

Figure 2: Showing responses on the components of PCC

3.3. Health facility related hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District

Majority 59(83.1%), of the respondents did not have any history of poor pregnancy outcomes, while the least 12(16.9%), had experienced poor pregnancy outcomes.

Table 3: Showing health facility related hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District

Variable	Category	Frequency (f)	Percentage (%)
Do you have any history of poor pregnancy outcomes?	Yes	12	16.9
	No	59	83.1
	Total	71	100.0
Does your nearest health facility have PCC package?	Yes	53	74.6
	No	18	25.4
	Total	71	100.0
Does your facility have gazeted PCC space for mothers seeking PCC?	Yes	50	70.4
	No	21	29.6
	Total	71	100.0
Do you have any problems I accessing a health facility?	Yes	26	36.6
	No	45	63.4
	Total	71	100.0
Are there delays at the heath facility where you get services from?	Yes	46	64.8
	No	25	35.2
	Total	71	100.0
Are you always health educated on PCC and its benefits?	Yes	49	69.0
	No	22	31.0
	Total	71	100.0

Table 3: Showing health facility related hindrances to utilization of preconceptual care services in reproductive age women attending Bushenyi HC IV Bushenyi District

Variable	Category	Frequency (f)	Percentage (%)
Do you have any history of poor pregnancy outcomes?	Yes	12	16.9
	No	59	83.1
	Total	71	100.0
Does your nearest health facility have PCC package?	Yes	53	74.6
	No	18	25.4
	Total	71	100.0
Does your facility have gazeted PCC space for mothers seeking PCC?	Yes	50	70.4
	No	21	29.6
	Total	71	100.0
Do you have any problems I accessing a health facility?	Yes	26	36.6
	No	45	63.4
	Total	71	100.0
Are there delays at the heath facility where you get services from?	Yes	46	64.8
	No	25	35.2
	Total	71	100.0
Are you always health educated on PCC and its benefits?	Yes	49	69.0
	No	22	31.0
	Total	71	100.0

Majority 53(74.6%), of the respondents, indicated that their nearest health facility had a PCC package, while the least 18(25.4%), reported that their facility did not offer such a package.

Majority 50(70.4%), of the respondents reported that their facility had a gazette PCC space for mothers seeking PCC while the least, 21(29.6%), indicated that their facility did not have this space (Table 3).

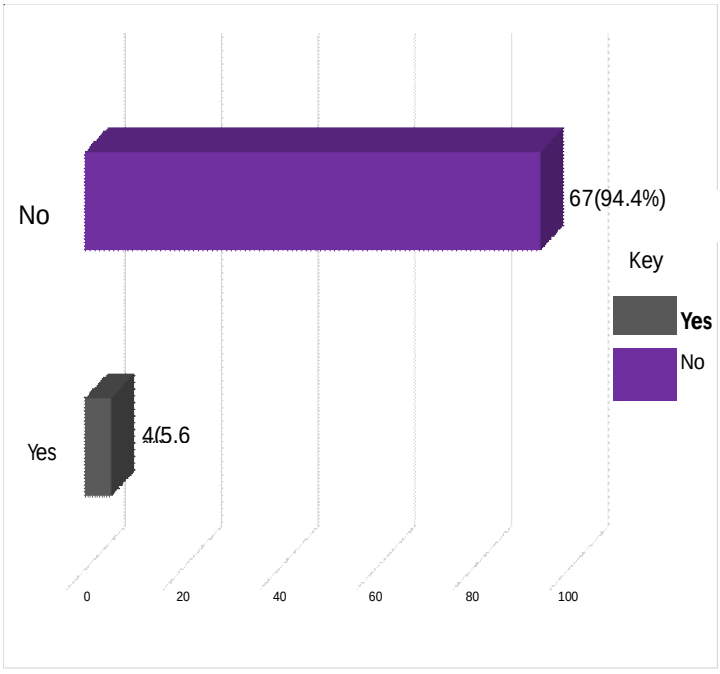

Figure 3: Showing responses of having pre-existing health conditions in life before pregnancy

Results in Figure 3 above showed that majority 67(94.4%) of the respondents, had no pre-existing health conditions before pregnancy while the least 4(5.6%), had such conditions.

