

# Determinants of Preconception care among Pregnant Women In an Urban and a Rural Health Facility In Kenya: A Qualitative Study

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## Research article

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# Abstract

## BACKGROUND

Preconception care (PCC) is a form of preventive health care that is offered to women and couples before conception, with the aim of improving their health status and mitigating various risk factors that could contribute to poor maternal and child health outcomes. The levels of PCC utilization are still low globally, especially in developing countries and in the rural areas. Little is known regarding PCC use in Kenya that could help in bridging this gap. This study aimed to assess the determinants of PCC in urban and rural settings in Kenya.

## METHODS

Selected pregnant women seeking antenatal care (ANC) were recruited by purposive sampling at the Mother and Child Health (MCH) clinics in Aga Khan University Hospital, Nairobi (AKUH, N-urban) and Maragua Level Four Hospital (MLFH-rural). A qualitative approach was employed to assess determinants of PCC using a semi-structured interview guide. The interviews were transcribed verbatim and analyzed thematically.

## RESULTS

A total of 26 women were invited, of whom 21 accepted to participate in in-depth interviews (IDIs). Saturation of themes occurred after 13 interviews (7 at AKUH and 6 at MLFH).

Transcription, coding and thematic analysis of the IDIs yielded 12 main themes. Eleven of the main themes were identified as determinants of PCC while the twelfth theme contained suggested strategies of increasing PCC awareness and utilization, such as using the media, setting up PCC clinics and integrating PCC into other clinics. The dominant themes were awareness about PCC and attitudes towards PCC and pregnancy.

The broad determinants of PCC were similar in urban and rural settings – with a few notable exceptions. For example, in the rural setting, women's level of education and a pervasive history of poor interactions with healthcare providers were major determinants of PCC.

## CONCLUSION

From this study we conclude that women's lack of awareness about PCC, in conjunction with attitudes towards PCC and pregnancy impact strongly on its utilization. This lack of awareness could be addressed through health education programs for both the public and for healthcare providers, as well as integrating PCC in the curricula of nurses and doctors.

## Background

Preconception care is a set of evidence based interventions provided to women and couples in the pre-pregnancy period in order to improve their health status and mitigate various risk factors that could contribute to poor maternal and child health outcomes (1-3).

World Health Organization (WHO) (1, 2, 4) has proposed PCC to include the following: reproductive health planning through use of contraception; screening and management of medical, behavioral and social pregnancy risks; health education and promotion; vaccinations and nutritional supplementation.

The level of PCC in developed parts of the world albeit low, are higher than in developing world (27-39% versus 2.7-14%) (5-11). Several studies conducted in different parts of the world have revealed varying PCC determinants. Some of the barriers to PCC identified in a United States based study (5) included: lack of awareness of the risk factors and their impact on maternal and fetal outcomes by the women, time constraints and insufficient training and knowledge of PCC by the health providers. A separate study by Stephenson et al in the United Kingdom (6) revealed poor awareness of PCC among women and health providers as hindrances to PCC, alongside lack of resources and confusion about responsibility for PCC delivery. An Italian study by Bortolus et al (12) indicated additional determinants of PCC such as considering conception as a natural event, low policy priority by government health agencies and media carelessness. Elsewhere, two separate Ethiopian studies (11, 13) revealed more PCC determinants such as presence of chronic diseases, prior adverse birth outcomes and partner involvement. Even though some of the PCC determinants are shared across different parts of the world, there are contextual differences across the globe that would necessitate tailored strategies.

Although the Ministry of Health in Kenya and the Kenya National Reproductive Health Strategy (KNRHS) of 2009-2015 (14) recommend PCC as one of the pillars aimed at attaining the fourth and fifth Millennium Development Goals (MDGs) (15), there is paucity of information on how this was to be accomplished. According to KNRHS, some of the key challenges to overall maternal and neonatal health service delivery were weaknesses in the health sector that negatively affect access to care and the various cultural and socio-economic barriers to skilled care(14).

Differences in the level of other maternal health services in urban and rural Kenya may imply differences in the determinants of PCC (16, 17). According to the Kenya Demographic Health Survey (KDHS) 2014 (18), the unmet need for contraception is 18% for married women and 27 % for sexually active unmarried women and is higher in rural (20%) than urban (13%) areas. Efforts to increase contraceptive prevalence rate (CPR) in Kenya (currently at 62% in urban and 56% in rural) have however been met by challenges such as poverty, religious, cultural beliefs and practices and weak health systems (15). The KDHS 2014 (18) revealed that a majority of women in Kenya start their ANC after four months of pregnancy with only 19.8% initiating it within the first four months. Studies that have looked at the determinants of various maternal health services utilization in Kenya found level of education, marital status, age, employment and accessibility to health facilities as factors affecting utilization (19, 20). No studies were identified in literature that have looked at PCC determinants in Kenya.

