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Making Healthy Babies: An Exploration of Opinions on Barriers and Facilitators of Optimizing Preconception Care among Healthcare Providers in Federal Medical Centre, Keffi, Nigeria

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Abstract

Background: Preconception care (PCC) is the provision of biomedical, behavioral and social interventions to women and couples before conception. This study sought to explore healthcare provider's perceptions on the facilitators of PCC and the barriers that may hinder PCC delivery.

Method: Qualitative data was collected through face-to-face interviews. Data was collected until saturation was achieved. In coding the data, the approach developed by Aurebach and Silverstein¹ was adopted, Nvivo software and thematic content approached according to Braun & Clarke² was utilized for the analysis.

Result: Healthcare providers have general ideas of what preconception care and were able to state various ways it can impact the future wellbeing of the mother and baby. Perceived barriers to PCC delivery include lack of knowledge on PCC, cultural beliefs, lack of availability of Preconception care in clinics. The facilitators identified includes provision of awareness through social media, campaigns. Intervention to enhance PCC concluded from this study includes policies from the government and incorporation of PCC into school curriculum. The results from this study will help improve the development and delivery of PCC services in Nigeria.

Conclusion: It is urgently necessary to raise knowledge to change how the public views preconception care. To improve fetomaternal outcomes, the services should be easily accessible and integrated into normal maternal healthcare. The study recommended that clinics for PCC should be put in place, sensitization of the public should be done, and policies be put in place to improve PCC in Nigeria.

Keywords: Babies, Barriers, Facilitators, Healthy, Preconception.



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Introduction

Efforts to enhance pregnancy outcomes in the last four decades concentrated mainly on antenatal care, skilled birth attendants and postnatal care.³ Nevertheless, the rates of maternal and child morbidity is still soaring.⁴ Evidence has shown that about 303,000 mothers died from pregnancy and childbirth-related factors and 99% of the deaths occurred in global north and global south.⁵ Owing to the fact that a number of pregnancy complications emerge from lifestyles and events that happened before the occurrence of pregnancy, antenatal care alone cannot solve the maternal and perinatal mortality burden.⁶ Demisse et al. in 2019 in their study deduced that access to quality preconception (before pregnancy) and inter-conception (between pregnancies) care will drastically decrease the risk of maternal and infant mortality and other pregnancy-related complications.⁷ Hence, Preconception care provides a vital chance, for married couples, to address existing precarious health risks, which is of significant benefit to all individuals despite a plan or aspiration to conceive. This is mainly because risk factors that are known to impact maternal and newborn health exist before the first 1000 days of life.⁸ The best and most acceptable way to improve the health of women as well as the pregnancy outcome is preconception care.⁹ This is because during the preconception time frame, an opportunity is provided for early detection and alteration of unhealthy behaviours thereby having a lasting positive impact on the future health outcomes of both mother and child.¹⁰ Preconception care has a principal place in health care due to its positive effects on the reduction in both mortality rates, and the risks of adverse health outcomes for the woman; fetus, and neonate by optimizing the woman's health and knowledge before planning and conceiving a pregnancy.¹¹ With a maternal mortality rate of 630 per 100,000 live births, and an infant mortality rate of 74.09 deaths per 1000 live births in Nigeria,⁴ there is a need to shift care to the time before a child is born to prevent adverse pregnancy outcomes and to allow greater potential to prevent unplanned pregnancy because pregnant women in Nigeria continue to die from preventable conditions such as severe postpartum hemorrhage, obstetric infections, hypertensive disorders, unsafe abortion and obstructed labor.¹² The concept of preconception care does not only focus on the woman alone because evidence from both animal and human experimental epidemiology research has shown that changes in the sperm genome can occur due to men's environmental and lifestyle exposures.¹³ These genetic changes has been associated with low sperm motility, increased time to pregnancy and occurrence of birth defects.¹⁴ According to WHO in 2013,

