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Healthcare Providers Experiences and Perceptions in Delivering Preconception Care Services at Primary Healthcare Facilities in Tanzania

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ABSTRACT

Background: Preconception care (PCC) is a key strategy for reducing preventable maternal and child deaths. The global Maternal Mortality Rate (MMR) stands at 223 per 100,000 live births, with 545 in Sub-Saharan Africa and 104 in Tanzania. Nearly 95% of maternal deaths occur in Low- and Middle-Income Countries (LMICs). Effective PCC can help identify and manage health issues before pregnancy, but in Tanzania, it remains underappreciated as a standalone service.

Aim of the Study: This study explored the experiences and perceptions of healthcare providers (HCPs) in the provision of preconception care (PCC) services to women of reproductive age at Mnazi Mmoja Hospital, Dar es Salaam.

Materials and Methods: A case study design with a qualitative approach was conducted to explore healthcare providers' experiences and perceptions of Preconception Care (PCC). Fourteen HCPs from Reproductive and Child Health Clinics, with a minimum of three years of experience, were purposefully selected. In-depth interviews were conducted using a semi-structured guide, recorded, transcribed, and analyzed using inductive-deductive thematic analysis.

Results: HCPs understood the importance of preconception care (PCC) and associated risks of missing it, such as a woman conceiving with pre-existing complications, risk for a child born with neural tube defects and increased chance of high-risk pregnancy and high-risk infant. But lacked adequate knowledge of its full content and expressed low confidence and competence in delivering the services. Major challenges identified included insufficient infrastructure for stand-alone PCC service provision, staff shortages, lack of PCC guidelines and educational materials, lack of refresher training on PCC and limited community awareness towards PCC services. HCPs also shared their experiences on the implementation of PCC that Services were offered inconsistently and opportunistically due to competing clinical demands. However, drivers such as teamwork, organizational support, provider motivation, and awareness of PCC's health benefits facilitated service delivery.

Conclusion: This study highlights the gaps and opportunities in the provision of preconception care (PCC) services. While healthcare providers understand the value of PCC, challenges such as limited knowledge, lack of guidelines, inadequate infrastructure, and low community awareness hinder effective implementation. However, teamwork, provider motivation, and leadership support were identified as key enablers. Addressing these barriers through capacity building, community education, and system-level planning can strengthen PCC services and improve maternal and newborn health outcomes.

Recommendations: Based on the study findings, it is recommended that preconception care (PCC) services be integrated into existing healthcare units such as family planning, outpatient, and antenatal clinics. Establishing dedicated PCC clinics and involving Community Health Workers (CHWs) can help improve service reach and community awareness. Policy-level engagement is crucial, including incorporating PCC into national reproductive health strategies and allocating appropriate resources. Education and training should be strengthened by including PCC in medical and nursing curricula and offering regular refresher training for providers. Additionally, community outreach through digital platforms, mass media, and engagement with religious and local leaders can enhance public awareness and cultural acceptance of PCC services.

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Introduction

Preconception care (PCC) is a strategy to reduce preventable maternal and child deaths while improving birth preparation and maternal health [1]. However, it has received little attention in Low- and Middle-Income Countries (LMICs), including Tanzania. The Maternal Mortality Rate (MMR) globally is 223 per 100,000 live births, 545 per 100,000 live births in Sub-Saharan Africa (SSA) and 104 per 100,000 live births in Tanzania (TDHS, 2022) [2]. Sustainable Development Goal No. 3.1 targets to reduce

the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 [3]. Increasing the coverage and quality of interventions, including preconception care, could avert 71% of neonatal deaths, 33% of stillbirths, and 54% of maternal deaths per year by 2025 [4]. HCPs are the first-contact healthcare providers in the community and play a pivotal role in providing services. The extent of knowledge, behavior, and perception about PCC in Tanzania is almost unknown, except for other reproductive health services such as adolescent healthcare services, family planning services, etc.

Despite WHO recognition of preconception care as a crucial intervention to reduce preventable maternal and child deaths, its integration into existing healthcare services in Low- and Middle-Income Countries (LMICs), including Tanzania, remains inadequate. Several key factors, including the absence of a curriculum in medical training, a lack of dedicated preconception care units in health facilities, inadequate healthcare worker knowledge, and insufficient training and guidelines for preconception care, drive the limited implementation of preconception care services [1,5,6].

Preconception care can improve maternal and child health outcomes through risk assessment, health promotion, medical and psychosocial interventions such as early antenatal care, screening for genetic and chronic conditions, folic acid and iron supplementation, management of conditions, e.g. obesity, diabetes, and hypertension before pregnancy [4-7]. However, in Tanzania, the lack of a dedicated preconception care framework, medical training curricula, and insufficient knowledge and resources among healthcare providers have hindered its widespread implementation. As a result, many women of reproductive age miss opportunities for essential interventions that could prevent adverse pregnancy outcomes, such as birth defects, maternal complications, and increased mortality rates.

Despite efforts to increase antenatal care coverage and ensure deliveries by skilled birth attendants, there is limited published data on preconception Care (PCC) in Tanzania [8]. During my clinical rotations in maternity settings, I observed that a comprehensive PCC package has not yet been fully incorporated [self-observation]. This gap limits the ability to address key maternal health issues before pregnancy, leaving many women vulnerable to poor pregnancy outcomes. This study explored the experiences and perceptions of healthcare providers regarding the provision of PCC services in reproductive and child health clinics (RCHs) in Tanzania, focusing on the implementation of preconception care services. The aim was to identify the facilitators, challenges, and opportunities for improving this critical component of maternal healthcare.

This study utilizes all levels of the social ecological model to describe the interrelated phenomena in line with the study topic: Healthcare provider experiences and Perceptions in the provision of preconception care among healthcare providers. Preconception care service provision is a central core that multiple factors can influence and challenge its implementation.

Investigating the experiences and perceptions of healthcare providers regarding the delivery of PCC services will help identify the facilitators, challenges, and opportunities that the government and stakeholders need to address to ensure that women of reproductive age who desire to become pregnant receive a comprehensive package of PCC. Furthermore, the findings of this study will contribute to the existing body of knowledge on PCC and provide valuable baseline information for future researchers. This study explored experiences, perceived facilitating factors and challenges for providing PCC services among nurse midwives and medical practitioners working at primary healthcare facilities in Tanzania.

Materials and Methods

Study Design

A case study design with a qualitative approach was employed to explore the experiences and perceptions of healthcare providers in the provision of PCC. The explorative case study design is flexible and allows for the exploration of aspects such as experiences and perceptions, particularly in areas where little is known about the topic being investigated, e.g. preconception care. It also helps to ensure that a more thorough, definite future study will not start with insufficient knowledge of the nature of the problem. Moreover, this design assisted in identifying the best research approach, data collection method, and selection of subjects [9,10].