The purpose of this study was to assess the determinants of PCC utilization among pregnant women in urban and rural settings in Kenya.

## Methods

### DESIGN AND STUDY SETTING

The study definition of PCC utilization was contact with any health provider before current pregnancy and having discussed about pregnancy planning and preparation.

A qualitative approach was used to gain an understanding of the contextual determinants of PCC in the two study settings through IDIs.

The study was conducted at the AKUH, N (urban setting of the study) and MLFH (rural setting of the study) MCH clinics. The background information on both study settings have been elaborated in the quantitative study.

### STUDY PARTICIPANTS AND TOOLS

The study population included all pregnant women regardless of their gestational age and ANC visit attending MCH clinics at the two hospitals. The participants were eligible if they were aged  $\geq 18$  years, able to speak English or Kiswahili languages and were attending their antenatal visit during current pregnancy.

The study was carried out among pregnant women attending MCH clinics for ANC in the two hospitals since from the KDHS 2014 report (18, 21, 22), over 97% of pregnant women in the two counties have at least one contact with a skilled health provider. Obtaining study subjects from the population of pregnant women attending MCH clinic in both hospitals provided a good representation of the pregnant women population and by extension, reproductive-aged women.

The gold standard for determining sample size in qualitative studies is 'saturation' where the investigator continues to seek information until no significant new information or themes are anticipated to arise from further interviews (23). An estimated number of interviews to be conducted was 15 in each site, derived from literature review where most of the PCC qualitative studies involving interviews had a sample size of 12 to 27 participants (12, 23). However, the interviews in this study were conducted to saturation.

The interview guides used in the study were available in both English and Kiswahili languages. The questions in the interview guides were developed to reflect the study objectives and literature review. They were thereafter piloted on 8 antenatal women in AKUH, N and MLFH MCH clinics to test the idioms of the languages used, check whether the questions were appropriately framed, inoffensive, clear, easy to understand, able to elicit discussions and address the intended questions for the study. They were thereafter found to be ideal for the study and did not require any adjustments. Thus, a 10 question semi-structured interview guide was used to conduct the IDIs.

## **DATA COLLECTION PROCEDURES**

Data collection was carried out at both study sites by the principal investigator. This was done during the waiting period before consultation with the health providers at the respective MCH clinics.

Purposive sampling was used to recruit women, via face to face approach, who took part in the IDIs. This approach resulted in a group of participants with varied demographic characteristics such as age, level of education, parity and past obstetrics history. The interviews were conducted in one of the consultation rooms at the MCH in both sites with a “Do not Disturb” sign placed at the door during the interviews to minimize interruptions and uphold privacy and confidentiality of the participants. All the interviews were audio recorded and lasted an average of 13 minutes.

Figure 1 below (*appearing after the references section on page 19*) shows the study flow diagram.

## **DATA ANALYSIS**

Each interview was immediately transcribed verbatim into Microsoft word by JKO. Each IDI transcript was read and reread for data familiarization and thereafter, coding was done line by line by JKO. Analyst triangulation was employed by having two individuals (CK-a research scientist with experience in qualitative research and SN-a social scientist) separately listen to the audio recordings, confirm the transcripts and identify codes. The three discussed their codes, modified or identified new codes where discrepancies arose and developed an agreed upon list of codes. A thematic framework was thereafter manually constructed through grouping codes into categories and merging categories into sub themes and themes by JKO, CK, SN and DK. Saturation was achieved after 7 interviews in AKUH, N and 6 in MLFH. Further 4 interviews were conducted in each site to ensure no new information was subsequently emerging. Indexing, charting, mapping and data interpretation were thereafter carried out by JKO, DK, MT and MM.

## **Results**

### **Study participants.**

Table 1 below (*appearing after the references section on page 20*) summarizes the characteristics of the participants which shows that the women interviewed were comparable in age, parity and PCC utilization across both sites, but differed in marital status, education levels and occupation.

### **PCC determinants**

Twelve main themes emerged from the data as illustrated in table 2 below (*appearing after references section below on pages 20-22*), eleven of which were identified as PCC determinants and the twelfth theme captured the strategies for increasing PCC awareness and utilization. The majority of the PCC determinants were comparable in the two study sites with the following exceptions: attitude towards PCC

and previous interactions with health professionals (both more in the rural setting), and social influences (more in the urban setting).