preconception has the following components; family planning, prevention and management of sexually transmitted infections, supplementation of folic acid to reduce the incidence of neural tube defects, screening for an unhealthy lifestyle, treatment of medical or infectious diseases, and health teaching and genetic counselling.¹¹ The study of Asresu et al. in 2019 in Northern Ethiopia, established that preconception care is a very important component to improve the health and development of the future offspring.¹⁵ Another study in six Flemish Hospitals (Belgium) indicated that poor knowledge, skills, and resources to initiate conversations about optimizing health before conception; lack of time; and the fact that the sensitive nature of the topic prevents health professionals from having preconception health conversations with their patients are some of the barriers to the delivery of preconception health in primary care.¹⁶ Findings from other studies, such as the one in UK propose that preconception health can be improved through education, social media campaigns, and within healthcare systems¹⁷ and that most people would not mind being asked about their pregnancy plans by their healthcare providers as reported in the study: Pregnancy planning health information and service needs of women with chronic non-communicable conditions: a systematic review and narrative synthesis.¹⁸ Akinajo et al. in 2019, emphasizing on the importance of preconception care stated in their study, preconception care: Assessing the level of awareness, knowledge and practice amongst pregnant women in a tertiary facility, that the healthcare system will move from procedure-based acute care delivery to the delivery of counselling-based preventive care with the acquisition of preconception care.¹⁹ Preconception care functions by enhancing the woman's health and knowledge before planning and conceiving a pregnancy thereby having a positive effect on the decrease in mortality rates and risk of adverse health consequences for the woman, foetus and neonate.²⁰

In Nigeria, the maternal and infant mortality rate is still alarming the reason for this is due to lack of access to quality prenatal and postpartum services and lack of awareness of maternal health practices i.e preconception care.²¹ From the findings of previous studies most women become aware of their pregnancy at the beginning or end of the organogenesis stage, which is a very sensitive period.²² There are a lot of adverse outcomes that are associated with poor preconception care in Nigeria example: The chief cause of maternal and perinatal mortality in Nigeria is preeclampsia / Eclampsia, which has a serious impact on the health and



quality of life of both mother and child.²³ Poor level of health information literacy among women in Nigeria has led to an increased rate of sickle cell disease.²⁴ In addition, an increased prevalence of neural tube defects was detected in Algeria, Ethiopia, Eritrea, and Nigeria.²⁵ Davis and Pavord in 2018 stated that severe folic acid deficiency before or during pregnancy is associated with megaloblastic anemia, reduced white blood cell, and platelet count, as well as impaired function in the mother, perinatal complications include preterm births, low-birth-weight babies and infants with congenital heart defects, and neural tube defects (NTDs).²⁶ Alegbeleye and Ozueh in 2022 reported that the prevention of neural tube defects will be made possible by encouraging planned pregnancy to sustain the practice of preconception folic acid regimen and also by fortification of staple foods to build up folic acid reserves in women of reproductive age. Most of these deaths and other complications in pregnancy can be reduced if women and men are provided preconception care which helps to identify and correct any risk factors that will otherwise cause problems in pregnancy.²⁷ Obstetric disorders like chronic diseases that can alter the course of pregnancy and have lasting consequences that manifest after birth are seen in one in four women in the developing world.²⁸ The above reason prompted carrying out of this study, this study sought to explore opinions on barriers as well as the facilitators of optimizing preconception care among medical staffs in Federal Medical Centre, Keffi, Nigeria. To identify the gap and make recommendations for better delivery of preconception health in Nigerian hospitals to improve pregnancy outcome. The health care workers are expected to be the champion of good health practices; hence this study aim the target population of medical staffs to assesses preconception care facilitator and barriers. With reference to solely explore the opinions of medical staff of FMC, Keffi on PCC and the optimization of preconception health for better pregnancy outcomes.

Method

Conceptual and theoretical framework

A thorough review of the existing literature on preconception care, specifically focusing on the barriers and facilitators that medical staff may face in providing optimal care was done. This was done to help provide context for the study and identify gaps in the current body of knowledge. Rosenstock Health Belief Model (HBM) was the theory upon which the study was based. The HBM provides a theoretical basis from which health-related behavior might be predicted and changed. Rosenstock (1974) proposed that the HBM has roots in

value-expectancy approach. This approach predicts behavior based on two elements: the subjective value of the individual concerning a particular outcome and the individual's estimate of the probability of a behavior being associated with that outcome.