4. Discussion

The findings of this study revealed that the majority of respondents (66.2%) were aged between 26 and 35 years. This age group mostly attends hospitals for reproductive issues like pregnancy and childbirth because of its fertility. This aligns with research by Darteh *et al.* (2019), which noted that young adults aged 26-35 are more active in healthcare decisions due to increased reproductive health concerns in this age group. The dominance of the 26-35 age group might be due to their stage in life, where family planning and reproductive health are most relevant.

In terms of education, most respondents 32(45.1%) had attained secondary or high school education. This may be because the economic status of the study area is high and most households afford joining school up to secondary level. This is consistent with the findings of Gondim *et al.* (2015), who reported that individuals with secondary education often have better access to reproductive health information as well as school was the main area of participation in educational activities on sexual and reproductive health among the adolescents. Jetten *et al.* (2017), another finding showing that the path to a good educational outcome is more difficult for lower SES students than it is for students from higher SES backgrounds the educational background might be reflective of the socio-economic structure of the study area, where secondary education is the highest achievable level for many.

Majority 21(29.6%) of the respondents were protestants. This may because of historical dominance of Protestantism in the current study. These findings are in line with Musa and Ali's (2016) report that religious composition in rural and peri-urban areas often reflects the broader national religious demographics.

The study also showed that 58(81.7%) of respondents were married. This may be because the married people always carryout planned pregnancy, appropriate prenatal care, prevention of complications when possible, and early and effective treatment of complications which make them most dominant in health facilities. This finding was supported by Hamid *et al.* (2011), having a say in the selection of a spouse was significantly associated with agreement with spouse over number of children to have, intention to use contraceptives, and the time between marriage and first contraceptive use and women who had decision-making freedom in their parental home carried this ability with them into marriage in their new home and were better able to negotiate about their fertility.

In terms of occupation, 23(32.4%) of respondents were peasants. This was because the case study is more of rural and has limited chances of other employment opportunities which aligns with Cattivelli (2021) and Opitz *et al.* (2016), who found that agriculture remains a predominant occupation in rural and peri-urban areas. The predominance of peasants might be explained by the rural setting and the limited diversification of employment opportunities in the study area.

Regarding number of children, 46(64.8%) of respondents had 1 to 3 children. A small parity in a case study may indicate delayed childbearing, often due to factors such as prioritizing career, education, economic stability, or personal goals before starting a family. This delay can result in fewer children overall, as individuals may have a shorter remaining reproductive window when they begin having children. This finding mirrors the observations by Zabak *et al.* (2023), who noted that most women in their reproductive years in sub-Saharan Africa tend to have 1-3 children, a reflection of cultural expectations around family size.

Most respondents 44(62.0%) resided in urban areas. This may be because the study area is situated in an urban setting which is supported by Turner *et al.* (2020), who noted an increasing urban migration trend, especially among younger individuals who found that a higher percentage of respondents in rural settings engaged in health services. The urban majority might be due to better access to healthcare facilities in urban areas, encouraging respondents from those areas to participate in healthcare-related surveys.

The study revealed that the majority of respondents, 43(60.6%), were aware of Preconception Care (PCC). This may be because of easy to reach health facilities in the study are that provide health education to the surrounding population. This is consistent with findings by Al-Akour *et al.* (2015), who reported high awareness

of PCC among women of reproductive age, particularly in regions with active public health campaigns. However, (Akinajo *et al.*, 2019) found lower awareness levels, especially in rural areas where health education is less accessible. The relatively high awareness in this study might be due to local health initiatives or education efforts that have successfully raised awareness of PCC.

In terms of who respondents discussed PCC with, the majority, 23(53.5%), talked to health workers. The lower involvement of husbands in this study might be attributed to cultural norms that still limit men's participation in reproductive health matters.

Regarding cultural beliefs, the majority, 52(73.2%), indicated that their beliefs did not allow discussions about unborn children. The persistence of such beliefs in this study could be attributed to the deeply rooted cultural values of the community. Reflecting similar findings by Musoke and Kalema (2021), who found that traditional beliefs in many African communities discourage such discussions due to fear of attracting misfortune. However, Jones and Patel (2022) reported a shift in some urban settings, where cultural taboos are breaking down due to modernization.