## Discussion

One of the key findings of this study is that women's lack of knowledge about PCC was a key determinant of the utilization of preconception care among participants, both in urban and rural settings. This is not only a lack of awareness of the existence of PCC but also awareness of the content and timing of PCC, as the latter two guide women to know whether and when they need PCC services (2, 3, 24). Awareness about the risk factors that may lead to poor pregnancy outcomes, and the existence of risk mitigation measures through PCC emerged as a key factor in determining if women are willing to use PCC. Some women in this study with pregnancy risk factors, though aware of PCC, may have opted not to use PCC if they felt that there was no way of mitigating the risk in order to better pregnancy outcomes. This key finding is comparable to findings in studies by Asresu et al (13) and Demisse et al (11) in Ethiopia and an Italian study by Bortolus et al (12) which also found awareness about PCC as a key determinant. Addressing lack of awareness therefore, should not only entail making known its existence but also making the public aware of potential pregnancy risk factors and the existence of the evidence based interventions that better pregnancy outcomes.

It is possible to postulate that there would be a difference between the PCC uptake in the rural and urban settings here, because of differences in access, educational levels and availability of resources (18). Although some of the respondents from the rural setting felt that their urban counterparts were more aware of PCC due to their higher education levels and exposure, a majority of the urban women were equally unaware of PCC. Thus being educated did not necessarily translate to being aware of PCC. It is possible that the women from the rural setting assume that higher education is associated with knowledge seeking behavior which would spill over to gaining knowledge beyond one's area of training. Another possible assumption is that higher education is associated with higher income which in turn buys access to qualified medical advice.

Another instructive example of determinants revealed in this study include lack of awareness about the content of PCC among health providers. This chimes with several studies in literature which found PCC awareness to be an issue not only among women, but also among health providers (6, 25-27). Therefore, if PCC is to be effectively utilized, a key national health promotion target should be not only to increase PCC awareness of the public but also of (primary) health care workers and women of childbearing age. Some enlightening ideas from the participants in this study on the most effective ways of increasing PCC awareness includes use of broadcast and print media both of which are widely available in Kenya (18), and equipping all health providers with the same message on PCC concept. As an adjunct goal, health education programs should aim to also clear the existing misconceptions about the care, such as PCC aims to give supplements to help with conception and it is therefore only for those with fertility problems, which were also evident from this study.

A majority of the women in both study sites agreed that PCC was a very important form of primary health care that was desirable. However, due to its unavailability and various accessibility challenges, it was unreachable. Financial and time constraints were underlined as major players in limiting accessibility of PCC to those who desired it both in the urban and rural settings. Due to a myriad other competing financial demands, PCC was sacrificed over more pressing needs. A few women went as far as convincing themselves that they were too healthy to require PCC, simply because it was beyond their reach. Due to the demanding nature of some vocations, poor time keeping and long queues during hospital visits, appointments for PCC consultations could not be honored.

This is an interesting determinant that was uniformly spread in both study settings. Whereas the people in the urban setting generally have more financial muscle, the issue of time constraints due to hours spent in traffic jam, stringent work hours and long queues in hospitals are critical impediments. On the other, their rural counterparts' challenge lies not only in the amount of time spent looking for daily bread and butter which wins over PCC, but also in the limited finances. Local studies have demonstrated that similar hindrances face other forms of maternal health services in Kenya (19, 20). Same barriers to PCC care uptake were also found in other studies in different parts of the world (25, 28-30). As suggested by a few women, incorporating PCC in the free maternity care program in Kenya and initiating distinct PCC clinics in health care facilities can help to address these barriers.

Participants, both rural and urban, had split opinions on whose responsibility it was to initiate PCC. Whereas some felt it was primarily the health care workers' responsibility in view of the fact that they were the ones who were equipped with PCC information, others felt it was a woman's job as they are the ones in need and others still, the role of the whole community. This means no one in particular is responsible for initiating the care, and could be attributed to lack of guidelines and strategies with regards to PCC delivery in Kenya. This results in a situation where the women who may be most in need of PCC cannot access it – as they rely on healthcare providers to initiate them into the care. This reflects the findings of several studies several studies in literature which also revealed a lack of guidelines on PCC responsibility (5, 6, 12, 25, 28). Further, studies done among health providers also revealed a lack of consensus on this (25, 28, 31). Public education to enable understanding of individual responsibilities and clear role definitions would clear the existing confusion. As proposed by some of the participants, incorporating PCC as a must have service during other hospital visits for all reproductive aged women would help health providers assume the responsibility of offering it to their patients.

Respondents from both sites recognized that their attitudes towards pregnancy and PCC, such as pregnancy planning, are important determinants of PCC utilization. Since some women believe that pregnancy is a natural phenomenon that is dictated by higher powers, PCC was seen as less relevant, as they believe one can never really plan or prepare for a pregnancy. Inability to plan for a pregnancy goes hand in hand with inability to seek PCC. Studies elsewhere in the literature reveal that some women believe that it was beyond their power to plan a pregnancy (25, 26, 28-32). The CPR level in Kenya is at 62% in urban and 56% in rural areas (15), and this may potentially augment the problem of PCC utilization. A few rural women held beliefs that PCC is a Western phenomenon, which makes it irrelevant

to Africans. Others' blame of witchcraft for poor obstetric outcomes shows that some traditional beliefs and practices may get in the way of effective PCC use. Use of trained, older women in the communities and community health workers who can identify with and reach the local women, is one way to address this barriers.