Study Settings

The setting of the study is federal Medical Centre, Keffi. Federal Medical Centre, Keffi is located in Nasarawa State, North Central Nigeria. This hospital was established in the year 2000 using the facilities of the then General Hospital, Keffi. It is a tertiary healthcare institution which provides both basic and specialist services.

Study Design

The design used for this study is quantitative study design. Qualitative research involves collecting and analyzing non-numerical data with the aid of interview, focus group discussion, observations etc. to understand concepts, opinions, or experiences.

Target Population

The target population for this study was healthcare providers working presently at the Medical Centre, which solely include medical doctors and nurses working in Federal medical center, Keffi.

Sample Size and Sampling techniques

A purposive sampling technique was used to Identify and select participants for the study, considering factors such as their role within the medical center, level of experience, and willingness to participate. Ensuring that the sample size was sufficient to capture a diverse range of perspectives and opinions. The interview was done until point of saturation: at the point of data saturation, you start to notice that the information you are collecting is just reinforcing what you already know rather than providing new insights. Knowing when you have reached this point is fairly subjective – there is no formula or equation that can be applied. For this study, the point of saturation was noticed after the twelve interviews done. Hence, the sample Size was twelve healthcare providers. The study explored the opinions of healthcare providers on the influence of preconception care in making healthy babies.

Study tool and Validation

Data collection was done using interviews through a well-structured interview guide constructed based on the research objectives, these was validated by among similar participants but in a different hospital (General hospital Mararaba, Nasarawa State). Repeated testing of

the research instrument produced the same results and answers as needed, demonstrating the consistency and homogeneity of the instruments since the items of the research instrument measured the same concepts with the required accuracy, precision, equivalence, and stability. This ensures that data collection tool was properly designed and validated to ensure trustworthiness of the findings. Interviewers bias was avoided using an interview guides and standardised questions which structured the interviews and maintained the consistency in the questioning process. Response bias was avoided by ensuring the language in which the questions were framed was appropriate and asking only one question at a time.

Ethical Considerations

Information was obtained by face-to-face interviews with the participants, obtaining their verbal assent, and displaying the ethical clearance with registration number: (NHREC/20/12/2012), provided by the hospital's ethics committee on collection of contact information, the semi-structured interviews were planned and initiated with participants. For those participants who wanted to know something specific about the process of interview, an explanation was provided.

Method of data analysis

As soon as the interviews ended, the recordings alongside field notes were retrieved for processing and transcribing. It consisted of open-ended questions that enabled the researcher to obtain required information from participants. The data obtained was analysed using NVivo version 12, the data collected was classified and arranged for the identification of themes and patterns. In coding the data, the approach developed by Aurebach and Silverstein [1] was adopted. The coding procedure has three stages, and each phase has sub statements that constituted the steps that represent the activities that must be undertaken to actualise the coding. The stages and their steps are as follows:

1.) Making the text manageable

Step A: Explicitly state your research concerns and theoretical framework.

Step B: Select the relevant text for further analysis. Do this by reading through your raw text with step A in mind.

2.) Hearing what was said

Step C: Record repeating ideas by grouping together related passages of relevant text.

Step D: Organise themes by grouping repeating ideas into coherent categories.

3.) Developing theory

Step E: Develop theoretical constructs by grouping themes into more abstract concepts consistent with your theoretical framework.

Step F: Create a theoretical narrative by retelling the participant's story in terms of the theoretical constructs. For the purposes of this study, only steps A to D were adopted. The central idea of coding is to move from raw data to research concerns in small steps, with each step building on the previous one. The themes generated were analyzed through thematic analysis. Thematic content approached according to Braun & Clarke in 2006 was utilized for the analysis and direct participants comments were used.² These were done to enhance transparency and replicability. The findings in relation to the research questions and existing literature were interpreted and the implications of the findings for improving preconception care practice were discussed and strategies to address the identified barriers and enhance facilitators of preconception care were recommended.