Study Area and Setting

This study was conducted at Mnazi Mmoja District Hospital. Mnazi Mmoja was a district public hospital under the Local Government Authority in Ilala Municipal Council in the Eastern Zone-Dar es Salaam Region. It started providing services in July 2016, and the hospital offered a wide range of services such as general clinical services including outpatient services (OPD), inpatient services (IPD), Integrated Management of Childhood Illness (IMCI), Diabetes Care and Treatment, General Ophthalmology, Nutritional Rehabilitation, nutritional counselling, major surgical interventions, and minor surgical interventions. Additionally, it provided services such as Malaria diagnosis and treatment, TB diagnosis, care and treatment, HIV/AIDS prevention, and care and treatment services e.g. Management of Sexually Transmitted Illness (STI), Voluntary Counselling and Testing (VCT), Provider Initiated Testing and Counselling (PITC), Diagnostic Counselling and Testing (DCT), Post Exposure Prophylaxis (PEP), and Home and Community-Based Care, among others. The hospital also conducted Health Promotion and Disease Prevention activities, such as community mobilization, school health interventions, and psychosocial support, as well as Growth Monitoring and Nutrition Surveillance, including vaccination.

This study was based on the Reproductive and Child Health (RCH) clinic, which offered services to clients such as pregnant women, mothers of newborns and infants, children under five years, adolescents (teens and young adults), women seeking sexual and reproductive health services, those in need of maternal health education, and, in some cases, men e.g. for Reproductive Health Education and Infertility Support: couples experiencing infertility may have had men visit the clinic for evaluation and treatment options. Mnazi Mmoja RCH clinic served around 3,500 clients per month.

Mnazi Mmoja RCH clinic provided a variety of services related to reproductive health, maternal care, and child health. Some common services offered included: Maternal Health Services (antenatal care, postnatal care, childbirth preparation, and family planning services), Reproductive Health Services (sexual health education, STD/STI testing and treatment, infertility services, cervical cancer screening), Child Health Services (vaccinations, growth and development monitoring, nutrition counseling, and pediatric care), Adolescent Health Services (menstrual health education, sexual and reproductive health education, and mental health support), General Health Services (health education and counseling, laboratory tests, and screenings), and Emergency

Services (emergency care for women and children). Healthcare providers who worked at the Mnazi Mmoja RCH clinic included nurse midwives, general medical practitioners, laboratory technicians, and specialists such as paediatricians, obstetricians, and gynecologists.

Study Population

This study involved registered medical practitioners and nurse-midwives working in Reproductive and Child Health clinics. The study group was selected because they were the primary providers of health services in Tanzania. At any point in time, they were in the course of interaction with a client/patient and could provide PCC services. Hence, they could share their experiences and perceptions towards PCC.

Inclusion Criteria

All medical practitioners and nurse-midwives licensed to practice by their respective councils, with a minimum of three years' working experience, were recruited for this study.

Exclusion Criteria

All medical practitioners and nurse-midwives who had hearing impairments, unstable health conditions at the time of the interview, and who were not willing to participate.

Sampling and Sample Size

This study used non-probability purposive sampling. Participants were selected based on their experiences of at least three years of working at the RCH clinic. This selection technique's primary objective was to choose participants who would best help the researcher address the study objectives [11]. A list of medical practitioners and nurse midwives working at the RCHs was obtained from the respective in-charges. Qualified medical practitioners and nurse-midwives were then divided into two categories based on their work experience in the RCHs clinic; the first group were those with experience of 3 to 5 years, the second group were those with more than 5 years of working experience. Categorizing them in this way helped gain rich information from multiple experiences. The researcher then approached each participant individually and set an appointment for an interview. A participant who agreed to participate provided written consent for their conversations to be recorded. Those who consented were recruited for the study.

The estimated sample size for the study was 30 participants, consisting of 10 medical practitioners and 20 nurse midwives. However, data collection ended after interviewing 14 participants, which included 10 nurse midwives and 4 medical practitioners, where the researcher had gathered sufficient data to fully understand the experiences and perceptions of participants regarding the research questions. By this point, no new information was being obtained or emerged from the interviewees. This was guided by the principle of saturation in qualitative research by indicating the point at which collecting more data is unlikely to yield new or different information [12].

Data Collection Tool

The tool for data collection was a semi-structured in-depth interview guide adapted from similar studies (20, 34) and modified based on research questions and SEM constructs. This type of interview was chosen for its flexibility, allowing probing questions that aimed for a deeper, more comprehensive understanding of particular situations or issues where little information was available, such as this study of PCC, as it encouraged in-depth discussions between the interviewer and interviewee (37, 41). The interview guide was translated into Kiswahili, the local language spoken in Tanzania, to ensure that participants fully understood the questions and could express themselves comfortably. The interview guide was divided into two parts. The first part consisted of demographic information, including age, occupation, level of education, professional qualifications, and working experience. The second part included thirteen main questions and related probes, exploring HCPs' experiences and perceptions in delivering PCC services. I refined question number nine during the data collection process to gain more insights from the participants. Initially, the question was "What types of resources and educational materials do you find most effective when providing preconception care services to clients? Please share your thoughts on various tools, guidelines, or any other materials you utilize in this process**." The refined question is "What do you say about the existing guidelines/ educational materials for Preconception care? If no available guidelines/educational tools, what is your wish to be included in the preconception guidelines in our country**?"

In addition, field notes were taken during the interviews to capture non-verbal cues and contextual information that were not captured in the audio recording. The field notes were written in a structured format, with sections for recording the date, time, location, and other relevant details about the interview.

Data Collection Methods

Data collection at the RCHs was the researcher's responsibility. The PI purposively selected participants based on eligibility criteria from the years of working at the RCHs clinic, and provided them with an explanation of the study's purpose, as well as the freedom to withdraw consent at any point during the interview. Interviews were conducted on the day of their choice at their usual places of work, and were performed using Kiswahili (local language) to ensure the participants comprehension of the questions. Participants were asked to sign a consent form before recording the conversation, where the face-to-face, in-depth interviews were conducted for 17-45 minutes. And the dialogue was digitally recorded.

The interviews took place in the in-charge office within the RCHs clinic, where there were minimal interactions with the routine activity of the clinic, which ensured participants' comfort and privacy regarding the provided information. A guide containing probing questions facilitated the in-depth conversation between the interviewer and the participant. The interviewer actively listened to the participant's responses and asked follow-up questions to understand their experiences and perceptions better. The interview was conducted respectfully and professionally to ensure participants feel comfortable sharing their thoughts and feelings.

Data Management

To guarantee the privacy and security of the data collected, all audio recordings and transcripts were stored in a password-protected folder on the researcher's computer, accessible only to the researcher. Hard copy notes were kept in the researcher's file. Before visiting the site, the researcher receives guidance from an expert on how to conduct interviews and collect quality data. On the first day, the researcher conducted only two interviews, listened to, transcribed, and analyzed the audio-recorded interviews to assess the quality of the collected information. This process helped to identify missing information and refine the interview guide along the way.