The study also revealed that the majority of pregnancies (85.9%) were intended. The high rate of intended pregnancies in this study might be due to the influence of family planning services and community sensitization programs which aligns with findings by Brown and Carter (2020), who found that most women of reproductive age actively plan their pregnancies. This contrasts with research by Ayo and Bukenya (2022), who reported higher rates of unintended pregnancies, especially in lower-income areas.

Regarding access to PCC services, the majority, 56(78.9%), indicated that there was a place in their setting where they could receive PCC services. The relatively high access to PCC services in this study might be due to government or non-governmental efforts to expand healthcare infrastructure. This aligns with Muthoni and Waweru's (2019) findings, which showed increasing availability of PCC services in rural and urban settings. However, Lee and Sanchez (2023) noted significant gaps in service availability in some regions, particularly remote areas.

All respondents (100%) reported that their community encouraged them to seek healthcare services. The strong community involvement in this study might be attributed to local health initiatives that have successfully mobilized community leaders to support healthcare access which is consistent with previous findings by Adams and Ngugi (2020), who highlighted the role of community involvement in promoting health-seeking behaviors. This contradicts findings by Musa and Ali (2022), who noted a lack of community support in certain conservative settings.

In terms of support from husbands, the majority, 39(67.2%), reported receiving enough support, which is in line with Oduro and Mensah (2019), who found that men are becoming increasingly supportive of their partners' reproductive health needs. However, this contrasts with the findings of Sekandi and Namukasa (2021), who noted that many women still lack spousal support, particularly in patriarchal societies.

In terms of the components of PCC, the majority of respondents 11(25.6%) identified screening for Sexually Transmitted Infections (STIs) as a key component. The focus on STI screening in this study might stem from its immediate relevance to pregnancy outcomes and maternal health. This is consistent with the findings of Lim and Han (2021), who reported that STI screening is widely recognized as a crucial part of PCC. However, the lower mention of HIV screening and counseling might be due to a lack of awareness or emphasis on these services within the local healthcare system.

The finding that the majority, 59(83.1%), of respondents did not have any history of poor pregnancy outcomes. The low rate of poor pregnancy outcomes in this study might be attributed to the availability of Preconception Care (PCC) and antenatal services, which help mitigate risks associated with pregnancy. This was consistent with the findings of Otieno and Mugisha (2020), who reported that improved maternal healthcare services and early interventions have significantly reduced poor pregnancy outcomes in many regions. This contradicted the findings of Adebayo and Ojo (2022), who observed higher incidences of poor pregnancy outcomes, particularly in low-resource settings where access to quality healthcare remains a challenge.

Similarly, the majority, 53(74.6%), of respondents indicated that their nearest health facility offered a PCC package. The high availability of PCC packages in this study might be explained by the government or local health authorities prioritizing maternal and reproductive health through enhanced healthcare delivery systems, aligning with the findings of Thompson and Garcia (2019), who reported a growing integration of PCC services in primary healthcare facilities. However, Bukenya and Namutebi (2021) found that in many rural areas, PCC services are still unavailable or poorly implemented.

The study also revealed that the majority, 50(70.4%), of respondents reported the presence of a gazetted PCC space for mothers seeking care at their health facility. The presence of these spaces in this study might be attributed to efforts to improve maternal health infrastructure, ensuring privacy and dedicated services for expectant mothers. This is consistent with findings from Musoke and Kalungi (2020), who found that more health facilities are dedicating specific areas for maternal health services, including PCC. Contradictory findings from Wangari and Kimani (2022) highlighted that in some regions, facilities still lack designated spaces, often leading to overcrowding and inadequate care.

Regarding access to healthcare facilities, the majority, 45(63.4%), reported no problems in accessing a health facility. The relatively high accessibility in this study could be due to improvements in transportation infrastructure or the proximity of healthcare facilities to residential areas. This aligns with Muthoni and Waweru (2020), who found that improvements in healthcare infrastructure have made it easier for women to access health services, especially in urban and semi-urban areas. However, Ochieng and Achieng (2021) reported that access challenges, such as transportation difficulties and distance to facilities, remain prevalent in more remote regions.