Results

Knowledge of staffs on benefit of preconception care on the future wellbeing of the baby

Some of the participants when asked responded as follows on the benefits of preconceptions care on the future wellbeing of babies

A participant said that preconception care is an important aspect of care that is rendered to couples and people of reproductive ages before pregnancy to help promote health and improve pregnancy outcomes. Ideally every couple, especially newlyweds should receive preconception care for better pregnancy outcomes. Also, during this period poor health behaviors are addressed example diet and lifestyle, a woman who is malnourished or has anemia is at risk of several complications in pregnancy for example infections due to low immunity and shock from blood loss during delivery this can cause intrauterine growth retardation or even death.

The participant pointed out that preconception care is of importance for couples before having babies to ensure healthy babies.

Another participant pointed out that preconception care provides a period where the couples will be enlightened on several on issues like genotype screening to prevent the prevalence of sickle cell, use of folic acid before getting married which will help prevent spinal bifida in newborns and diet (reduction of alcohol) all this help to improve health of mother and baby.

The participant recognized preconception care as a period where couples will be educated about services that fell under its purview but weren't knowingly

referred to as such at the time they were being offered. Because they sought to reduce the prevalence of sickle cell, they were referred to as preconception care

Similarly, another healthcare giver stated that preconception care is the act of educating the society on how to take care of themselves before pregnancy and this touches on screening for possible risk factors that can lead to complications, recognition and modify various health behaviors that can pose a negative effect on pregnancy example social vices such as illicit sexual activity, this predisposes the woman to sexually transmitted diseases that can be transmitted to the fetus and cause severe damage to the baby. For example, a mother infected with gonorrhoea that does not receive proper care and counseling before pregnancy during and after pregnancy will most likely transmit these bacteria to their baby will can lead to ophthalmia neonatorum which if not treated properly will cause blindness in the baby.

The participant described such services as constituting preconception care because they were aimed at improvement of future pregnancy outcomes in the hospital to screen for health risk that can affect pregnancy fertility status of the intending couples is also discussed.

Further interview with another healthcare providers, this healthcare providers said that preconception care entails a period where intending couples go to the hospital to screen for health risk that can affect pregnancy, during this time birth preparedness involving future hospital for antenatal, perinatal and postnatal care are discussed. The fertility status of the intending couples is also discussed. For example, severe alcohol intake can put both men and women at risk for infertility. Also use certain drugs by the woman as well as infections can lead to complications and malformations in the baby.

This participant identifies that during this period couples go to health Facilities where known preconception care services are provided in a well-defined manner provision of health information, education and counseling to avoid complications in pregnancy example gestational diabetes which will give rise to macrosomic babies that are at risk for type 2 diabetes in future in line with those respondents.

Facilitators that improve the delivery of preconception health care (PHC)

Findings shows how the facilitators that improve the delivery of preconception health care in Federal Medical Center Keffi, Nasarawa State revealed most provider facilitators were related to the professional responsibility to deliver PCC was a frequently reported barrier conversely, the belief that having a responsibility in PCC

facilitated the provision of PCC by Creation of awareness.

When ask about the facilitators of preconceptions care responded that:

A participant said creation of awareness is the most important factor to help promote preconception care, because most people don't have knowledge about going to the hospital to seek counseling before they decide to get pregnant. Sensitizing people through sign boards, posters, newspapers and even integrating awareness into religious centers to reach the mass public.

Findings also revealed that the multiplicity of health issues within this issue plus the fact that half of all pregnancies are unplanned make mass sensitization and clinician intervention on preconception health challenging. Preconception care when enlightening the public because in most cases of infertility.

Another participant said sensitization of the public is highly effective in promoting preconception care; religious centers should not be excluded because "most people believe their religious leaders more than healthcare workers". Pondering on male involvement in preconception care when enlightening the public because in most cases of infertility the men think they are not the problem leading long series of tests carried out on the woman with a positive result. Also reaching the masses through outreaches especially for people in rural areas.

This participant identifies the involvement of religious leaders as well as public sensitization with emphasis on male involvement as facilitators of PCC.

- One other participants said that incorporating preconception health care into curriculums and educational systems to enlighten more people. He further stated that policy makers are important factors of preconception health for providing policies on important attendance of preconception care for people of reproductive ages. Another participant has a similar opinion and said that: The promotion of education on the severity and risks to create a fear appeal so as to improve the health seeking behavior of people of reproductive ages. Also, other said that: Adequate health education will aid a wider use of care for example people that have benefited will go and inform more people and this leads to larger access.