Trustworthiness of the Study

Qualitative research is an effective method for understanding complex issues. To ensure the findings are trustworthy, researchers should focus on four important aspects: credibility, transferability, dependability, and conformability. Building rapport with interviewees and communicating in their native language (Kiswahili) helps researchers gain trust and gather valuable insights [10,12]. **Credibility** was achieved through the purposeful selection of participants based on specific criteria, and a mix of participants from different RCH units to gain their diverse expertise on the area under study. Additionally, suitable codes were selected, and the emergence of themes and subthemes was clearly illustrated. **Dependability** was established through the use of uniform methods for data collection and analysis. A comprehensive audit trail of the research process was maintained to guarantee that the findings can be replicated and are reliable. Furthermore, the researcher consulted with supervisors about the coding and agreed on the suitable codes to utilize. When inconsistencies arose in coding or the analysis process, discussions were held to come to a mutual agreement. **Conformity** was achieved by ensuring consistency in coding; the same data was coded at different times or by different researchers. The researcher maintained a detailed audit trail that documented research decisions, data collection, and analysis steps, including raw data, field notes, coding processes, and any other documentation that showed how data were collected and analyzed. **Transferability** was achieved through a detailed description of the study context, selecting participants who were information-rich, data collection methods and clear documentation of the research process [10].

Data Analysis

The thematic analysis approach was used for data analysis following the six steps proposed by Braun and Clarke

Phase 1: Data Familiarization

The audio-recorded interviews were transcribed verbatim in Swahili, and transcripts were reverse-translated into English by the principal investigator. The researcher started by familiarizing themselves with the dataset to gain a deeper understanding of the participants' experiences. This was done without the researcher pre-imposing her ideas about the subject under study.

Phase 2: Generating Initial Codes from the Data

Manual coding was performed using a Microsoft Word document, where key phrases, words, and sentences relevant to the research questions were systematically organised and coded iteratively throughout the entire dataset. Open coding was utilized. The principal investigator discussed with the supervisors the codes and agreed on the appropriate codes to use. When there was an inconsistency in coding, a discussion was held, and a consensus was reached.

Phase 3: Searching for Themes

After coding all the transcripts, an Excel codebook was created that included codes from all fourteen participants. This process was followed by the preparation of an Excel sheet with the merged codes, where all codes which were similar were grouped with a general name (subtheme) as shown in a table of the coding process. After obtaining several groups, the related groups were given a general name (theme) and the codes, subthemes and themes were transferred to a Microsoft Word document for easy visibility.

Phase 4: Reviewing Themes

The initial merged codes with subthemes were sent to supervisors for review and input in order to reach a consensus on the themes and subthemes to use.

Phase 5: Defining and Naming Themes

This process was iterative throughout the process to ensure the emerged themes and subthemes aligned with the coded data, the dataset, and the research question.

Table 1: Coding Process Sub-Themes and Theme Generation

Meaning unit(excerpt)	Codes	Subthemes	Theme
They must have first planned that after a certain time, we would want to get pregnant. The woman needs to be educated about her general health, reproductive health, the medications she may need to take, and the appropriate diet she should follow.	Counselling on family planning	Counselling on family planning, supplements, and nutrition	Content and scope of PCC services
Items or services we can provide him are to educate him about, perhaps using these FEFO drugs before	Counselling on using FEFO		
Any woman of reproductive age deserves to receive preconception care, even those who have already given birth. If she plans to have another child, she should access these services.	All women of childbearing age	Identification of eligible clients	
It also includes those who have spent a long time trying to conceive without success;	Women who have not been able to conceive		

Phase 6: Producing the Report

Themes and subthemes obtained from the analysis were used to prepare a report that told the story of the data with supported quotes from participants in each subtheme

Ethical Consideration

Ethical approval was sought from the Research and Ethics Committee of the Muhimbili University of Health and Allied Sciences, **Ref.No.DA.282/298/01.C/2702**. Permission to enter into the facility was obtained from the Dar es Salaam regional office with **Ref EA.70/351/01E/120** and the office of the District Medical Officer with **Ref/ IMC/DR.6/IV/016**. All participants were recruited after signing an informed consent form detailing the right to participate and withdraw from the study, risks, benefits, and audio recording

of the interview. The identities of the participants and the data collected were kept anonymous and confidential during the study.

Dissemination of Findings

The report will be submitted to MUHAS for academic evaluation and shared with hospital authorities where the study was conducted. Findings will also be published in peer-reviewed journals and presented at scientific conferences and seminars. The final dissertation will be available at the MUHAS Library for future reference.

Results

Introduction

This chapter presents participants' experiences and perceptions among healthcare providers (HCPs) regarding the provision of preconception care (PCC) services. It begins with an overview of their socio-demographic characteristics, followed by key themes related to PCC. These include content and scope of PCC services, perceived value and benefits of PCC, Challenges in delivering preconception care services, enabling factors supporting PCC provision, inconsistent and opportunistic PCC provision, and strategies to strengthen PCC implementation.

Socio-Demographic Characteristics

A total of fourteen participants, comprising 10 nurses and 4 medical practitioners, were involved in the study to explore their experiences and perceptions regarding the provision of preconception care services. Of these, 12 participants were female. The participants' ages ranged from 25 to 59 years. The highest reported work experience among participants was 24 years.

Table 2: Social Demographic Characteristics of Participants

Characteristic	Frequency (n)	Per cent (%)
Age (Years)		
Young adults (18- 35)	5	35.7
Middle-aged adults (36- 55)	8	57.1
Older adults (56 >)	1	7.1
Sex		
Male	2	14.3
Female	12	85.7
Level of Education		
College	10	71.4
University	4	28.6
Academic Qualification		
Diploma	9	64.3
Bachelor degree	3	21.4
Working Experience (Years)		
3 to 5	6	28.6
> 5	8	57.1

Themes and Sub-Themes Identified from the Analysis

Based on the study findings on the experiences and perceptions of HCPs on PCC services provision, six themes and their sub-themes emerged (Table 3)

Table 3: Themes and Sub-Themes from the Analysis

Subthemes	Themes
Counselling on nutrition, supplements, and lifestyle	Content and scope of PCC services
Counselling on family planning and mental preparation	
Preventive health education	
Screening and treatment	
Identification of eligible clients	
Improved maternal and child health	Value and benefits of PCC
Risk prevention and early management	
Infrastructure, resource, and tool limitations	Challenges in Delivering Preconception Care Services
Workforce and training challenges	
Financial and knowledge barriers	
Community mistrust and low demand	
Lack of community awareness	
Provider commitment and system support	Enabling factors supporting PCC provision

Facility strengths	
Recognition of PCC value	
Lack of routine implementation	Inconsistent and opportunistic PCC provision
Task and priority conflicts	
Service integration and institutional support	Strategies to strengthen PCC implementation
Community engagement	
Education and innovation	

Description of Results

Content and Scope of Preconception Care Service

Participants were asked about their understanding of preconception care (PCC) services. They were further probed to explain what PCC entails, who typically requires these services, the circumstances under which a client might need them, and their perceptions regarding the importance of PCC. Five subthemes emerged from this predetermined theme: (a) Counselling on nutrition, supplements, and lifestyle, (b) Counselling on family planning and mental preparation, (c) Preventive health education, (d) Screening and treatment, and (e) Identification of eligible clients.