However, the majority, 46(64.8%), of respondents reported experiencing delays at the health facility when seeking services. The delays reported in this study might be due to understaffing, overburdened health workers, or high patient demand in the region. This aligns with the findings of Davis and Lee (2020), who noted that despite improvements in access, many healthcare facilities suffer from staffing shortages and high patient loads, leading to delays in service delivery. Conversely, Otieno and Kariuki (2021) found that some well-funded urban centers have minimized delays through effective patient management systems.

Regarding health education on PCC, the majority, 49(69.0%), of respondents reported that they were always health-educated on PCC and its benefits. The high level of health education in this study might be due to active health campaigns and the integration of PCC education in routine maternal health services. This finding is consistent with Lim and Han (2021), who observed an increase in health education programs focusing on reproductive health and preconception care in many regions. However, Anderson and Okello (2023) reported that some women still lack adequate health education, especially in areas with low health literacy levels.

The majority, 67(94.4%), of respondents indicated that they had no pre-existing health conditions before pregnancy. The low prevalence of pre-existing health conditions in this study might be attributed to the younger demographic of respondents or the effectiveness of preventive health services in the community which supports the findings of Brown and Carter (2019), who reported that most women attending PCC services do not have significant pre-existing conditions. In contrast, Ayodele and Mohammed (2021) found a higher prevalence of pre-existing conditions, such as diabetes and hypertension, among pregnant women in certain regions.

5. Conclusion

In respect to first objective, the study highlights that the respondents primarily belonged to the younger age group of 26-35 years, were mostly married, and had a secondary education background, reflecting key reproductive health engagement patterns typical in rural and peri- urban settings. The dominant occupations were peasant farming, and most respondents had 1 to 3 children. Additionally, the majority of respondents lived in urban areas.

More so, in conclusion, the study highlights that most respondents were aware of Preconception Care (PCC), and many had access to healthcare professionals. However, cultural norms still limit discussions about unborn children. The findings also indicate that most pregnancies were intended. Access to PCC services was relatively high. While respondents recognized STI screening as a key component of PCC, awareness of

HIV screening and counseling services appeared to be less prominent, potentially due to gaps in local health education.

The study reveals a generally positive maternal health profile among respondents. Access to PCC packages and dedicated healthcare spaces is relatively high. However, delays at healthcare facilities remain a challenge. Health education on PCC is well-integrated into maternal services, contributing to the respondents' awareness and preparedness. The low prevalence of pre-existing health conditions suggests the effectiveness of preventive health measures and may also reflect the relatively young demographic of the respondents.

Recommendations

Recommendation to the ministry of health: The Ministry of Health should enhance staffing levels and resource allocation in healthcare facilities to reduce service delays, particularly in maternal and reproductive health services. This could be achieved by increasing healthcare worker recruitment and improving patient management systems.

Recommendation to the district: District health authorities should strengthen the implementation of Preconception Care (PCC) services by ensuring that all health facilities have dedicated spaces and packages for PCC. Regular monitoring and support should be provided to rural health centers to improve service delivery and infrastructure.

Recommendation at national level: At the national level, the government should prioritize the expansion of healthcare infrastructure, particularly in remote and underserved areas, to ensure equitable access to maternal healthcare services. Investments should be made in transportation infrastructure to facilitate easy access to healthcare facilities.

Recommendation at community level: Communities should be actively involved in health education programs to increase awareness and understanding of PCC and maternal health services. Community leaders should collaborate with healthcare providers to promote the benefits of early healthcare interventions and the importance of reproductive health education.

Recommendation to religious leaders: Religious leaders should play an active role in breaking cultural stigmas around reproductive health and encourage open discussions about preconception care. They can use their platforms to support healthcare campaigns and educate their congregations about the importance of maternal health.

Recommendation to reproductive age women: Women of reproductive age should take advantage of available preconception and antenatal services, seek regular health education, and actively participate in discussions with healthcare providers regarding their reproductive health. They should also advocate for their reproductive rights and support the inclusion of their partners in these discussions.

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