This implies that the place of education in facilitating preconception Care can never be under emphasised.

Other participants in their statement said the following can facilitate preconception care: –

- "Provision of subsidy by the government to reduce the costs of preconception care services".



"Provision of preconception care service in clinics in the community"

"Creating awareness not only through media but also through home-to-home visits to have direct contact with either mass in the community."

"Provision of a conducive environment for people to be comfortable with sharing information about history."

This shows that the place of cost of service, available PCC clinic in the community, use of mass media to create awareness and provisions of an environment that will enhance a heart-to-heart sharing of information can never be left out to facilitate PCC usage and availability in the community.

In another view one other participant identified training in this study can be used to enhance the knowledge of healthcare providers about preconception care, and asserts that:

"Training of healthcare workers to carry out preconception care and provided with available resources and positive working environment to aid quality of care"

Barriers that limit the delivery of preconception health care

All participants show the barriers that limit the delivery of preconception health care and expressed the concern that future parents who would benefit the most from PCC are the ones who are the hardest to reach. There are also barriers to achieving the goals of preconception care. They include educating individuals of childbearing age about avoiding unintended, rapid repeat pregnancy, following up on health risks identified during pregnancy, and transitioning into appropriate primary care.

One of the participants gives the barriers that limit the delivery of preconception health care in Federal Medical Centre Keffi where respondent states that:

A participant said that- *Sensitizing of the topic will make many Nigeria avoid going to the hospital and wait until they start noticing problems before seeking healthcare.*

- Also, long waiting time prevents people from seeking healthcare: because they know they will spend hours that couldn't been channeled on doing something else.

Moreover, one showed that the barriers that limit the delivery of preconception health care in Federal Medical Centre, Keffi, were attributed to:

- Lack of knowledge on the importance of receiving preconception care.

- Lack of availability of preconception care services outside of the hospital for example in clinic closer to the population.

In the same vein, with regards to the barriers that limit the delivery of preconception health care in Federal Medical Centre, Keffi one participant asserts that:

- poor incorporating preconception health care into curriculums and educational systems to enlighten more people.

- Policy makers are important factors of preconception health for providing policies on important attendance of preconception care for people of reproductive ages.

- Most people assume 'their okay' they have knowledge of the possibility of risks before pregnancy, so they come to the hospital when those risks become problematic.

- Cultural factors and the sensitivity of the topic prevents people from coming to the hospital. Some cultures don't recognize telling anybody about your pregnancy until their 'far gone' or until the baby is viable.

- Also fear of the results of the screening done during preconception period will prevent.

The clients' belief system is never to be overlooked, as it will hinder the use of PCC. One of the participants asserts that:

Belief: Most people have a negative view of health in the sense that they see health as an absence of disease and tend to not come to the hospital until they notice symptoms of a disease that they cannot adequately manage

Delivery of PCC is perceived to be time consuming because it is a new form of care and because of the substantial amount of risk factors that should be addressed during a consultation. The other participants believed that the following could serve as a barrier to PCC:

Lack of emphasis on the benefits of preconception care, and the fact that most people do not even know about it

- Lack of make partner involvement due to cultural beliefs

- Poor knowledge

- Lack of male involvement in preconception care

- Finance and transportation

- Sensitivity if the topic and several cultural beliefs.

"Lack of awareness on concept of preconception care, cultural beliefs"

Interventions that can help bridge the gap

Several findings were explored on the interventions that can help bridge the gap on preconception health care. Interventions targeting literacy, women's economic independence and other development efforts rarely link to the health care outcomes of interest. However, such interventions are mentioned where relevant and where it

makes good sense that expanding such efforts would positively impact certain indicators of health care. One participant suggests the interventions that can help bridge the gap as:

- *Providing people with knowledge on issue that can arise if the preconception period is neglected.*
- *Involvement of community leaders to help mobilize the public*

Similarly, another participant suggests the interventions that can help bridge the gap as enlightenment, screening and health education. Reflecting the fundamental factors that affect health in these settings, such as poverty, a lack of access to clean water and sanitation, and food shortages. Women are frequently not enabled to seek healthcare or make decisions about their own wellbeing due to inadequate educational and health systems, societal norms, and gender inequity. Therefore, the participant suggests the following:

- *Enlightening of people on the presence of possible risk factors that can cause infertility and complications in pregnancy.*
- *Screening and health education services should be provided by trained healthcare providers in clinics outside of the hospital.*
- *Reducing the waiting time when people seek preconception care*

To deliver preconception care, health systems and community-based initiatives will need to be enhanced and education sensitive approach. Preconception care may be aimed towards these audiences, but they may not be responsive to it since some women and couples may not desire pregnancy, while others may be unable to conceive, prefer to delay pregnancy, or are simply not considering it now. Some participants suggest that:

- Organization of community outreach and sensitization of healthcare workers through workshop training will bridge the gap. Community mobilization and involvement of NGO to deliver preconception care services to the public.*
- Involvement of policy makers on strict compliance of people of reproductive ages to preconception care.*
- *Integrating preconception care into the educational system; as part of the curriculum in schools.*
- *Use of images, media and other methods to spread awareness*

The pooling of these interventions identified that preconception care and counseling improved women's health behaviors. Preconception care is therefore important from a public health perspective since it could reduce health risks and improve global outcomes for women, mothers and babies. So, it was suggested by one participant that interventions that can help bridge the gap as training health workers:

- *Training of healthcare workers to carry out preconception care and provided with available resources and positive working environment to aid quality of care.*
- *Education and provision of knowledge is key to bridging the gap*

Discussion

The discussion of the findings in relation to all the objectives in the study is presented below.

Level of awareness on benefit of PCC on future wellbeing of mothers and children

Findings from this study shows that preconception care is the care provided before pregnancy to improve the outcome of mother and baby because it provides an opportunity for early detection and treatment to prevent complications. Hence, the awareness level is very high. This agrees with the research: effects of nutritional interventions during pregnancy on birth, child health and development outcomes: a systematic review of evidence from global north and global south countries conducted by Lassi *et al.* in 2019 which states that preconception care provides a vital chance, for married couples, to address existing precarious health risks that can affect maternal and child outcome.⁸

Facilitators that improve PCC

The key facilitators noted in this study is sensitization and education of the public advantages of preconception care, other facilitators include provision PCC clinics outside the hospital, male involvement in PCC, creation of subsidy by the government to reduce the cost of PCC services and inclusion of PCC in school curricula. These findings are in line with a study: determinants of preconception care among pregnant women in an urban and a rural health facility in Kenya: a qualitative study, conducted by Okemo *et al.* in 2021, in this study several strategies were listed to improve access to PCC services including increasing PCC awareness such as using the media, setting up PCC clinics and integrating PCC into other clinics and integrating PCC in the curricula of the later.²⁹

Barriers that limit access to PCC

Findings from this study gave rise to various barriers that can limit individuals access to preconception care services, this includes: lack of knowledge on the concept of PCC. This barrier is in line with similar research done by Okemo *et al.* (2020) where it concluded that women's lack of awareness about PCC, in conjunction with attitudes towards PCC and pregnancy impact strongly on its utilization.²⁹ Similarly, Teshome *et al.* (2020) in their study: determinants of Anemia Among Pregnant



Women Attending Antenatal Care Clinic at Public Health Facilities in Kacha Birra District, Southern Ethiopia, concluded that women's lack of knowledge about the benefits of preconception care is a major deterrent to the uptake of Preconception care.³⁰

The content of preconception care services described in this study included provision of information, education and counseling. These were provided as part of general counseling in antenatal clinic settings or to patients as individuals during clinic encounters for other reasons. Thus, usually of benefit to subsequent pregnancies and not the first one. Some of the participants in previous studies cited communication problems as a barrier. The study's findings imply that there are obstacles to PCC delivery and acceptance. Lack of - Sensitization of the matter will lead to many Nigerians avoid going to the hospital and delay seeking healthcare until they first notice concerns, Lack of awareness of the value of preconception care, inability to get preconception care services outside of hospitals, such as in clinics located closer to the population, People are discouraged from visiting the hospital due to cultural issues and the sensitive nature of the subject. Some cultures consider it inappropriate to notify someone you're expecting until you're "far gone" or the baby is viable. In order to improve the quality of care and the absence of male involvement in preconception care, healthcare professionals should also be trained to provide preconception care and should have access to resources and a pleasant work environment. This restriction is especially concerning because the socioeconomically disadvantaged populations, like future parents, would benefit most from PCC. The advantages of PCC are generally unknown to prospective parents. A participant was unsure about the need for and best practices for