• Counselling on Nutrition, Supplements and Lifestyle

Participants described a range of preconception care (PCC) services, with an emphasis on counselling related to dietary practices and the use of nutritional supplements. They underscored the importance of educating women about consuming a balanced diet rich in essential nutrients. As one participant noted:

"…I will educate her about the foods she should eat, foods with beneficial nutrients." [Participant I, 17 years of working experience] The use of supplements before conception—particularly iron and folic acid (FEFO)—was frequently mentioned as a key component of care to support maternal and fetal health. One participant explained:

"…it's about educating her, maybe about using FEFO medicines beforehand, because currently they need to be used before someone becomes pregnant.

" [Participant 5, 3 years of working experience] Lifestyle modifications were also identified as essential elements of PCC. Participants highlighted the need to address harmful behaviors such as alcohol consumption and smoking, while also promoting physical activity. As one participant shared: "The main lifestyle issue is about what the person eats… whether they exercise. Some people smoke, others drink alcohol. So, these are things we need to sit down and discuss with them.

" [Participant 10, 4 years of working experience].

• Counselling on Family Planning and Mental Preparation

Participants reported offering family planning and psychological preparedness counselling, guiding women on appropriate birth spacing and emotional readiness for pregnancy. Participants shared:
"*I also provide advice on family planning*."[Participant7, 13 years of working experience]

Most women don't know how pregnancy can affect them mentally. We try to prepare them early so they can plan well and be strong. [Participant, 13,8 years of working experience]

• Preventive Health Education

Participants emphasized the role of preventive health education as a critical component of preconception care. They particularly highlighted the importance of protecting individuals from sexually transmitted infections (STIs) by promoting the use of condoms and encouraging fidelity to one partner. As one participant stated: "It's important to use condoms or remain faithful to one partner. We advise them to use condoms for protection against infections like syphilis, gonorrhea, or HIV." [Participant 7, 13 years of working experience]

Additionally, some participants discussed the importance of counselling on personal hygiene and general preventive practices. These included advising clients on maintaining personal cleanliness, proper sanitation at home, and ensuring a clean environment. A few also mentioned encouraging the use of mosquito nets to prevent malaria, which can adversely affect conception and maternal health. As participants described:
"Counselling on cleanliness is important from personal hygiene to the cleanliness of their sleeping area and overall living environment." [Participant 12,6 years of working experience]

"Everyone should be motivated to keep the environment clean, because many diseases can still be prevented through proper sanitation. We also advise clients to sleep under a mosquito net to avoid getting malaria." [Participant 8, 20 years of working experience]

• Screening and Treatment

Participants reported that routine screening is an integral part of preconception care. They described conducting screenings for sexually transmitted infections (STIs), other medical conditions, and inherited disorders. Early detection was considered essential to ensure that any pre-existing health issues are appropriately managed before conception. As one participant explained:

"We screen them for syphilis and other conditions like Gonorrhea, Hepatitis B, and HIV to manage them early before they get pregnant." [Participant 10, 4 years of working experience]

• Identification of Eligible Clients

Participants indicated that preconception care services are intended for all women of reproductive age. However, they noted a particular focus on women with high-risk conditions, a history of miscarriage, infertility, or congenital anomalies. These groups were viewed as especially in need of early interventions and counselling. As one participant explained:

"…every woman is supposed to receive that preconception care. We mostly focus on those who had miscarriages, or those who say they've tried for years without getting pregnant. [Participant 6,3 years of working experience]

Perceived value and Benefits of Preconception Care

Participants were asked to share their views on the benefits of preconception care (PCC), with a particular focus on maternal and child health outcomes. Two subthemes emerged from this predetermined theme (a) improved maternal and child health, and (b) risk prevention and early management.

• Improved Maternal and Child Health

Participants described several benefits of PCC in promoting healthier pregnancies and improving outcomes for both mothers and their children. They emphasized that preconception counselling and interventions encourage early initiation of antenatal care (ANC), better maternal preparation, and healthier pregnancies. As one participant noted:

"… Clients will attend the clinic early, and by the time she comes, she will have already started some of the preparations before getting pregnant. And the mother will be in better health." [Participant 2, 24 years of working experience]

In addition, participants highlighted positive outcomes for children whose mothers received PCC. These included improved cognitive and physical development, stronger parent-child bonding, and better postnatal care. As described by one participant:

"When the baby is born, we believe they will have good cognitive development, good health, and proper growth because the mother received preconception care interventions before getting pregnant."[Participant 5, 3 years of working experience]

• Another Participant Added

"Because the mother will be well prepared, the baby will be born safely, will breastfeed well, will receive all the necessary care and guidance, and there will be a strong bond of love between the mother and the baby."[Participant 13, 8 years of working experience]

• Risk Prevention and Early Management

Participants identified several ways in which preconception care (PCC) supports the prevention and early management of health risks. A key benefit cited was the prevention of congenital malformations and disabilities through timely interventions such as the use of folic acid supplements. As one participant explained:
"…use folic acid to prepare their bodies before conception so that the baby doesn't have birth defects like spinal bifida or hydrocephalus." [Participant 13, 8 years of working experience]
Participants also noted the role of PCC in preventing mother-to-child transmission of infections, emphasizing the importance of early detection and treatment. One participant stated:
"…mothers may be carrying viruses. So, if she started attending the clinic early and discovered that she had an infection, she would be given medication and give birth to a safe baby." [Participant 11, 15 years of working experience]
Furthermore, the preconception period was described as a crucial time for screening and managing pre-existing medical conditions. Participants emphasized the importance of assessing a woman's health status before pregnancy. For example:
"A mother should first check her health before getting pregnant, to know what illnesses she might have in her body." [Participant 11, female, 15 years of working experience]
"The mother will have an overall check-up of reproductive health. If she has any challenges, they can be addressed early." [Participant 10, 4 years of working experience]
In addition, participants pointed out that the PCC period can foster greater acceptance of long-term treatment plans, especially for chronic conditions. As one participant shared:
"…Accepting lifelong medication use can be difficult, but deciding early before conception enables more informed choices than waiting until pregnancy." [Participant 8, 20 years of working experience]

Challenges in Delivering Preconception Care Services

Participants were asked to describe the challenges they face in delivering preconception care (PCC) services. They were further probed to identify difficulties stemming from the broader health system, within health facilities and those brought by the community and client. Five subthemes emerged from these predetermined themes: (a) Infrastructure, resource, and tool limitations, (b) Workforce and training challenges, (c) Financial and knowledge barriers, (d) community mistrust and low demand and (e) Lack of community awareness