preconception healthcare delivery, including using religious institutions to educate the general public and sensitizing people through sign boards, posters, and newspapers, public awareness-building regarding the significance of preconception care, increasing awareness through house to home outreach as well as the media but also through home to home visits to have direct contact with either mass in the community and enlighten the public on advantages of preconception care. It is important that future parents receive care from the proper caregiver. One of the participants expressed the concern that too often patients who need specialized care are not referred or are referred too late to them. This study demonstrates the lack of understanding and familiarity with PCC among people of reproductive ages. This study highlights the need for additional research into how organizational impediments affect the delivery of PCC and how interdisciplinary collaboration might lead to PCC that is perfectly suited. However, given the urgency of the poor patient referral issue, we advise putting the Federal Medical Center's PCC program into action. Additionally, it is in favor of PCC being taught in future healthcare professionals' academic programs.

Strengths and Limitations of the study

By focusing on healthcare providers in FMC, Keffi, the study provides valuable insights into the barriers and facilitators of optimizing preconception care in the local context. The study sheds light on a topic that is often overlooked in healthcare research - preconception care. Understanding the perspectives of healthcare providers, the study adds to the existing body of knowledge on this subject and can potentially inform future interventions and policies aimed at improving preconception care in Nigeria. However, there are also some limitations to

PRECONCEPTION CARE BARRIERS-FACILITATORS CONCEPT MAP

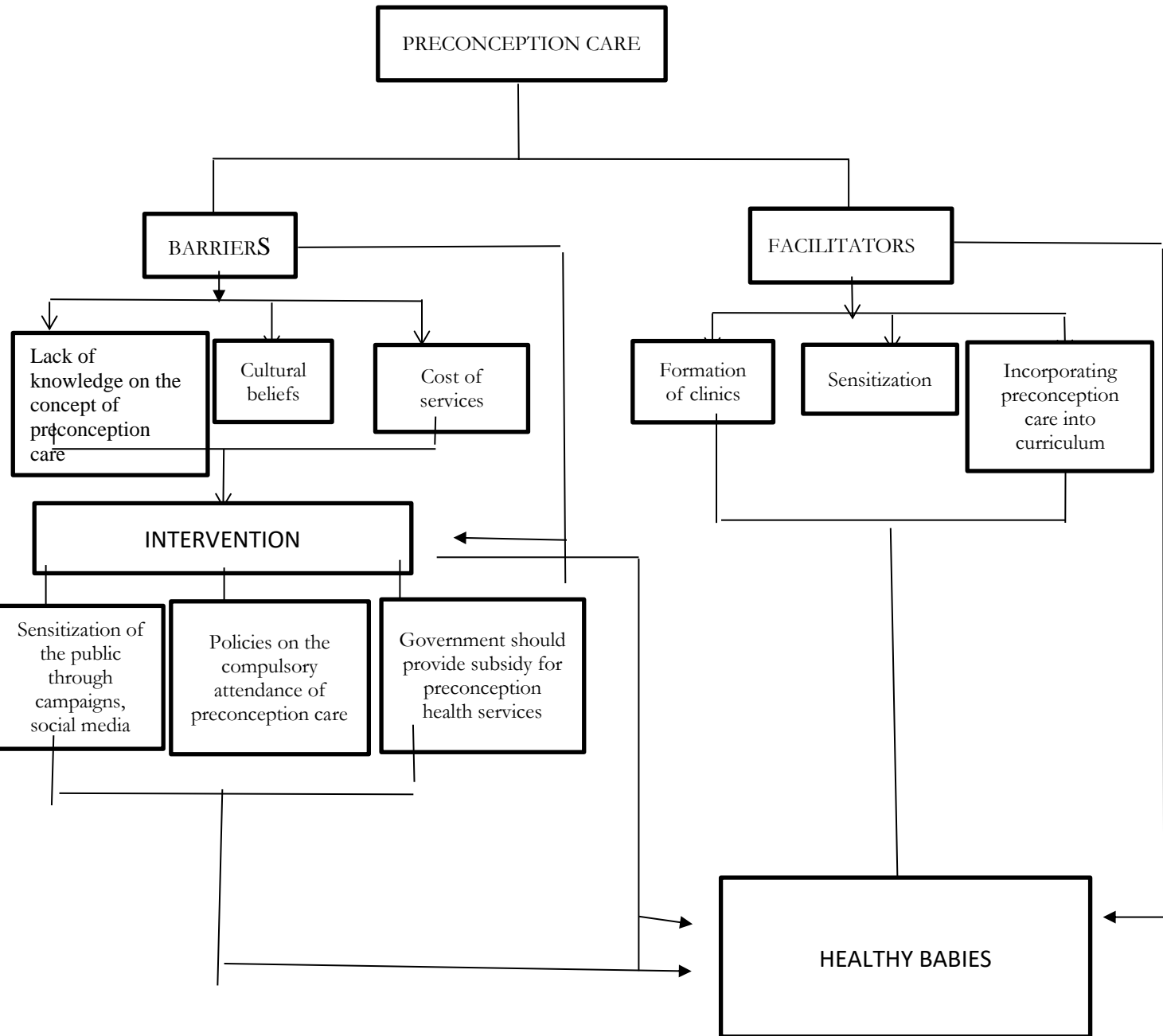


Fig 1: Concept Map



consider. The study only focuses on healthcare providers in one specific healthcare facility, so the findings may not be generalizable to other settings or regions in Nigeria. Additionally, the study relies on self-report data, which may be subject to recall bias or social desirability bias, limiting the validity and reliability of the findings. Moreover, the perspective of patients or other stakeholders, which could provide a more comprehensive understanding of the barriers and facilitators of optimizing preconception care was not taken into consideration. Including a broader range of perspectives could have strengthened the study and provided a more well-rounded view. Overall, while the study provides valuable insights, it is important to interpret the findings with caution due to the specific context and limitations of the research design. Further research, including larger sample sizes and a more diverse range of participants, would be beneficial to confirm and expand upon the findings of this study.