• Infrastructure, Resource and Tool Limitations

Participants reported that existing infrastructure is primarily focused on antenatal care for pregnant women, with little to no consideration for women seeking preconception services. As one participant stated:
"…That's still lacking, I don't see the infrastructure… the available ones are for pregnant women." [Participant 5, 3 years of working experience]
Several participants noted the lack of dedicated spaces or rooms for PCC services, which limits the privacy and accessibility of care for women planning pregnancy. One participant explained:
"We don't have a room specifically for women seeking preconception care." [Participant 12, 6 years of working experience]
In addition to physical space constraints, participants highlighted the limited availability of medications meant specifically for women in the preconception phase. Most of the available supplies were reported to be allocated for pregnant women. As one participant shared:
"…Meanwhile, the medications we receive are meant for those who are already pregnant…" [Participant 8, 20 years of working experience]
A few participants also raised concerns about the unavailability of essential diagnostic tools and tests required for comprehensive PCC services. This limited their ability to identify and manage potential risks before pregnancy. As one participant explained:
"There are some tests we don't usually conduct, such as hepatitis tests; we don't test for sickle cells, and we don't test for Rhesus factors." [Participant 13, 8 years of working experience]

Participants highlighted the absence of standardized guidelines or reference materials for PCC service provision. Many noted that they had never encountered a PCC guideline or even a brochure. One participant remarked:
"From my side, the guidelines are very limited because I don't even recall ever coming across them, not even a brochure." [Participant 5, 3 years of working experience]
As a result, participants reported relying primarily on personal experience and informal knowledge acquired through routine clinical practice. As expressed by one participant:
"No, I never have. I'm only speaking from experience based on the environments I've worked in." [Participant 13, 8 years of working experience]

• Workforce and Training Challenges

Participants reported that staff shortages significantly hinder the

delivery of PCC services. They described being overwhelmed by the high volume of patients, with limited staff available to attend to both pregnant and non-pregnant women. One participant noted: "…In our facility, we have up to 200 patients a day, and you may find there are only five staff members; they get exhausted. They wish they could do more, but the workload becomes overwhelming." [Participant 12, 6 years of working experience]
In addition, most participants reported not receiving any formal on-the-job training related to PCC services. Only one participant had received PCC-related training while working as an IVF nurse in a private facility. As participants shared:
"In all the time I've worked, I have never received any training related to preconception care." [Participant 12, 6 years of working experience]

"I used to be an IVF nurse; I worked at a clinic that deals with in-vitro fertilization… that's where I gained that preconception care knowledge." [Participant 10, 4 years of working experience]
Participants expressed that the lack of training made it difficult to respond effectively to clients' questions, particularly when addressing complex reproductive health issues. As one participant explained:
"When a mother asks questions, sometimes even responding becomes difficult. But when someone has received training, there is guidance." [Participant 11, 15 years of working experience]

• Financial and Knowledge Barriers
Participants noted that while some clients express interest in PCC services, many are unable to follow through due to financial constraints. These financial barriers prevent consistent access and continuity of care. One participant shared:
"Someone might need the service, but their financial situation doesn't allow it. Just to please you, they might say, 'Let me go and come back tomorrow,' but then they disappear completely."[Participant 14, 3 years of working experience]
Additionally, participants reported that clients' limited knowledge about PCC interventions affects the uptake and acceptance of services. Those who are unfamiliar with recommended practices may hesitate to adhere to medical advice. As one participant described:
"There are some who say, 'I was told to take folic acid before getting pregnant.' But for those who haven't heard of it, they're unsure and wonder, 'should I take these or not?'" [Participant 11, 15 years of working experience]

• Community Mistrust and Low Demand
Most participants highlighted that the demand for PCC services remains low, with few clients actively seeking them. Many women only present at health facilities once they are already pregnant. One participant noted:
"Very few people go to seek pre-pregnancy care—it's a very small percentage. Most come to the clinic after they're already pregnant." [Participant 5, 3 years of working experience]
Healthcare providers reported minimal exposure to PCC clients, which affects their experience and routine provision of services:
"…I don't have much exposure because people don't request PCC services…" [Participant 12, 6 years of working experience]
Some participants also expressed that clients often mistrust PCC services due to deeply rooted traditional beliefs and misconceptions. These cultural perceptions hinder clients from accepting interventions such as supplement use before pregnancy:
"Lack of belief is a challenge; some people resist counselling due to traditional views and struggle to accept that taking tablets before pregnancy can be beneficial, often dismissing the idea outright." [Participant 9, 3 years of working experience]

• Lack of Community Awareness
Participants widely reported that public awareness of PCC services is still very low. Many community members remain unaware of the importance of planning and seeking care before pregnancy. As one participant explained:
"When it comes to preconception care, in our community, I think that awareness is still very low." [Participant 5, 3 years of working experience]
However, some participants acknowledged that a small group of educated clients are more likely to understand and seek PCC services:
"Although a few, perhaps those who are educated, may understand that before getting pregnant, it is necessary to get PCC services." [Participant 1, 17 years of working experience]

Enabling Factors Supporting PCC Provision
Participants were asked to share the motives driving their continued provision of preconception care (PCC) services. Three subthemes emerged from this predetermined theme: (a) Provider commitment and system support, (b) facility strengths, and (c) recognition of PCC value.

• Provider Commitment and System Support
Participants expressed a strong sense of dedication to their work and emphasized the importance of teamwork in overcoming staffing shortages. They noted that collaborative efforts allow for continuity in service delivery, even when staff are absent. One participant shared:
"We work as a team… So even if a few staff members are absent on a particular day, it's not easy for the client to notice, because someone else will step in and take over that role."[Participant 8, 20 years of working experience]
Participants also reported engaging in routine knowledge-sharing sessions across departments, which helped reinforce skills and foster interdepartmental collaboration:
"There is ongoing knowledge sharing between departments. Sometimes, within the hospital, a particular department organizes an educational session, and we all get to benefit from it." [Participant 8, 20 years of working experience]
In addition, participants described the use of referral systems to ensure clients with specific conditions such as hypertension receive appropriate care. One participant explained:
"…Let's say for high blood pressure… when she comes to us, we have to refer her back to her clinic to see if her medication needs to be adjusted." [Participant 6, 3 years of working experience]

• Facility Strengths
Several participants expressed a desire to strengthen the structure of PCC delivery, emphasizing the need for designated rooms and integrated service delivery. They envisioned a more client-centered approach where all PCC services are available in a single space:
"…They should be given a full package of services. When clients come in, they should receive all the necessary care right there… There should be a special room where, once they enter, they can get everything they need." [Participant 4, 7 years of working experience]
Participants also emphasized the need for adequate staffing and dedicated time to ensure quality service delivery. One participant remarked:
"There should be enough time and enough staff. Because, you know, when someone comes to you and says, 'I need you to explain to me what I should do before getting pregnant,' time is essential so that you can properly guide that person. [Participant 1, 17 years of working experience]

• Recognition of PCC Value

Participants acknowledged the critical role of PCC in preventing health complications for both mothers and babies. This understanding was a strong motivator for their continued service provision:

"So, I saw that this matter is important, because if she receives the service before getting pregnant, it means she starts getting protection from diseases—both for the baby and the mother." [Participant 3, 5 years of working experience]

Participants also noted that recognition and appreciation from their facilities, even without financial incentives, positively impacted their morale and motivation:

"They haven't given you money or anything, but they've appreciated what you're doing to help. That kind of appreciation helps the service provider do their work." [Participant 12, 6 years of working experience]

Lastly, participants emphasized the importance of formal motivation strategies, particularly when PCC provision requires additional time or weekend services:

"Motivation, yes, it's a must… It's really important. You might say that on Saturdays, those who need preconception services can come… In that case, you'll need to give me some motivation." [Participant 5, 3 years of working experience]

Inconsistent and Opportunistic of PCC Provision

Participants were asked to share their experiences concerning the provision of preconception care (PCC) services. They were further probed to explain their approaches in delivering a comprehensive PCC package. Two subthemes emerged from this predetermined theme: (a) lack of routine implementation and (b) task and priority conflicts.

• Lack of Routine Implementation

Several participants shared that PCC services are rarely implemented as a routine part of care. They explained that the concept is often overlooked, and little attention is paid to it in practice. One participant expressed:

"These preconception care services… have been largely forgotten. I don't think there's anyone who seriously considers them… and even if they do, it's in a very limited way." [Participant 1, 17 years of working experience]

Participants acknowledged that PCC is not prioritized within the health system, both at the individual and institutional level. One participant remarked:

"As health professionals, we haven't given this preconception care the attention it deserves. Preconception care is still lacking and has not been given much emphasis…" [Participant 5, 3 years of working experience]

Additionally, participants explained that institutional efforts are focused primarily on maternal care during pregnancy, while PCC remains neglected. As one participant put it:

"Our institutions have not yet invested in preconception care; we have mainly invested in care for pregnant women…" [Participant 5, 3 years of working experience]

Furthermore, it was reported that PCC services are generally not delivered until a woman presents with pregnancy or a reproductive health concern. One participant described:

"For us, that doesn't usually happen. When you see a woman coming to a healthcare provider, she is either already pregnant, has a reproductive health issue, needs to see a gynecologist, is trying to conceive, or has infertility issues." [Participant 12, 6 years of working experience]

• Task and Priority Conflicts

Participants shared that competing clinical responsibilities often hinder the delivery of PCC services. When faced with attending to both sick patients and clients seeking PCC, providers tend to prioritize the former. One participant explained:

"…I have to prioritize, because the children I'm attending are sick, while the mother has come seeking preconception care. So I end up focusing more on the service for the sick child." [Participant 14, 3 years of working experience]

Moreover, participants highlighted the challenge of managing dual responsibilities providing both curative and preventive services simultaneously. This workload results in divided attention, compromising the quality of PCC delivery:

"…I'm not officially assigned to provide preconception care service alone… I'm also responsible for other services. You might find that I'm attending to children, while another mother is there wanting guidance related to that service, so I feel like I'm not giving her the full attention she deserves." [Participant 14, female, 3 years of working experience]

Strategies to Strengthen PCC Implementation

Participants were asked to provide suggestions for the effective implementation of PCC services. They were further probed to give their recommendations targeting the facility, health system, and the community. Three subthemes emerged from this predetermined theme: (a) health system integration and institutional support, (b) community engagement, (c) Education and innovation.

• Service Integration and Institutional Support

Participants emphasized the need to formally institutionalize PCC services. One of the main suggestions was the designation of specific centers where clients could access comprehensive PCC services. One participant stated:

"To have a specific hospital/centre designated for preconception care, so that clients may access the services." [Participant 6, 3 years of working experience]

Others recommended integrating PCC services into existing hospital units to ensure clients receive a full package of care in one visit. As one participant put it:

"…I was emphasizing the idea of integrating services because with one provider, all the services can be delivered together." [Participant 13, 8 years of working experience]

Participants also advocated for policy reforms to support routine access to PCC. One participant suggested:

"…The policies should change to say that anyone planning to get pregnant in the next one or two months should go to a health facility to receive education." [Participant 5, 3 years of working experience]

• Community Engagement

Many participants emphasized the crucial role of community-based structures in promoting PCC services. Community health workers (CHWs), who reside within the communities, were seen as trusted and accessible educators. A participant highlighted:

"Community Health Workers (CHWs) are effective educators because they operate within the community and have direct access to households, allowing them to help reach people easily and provide preconception care education. [Participant 3, 5 years of working experience]

In addition, participants proposed involving religious institutions by incorporating PCC education into premarital counseling offered in churches and mosques. As one participant suggested:

"…Before marriage, in churches and mosques, couples should be educated and made aware of the importance of going to the clinic before pregnancy." [Participant 4, 7 years of working experience]

• Education and Innovation

Participants stressed the importance of equipping future healthcare professionals with PCC knowledge through formal education. It was suggested that PCC be integrated into the medical and nursing training curricula. One participant said:

"…It should be included in their education curriculum so that they are fully prepared. [Participant 13, 8 years of working experience]

To increase public awareness, participants recommended using mass media platforms such as television, radio, and newspapers to disseminate PCC messages. One participant emphasized:

"Preconception care could also reach the community through public awareness campaigns, using TV, radio, and newspapers." [Participant 13, 8 years of working experience]

Moreover, one participant proposed leveraging digital tools by developing an application specifically for PCC. This app would provide users with accessible, accurate information. The participant noted:

"An app should be developed for the internet — for example, on all these online platforms, there is no app specifically for preconception care." [Participant 5, 3 years of working experience]

Discussion

The findings reveal that while healthcare providers understand the importance and benefits of preconception care, its implementation remains inconsistent and largely opportunistic. Providers reported delivering some of the PCC components, such as counselling on nutrition, family planning, and medical screening but emphasized that these services are often not prioritized due to structural limitations, including inadequate infrastructures as the available ones favors mostly pregnant women, staff shortages, lack of training, and absence of clinical PCC guidelines. At the community level, low awareness, financial constraints, and mistrust contribute to limited demand for PCC services. These factors perhaps lead women to seek hospital services when they are already pregnant or when they are facing certain reproductive challenges. Despite these barriers, provider motivation, internal teamwork, and recognition of PCC's value emerged as enabling factors. These results imply a need for stronger system-level support, including policy integration, capacity building, and community engagement strategies to enhance PCC uptake and routine provision. Furthermore the study underscores the urgent necessity of embedding PCC into routine reproductive health services and equipping providers with the resources and knowledge necessary for effective PCC delivery.