Conclusion

To provide preconception care effectively, four barriers have been identified by this study. Given the exploratory character of the work, this study suggests future research be carried out to better understand these barriers and to identify which barriers should be prioritized for intervention. Study also emphasizes the necessity for more investigation into how organizational constraints affect the delivery of poor PCC, as well as how interdisciplinary cooperation might lead to intervention strategies that are perfectly suited to the needs of the patient. The benefits of PCC interventions, such as folic acid supplementation, and the promotion of a healthy diet, have provided sufficient evidence to justify the government-coordinated program's introduction and integration; however, the recommendation for further research should not prevent it. Preconception care is widely accepted in our society despite low awareness, good perception, and acceptance rates. It is urgently necessary to raise knowledge to change how the general public views preconception care. To improve fetomaternal outcomes, the services should be easily accessible and integrated into normal maternal healthcare. These can be accomplished by making it available to women whenever they use healthcare facilities, including those in other disciplines, until it is fully included into the services provided for both mothers and their children.

Declarations

Ethical Consideration: Information was obtained by face-to-face interviews with the participants and where

not possible phone call interviews were arranged, obtaining their verbal assent, and displaying the ethical clearance with registration number: (NHREC/20/12/2012), provided by the hospital's ethical committee on collection of contact information, the semi-structured interviews were planned and initiated with participants.

Authors' Contribution: SGA (Identification of the research problem, Content design, designed the instrument for data collection, Supervised the process of interview, Data interpretation and discussion, coordinated the writing of the paper). IJA (Conduct the review of related literature, Co-write the content of the paper, Co-designed the instrument for data collection, collection of the ethical clearance on behalf of the team, conduction of the interview, Conducted the data analysis). OFT (Proofread the content and instrument for data collection, involved in data collection and interpretation). ISH (Involved in data collection and, proof reading and editing of the content of the paper). OSS (Involved in data collection and editing of the content)

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