Content and Scope of Preconception Care Services

The study findings indicate that participants have a general understanding of some PCC interventions and are aware of the target population for these services. However, the results also reveal limited knowledge about the full PCC package, as well as low levels of competence and confidence in delivering these services. When viewed within the broader context of medical research, these findings suggest that insufficient knowledge and skills among healthcare providers can hinder the effective implementation of PCC interventions [13,14]. Additionally, the study supports recommendations from previous research dvocating for capacity building and skills in delivering preconception care (PCC) services confidently [15]. The implications of these findings are substantial. HCPs equipped with adequate knowledge and competencies are more likely to implement PCC effectively, thereby addressing clients' needs and contributing to improved pregnancy outcomes. This insight not only adds to the existing body of knowledge but also highlights the critical role of HCPs' knowledge and competence as foundational components of effective healthcare delivery.

Value and Benefits of Preconception Care Services

The study findings indicate that participants have a clear understanding of the value and benefits of PCC. HCPs' recognition of the value and benefits of PCC facilitates the provision and implementation of PCC services effectively [14]. These are identified as facilitators for PCC provision in research. These findings are similar to other existing literature, which indicates the outcome of HCPs who recognize the value of PCC in service provision output [3]. The implication of this finding is significant; healthcare providers (HCPs) who appreciate the value and benefits of PCC are more likely to provide quality PCC services, which in turn improves pregnancy outcomes. This finding not only contributes insights into the existing body of knowledge but also emphasizes the impacts of HCPs recognition of PCC value as a factor for quality service delivery.

Challenges in Delivering Preconception Care Services

This study has demonstrated that the current health facility infrastructure is not conducive to the effective implementation of PCC services. There is no dedicated room for these services; the facility infrastructures mainly serve women who are already pregnant, and the available drugs and investigational tools are for pregnant women. This indicates that PCC services have not been given priority and are not yet considered for implementation as stand-alone services. This observation is consistent with findings from a study done in rural India, which revealed similar challenges, such as Lack of specialized services, Lack of diagnostic kits and Lack of medicine supplies for PCC. This similarity may be due to the same qualitative methodological design used and the social ecological theoretical framework [16]. This finding is crucial for restructuring the infrastructure to be user-friendly for individuals seeking preventive care, such as PCC, and the health system should include the budget for essential supplies and resources needed for PCC services. This finding adds knowledge for planning health system infrastructures.

The findings also revealed that the available staff are unable to meet the clients' goals due to their limited numbers and the dual responsibility of providing services to both sick and healthy individuals. Additionally, awareness of the PCC services as a comprehensive package is low. This indicates that the services are not routinely implemented and that opportunistic service provision is offered in a fragmented manner rather than as an integrated package. This observation aligns with a qualitative study done in India and with a systematic reviews comprising qualitative studies done in Belgium among healthcare workers, which revealed Competing priorities, e.g. medical, preventive, lack of manpower, lack of space for PCC might also discourage professionals from engaging in PCC [14,16]. This similarity may be due to the same qualitative methodological designs used. These findings are crucial for considering integrating the PCC services with other services such as family planning, post abortion to tackle the shortage. There is a need to incorporate PCC into the curriculum of HCPs who are still in training institutions [17,18]. In the existing body of knowledge, this finding emphasizes the importance of integrating services when resources are limited, as well as the need to equip medical students with competencies they can use at clinical sites.

The findings revealed that there are neither PCC guidelines nor educational tools available for healthcare providers when delivering services. This indicates that healthcare professionals rely on knowledge gained from clinical experience and from patient information sources rather than from guidelines. Considering this finding within the broader medical context, it becomes evident

that providers are more likely to overlook essential components of PCC, resulting in lower quality services [14]. The studies underscore the previous research, which emphasises the use of guidelines and other educational tools, e.g. checklists in service provision [19,14]. The implication of this finding is crucial. Having guidelines to follow when providing the service and the availability of educational tools aid in delivering comprehensive and quality PCC services. This study will not only add knowledge but also assist in formulating the PCC guidelines.

The study findings revealed that community awareness of PCC services is low, with only a few educated women requesting the services. It suggests that if the community is sensitized to the availability of these services, utilization is likely to increase [20]. Additionally, this study supports the recommendations of previous research, which emphasized the importance of community sensitization [17,20,21]. The implications of these findings are significant, suggesting that clients who are educated and informed about PCC services are more likely to utilize them and potentially experience healthier pregnancies. This insight not only adds to the existing body of knowledge but also reinforces the critical role of community sensitization in improving the uptake of PCC services.

Financial constraints were also identified as a challenge. Clients are eager to receive the service, but the cost of investigations and drugs becomes a barrier. Available services, such as drugs (e.g., folic acid), are budgeted for pregnant women only, and not for those seeking preconception care, so they are required to purchase them out of pocket. These findings align with a study done in the Netherlands, which revealed that participants faced financial difficulties in the uptake of PCC services [22]. This similarity may be due to the same qualitative methodology and characteristics of participants who are also healthcare workers working at the maternity unit. These findings suggest that PCC services are more accessible to those with high socioeconomic status who can afford them. This insight underscores the importance of including PCC health services in the health insurance scheme so that all individuals can access them.

Enabling Factors for Preconception Care Service Provision

Healthcare providers work as a team and are all aware of their roles in providing services to clients. This is a crucial understanding, as it ensures that every client, whether sick or simply seeking care, receives equal treatment. Support and cooperation among HCPs are key for the effective service provision [18]. This study is contrary to studies done in England and the Netherlands, where HCPs felt it was unclear who should be the entitled provider for PCC, with many assuming it was outside their scope of practice [18]. But another systematic study conducted in Australia aligned with these study findings, which revealed most HCPs in the included studies believed it to be part of their role to provide PCC services [23]. These findings suggest that teamwork in service provision, along with clear role understanding among providers, promotes effective PCC delivery, but also underscores the importance of working collaboratively as a team.

Strong organizational support plays a vital role in ensuring the effective provision of PCC services. This means having a dedicated space within health facilities specifically for PCC, along with adequate staffing, is essential for delivering care effectively. When facilities allocate a specific area for PCC services, it becomes easier to offer a comprehensive care package. Furthermore, these findings can help inform facility management and guide them in planning for designated spaces to support consistent and quality PCC service delivery.

The study findings also reveal that motivation and appreciation of HCPs improve morale for service delivery. This means that when staff are motivated and appreciated, they feel valued for the work they have done, and this motivation and appreciation promote the quality of PCC service [23]. This also aligns with a study done in India and a systematic review study done in Belgium that identified lack of motivation as a barrier, that being interested or not might have a stimulating or restraining influence on the provision of PCC [14, 16]. The similarity may be due to the qualitative methodological approach employed and the characteristics of study participants who were also health care workers. These finding implies that HCPs who are motivated and appreciated are more likely to provide quality services than those who are not. These findings highlight the role and importance of appreciation and motivation in delivering quality services.

Healthcare providers' awareness of the health impact of preconception care (PCC) is one of the key enablers for delivering these services. This is crucial, as providers recognize the role of PCC in preventing adverse health outcomes, and will offer PCC services willingly [14]. This finding aligns with similar systematic studies in Belgium and a study done in studies done in Belgium and India that reported that those considering PCC as a high priority more commonly provided PCC than those having negative perceptions and not being convinced of the importance, need, benefits and efficacy of PCC [14]. The implication of this finding is the need to further expand knowledge about the health consequences of missing PCC, not only among providers but also among clients, to support greater utilization of these services

Inconsistent and Opportunistic Provision of Preconception Care Services

The study reveals that PCC services are provided opportunistically rather than as part of routine care. This means that these services are rarely implemented and often given low priority. Healthcare providers do not consistently initiate PCC services or even mention them, while clients tend to seek PCC only when they face reproductive health challenges [14]. This finding aligns with recommendations of existing studies that have consistently emphasized the need for facilities to implement PCC services and for individuals to actively utilize them [22]. Healthcare providers are also encouraged to proactively initiate discussions about PCC with their clients [14,18]. These findings also suggest strategies for improving the effective implementation of PCC services.

The study findings also revealed that healthcare providers face competing clinical demands during service delivery. Due to dual responsibilities and time constraints, providers often prioritize clients with acute illnesses over those who are healthy and seeking preconception care (PCC). As a result, individuals in need of PCC may feel overlooked or undervalued and may leave the facility without receiving the intended services [22]. These findings contrast with other studies, where the lack of time was attributed partly to the time-consuming nature of consultations and partly to the competing demands of other preventive services that also need to be delivered [14,22]. This finding implies that when healthcare providers do not prioritize PCC, clients may perceive it as unimportant or unnecessary. Consequently, providers need to give equal attention to all clients, regardless of their current health status, and to ensure that PCC is delivered in a manner that is both client-friendly and accessible. Doing so may enhance clients' appreciation of PCC and increase the likelihood of service uptake.

Strategies to Strengthen Preconception Care Services Implementation

A major recommendation from healthcare providers is the need to integrate PCC services within the health system by establishing dedicated hospitals or clinics that offer comprehensive preconception care. Furthermore, integrating PCC into various hospital units, such as family planning, outpatient, and antenatal clinics, was seen as an efficient strategy to ensure services are offered routinely rather than opportunistically. This suggestion aligns with a systematic review done at SSA, suggesting PCC to be integrated into existing maternal and child health programmes using a system-based approach, which might increase utilization and uptake of PCC interventions [1]. The similarity may be due to the locality where Tanzania is among the countries in the African region.

The HCPs suggested the use of Community health workers (CHWs) as critical partners in bridging the gap between health facilities and the community. By empowering CHWs to provide basic PCC information and referrals, coverage and awareness of PCC can significantly improve, especially in underserved areas. Additionally, policy-level interventions such as initiating formal discussions on PCC at national and institutional levels were emphasized to ensure PCC becomes a recognized and resourced component of reproductive health services. HCPs suggested that PCC be an integral component of reproductive and child health [16]. The prioritization and promotion of PCC within the health system, along with the use of local leaders and CHWs to raise awareness, further underscores the need for a community-linked, system-wide approach. This aligns with other studies that have shown health system readiness and policy support are crucial in scaling up maternal and child health interventions [17].

The second major area of recommendation revolves around improving knowledge and awareness through education and outreach. Healthcare providers strongly recommend that PCC be included in the medical curriculum, ensuring that future professionals are equipped with the knowledge and skills to deliver these services [1]. This addresses gaps identified in several studies [1,22] where providers often reported lacking formal training in their medical curriculum in the PCC area. Also, HCPs were insisting on receiving refresher training to build knowledge and competence on the contents of the PCC package. Another innovative suggestion was the development of an online application to improve access to information and services. Alongside digital tools, providers emphasized the need for traditional media outreach, including brochures, TV, radio, and short educational videos, to ensure wider dissemination of PCC information. Others suggest hanging a TV screen with PCC education in waiting areas within the facility units, e.g. ANC clinic.

Task sharing with religious and community leaders and integrating PCC education into marriage counselling sessions were also highlighted as culturally appropriate strategies for increasing community engagement. These approaches take advantage of existing community structures to deliver health messages in a relatable and trusted manner. In summary, these recommendations reflect a strong desire among healthcare providers to embed PCC services into both the health system and the community, ensuring that services are accessible, routine, and well-understood by all stakeholders. These strategies, if implemented, have the potential to increase utilization, improve reproductive health outcomes, and contribute to long-term maternal and child health goals.

Strength

This study not only explored the perceptions and experiences of healthcare providers in the provision of preconception care (PCC) but also captured their practical suggestions for improving its implementation. This dual focus provides a comprehensive understanding of current service gaps and offers actionable insights, highlighting key priority areas for strengthening PCC in the country.

Study Limitations and Mitigations

One limitation of this study is the potential for bias, as the researcher's background and personal beliefs may have influenced the interpretation of participants' experiences. However, efforts were made to minimize this bias by setting aside preconceptions, focusing on an open and thorough exploration of participants' views. Additionally, the use of a purposive sampling strategy that ensured diversity and representation contributed to the richness and depth of the data.

Conclusion and Recommendation

Conclusion

This study highlights the gaps and opportunities in the provision of preconception care (PCC) services. While healthcare providers understand the value of PCC, challenges such as limited knowledge, lack of guidelines, inadequate infrastructure, and low community awareness hinder effective implementation. However, teamwork, provider motivation, and leadership support were identified as key enablers. Addressing these barriers through capacity building, community education, and system-level planning can strengthen PCC services and improve maternal and newborn health outcomes.

Recommendations

The following recommendations are made based on the study findings

Clinical Practice Recommendations

- Establish dedicated PCC clinics or integrate PCC systematically into existing services (e.g., family planning, ANC, outpatient).
- Develop and distribute PCC educational tools and operational resources (e.g., checklists, brochures).
- Include PCC in pre-service and in-service training curricula to build healthcare providers' competence and confidence.
- Strengthen interdisciplinary teamwork and internal referral systems to support comprehensive PCC delivery.

Health Policy Recommendations

- Integrate PCC into national reproductive and child health guidelines and policies.
- Allocate dedicated funding and include PCC services and medications within public health insurance schemes.
- Develop and implement standardized PCC guidelines and protocols across all health facilities.
- Promote policy dialogues and advocacy to raise the profile of PCC as an essential part of maternal and child health strategies.

Future Research Recommendations

- Conduct studies with mixed methods, including client perspectives, to identify demand-side barriers and motivators for PCC uptake.
- Explore the effectiveness of different PCC integration models (e.g., standalone vs. integrated within ANC or FP services).
- Assess the impact of community engagement interventions

(e.g., CHWs, digital apps, media campaigns) on PCC awareness and utilization.
- Evaluate long-term maternal and neonatal outcomes associated with routine PCC implementation.

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