The study also explored the factors that enable or promote PCC use, which were prior poor obstetric outcomes and the need for information about better pregnancy outcomes in women with underlying health conditions. Conversely, good obstetric outcomes in the past led others to believe that pregnancies are smooth, natural phenomenon that did not require any enhancement or interventions. In addition, some parous women felt more knowledgeable and experienced in matters pregnancy such that they felt they did not require any PCC input. This is a fascinating finding as one would expect parous women to be more aware of how dynamic and unpredictable pregnancy and delivery can be, and as a result embrace PCC more. Women therefore need to be educated about the content of PCC and the fact that a woman's risks are dynamic which doesn't always guarantee perfect outcomes in view of good outcomes in the past.

The quest for information about what pregnancy entails and how best to prepare for it or to ascertain one's health status prior to conception also drives others to seek PCC. Further, some receive PCC in view of either the presence of underlying health problems such as chronic and genetic diseases or infertility concerns. It is therefore possible to purport that both among the health professionals and the public, there are some individuals who are knowledgeable, understand the importance of and embrace PCC. This aligns with the findings in studies done in Ethiopia (13), Nigeria (9) and United Kingdom (6, 31). This comes in handy because social influences such as family, friends and social media play a remarkable role in PCC uptake. Therefore, public education on the concept of PCC to ensure that correct information is in circulation cannot be overemphasized. On the other hand, poor prior interactions with health providers serves as an impediment to not only seeking care, but to also accepting and implementing recommendations made thereafter. This, interestingly, was a dominant theme among the rural women and is echoed by findings from the Northern Nigeria study by Idris (semi-urban setting) (7). It seems self-evident that being poorly treated does not encourage patients to engage health providers. From personal observations, the submissive culture of some rural communities in Kenya towards people of authority places them in the vulnerable position of receiving instructions and admonition quietly and without questioning or demanding respect. The patient population in the rural parts of Kenya have less financial power, access and influence. Since health providers can play a crucial role in the delivery of PCC, this is an important barrier to address and rectify through feedback and communication training among health providers.

## **Strengths**

This study looked at the determinants of PCC in both urban and rural settings, as well as in private and public hospitals, in a single study. The comparison of the attitudes and experiences of women in rural

and urban centres of care is a strength as it allows comparison of women who have different levels of finances and access to PCC.

Use of qualitative method allowed us to delve deeper into the contextual factors affecting PCC in Kenya. It also provided additionally solutions to the barriers of PCC from the patients' perspective.

## **Weaknesses**

The weakness of this study was the homogeneity of the women from AKUH, N (all had tertiary education) and therefore, these findings may not apply to urban women with differing socio-demographic characteristics like those from the slums hence, a separate study in low resource urban areas may be helpful.

## **Conclusion**

From this study it is possible to conclude that women's lack of awareness about PCC, in conjunction with lack of availability and access to PCC impact strongly on its utilization in both urban and rural settings. This lack of awareness could be addressed through health education programs for both the public and for healthcare providers, as well as integrating PCC in the curricula of nurses and doctors. Women's social influences, educational level and attitudes to PCC and pregnancy were also identified as key determinants of PCC utilization in Kenya. To mitigate some of these, health agencies can train and empower community health workers and traditional birth attendants on PCC concept.

## **Abbreviations**

PCC Preconception care

ANC Antenatal care

MCH Mother and child health clinic

AKUH, N Aga Khan University Hospital Nairobi

MLFH Maragua Level Four Hospital

IDIs In-depth interviews

W H O World Health Organization

KNRHS Kenya National Reproductive Health Strategy

MDGs Millennium Development Goals

KDHS Kenya Demographic Health Survey

CPR Contraceptive Prevalence Rate

HIV Human Immunodeficiency Virus

## **Declarations**

### **Ethics approval and consent to participate**

Ethical approval was obtained from the Aga Khan University, Nairobi Research and Ethics Committee, Ref: 2016/REC-61 (v2) dated 16th February 2017. Permission to conduct the study was also sought from the hospital administrative committee in MLFH, which has oversight of research and ethics approval at this site. An informed, written consent to take part in this study was obtained from all the study participants.

### **Consent for publication**

Consent for publication was not sought since this publication does not contain any individual person's data in any form.

### **Availability of data and materials**

The data that support the findings of this study are available from AKUH, N but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of AKUH, N.

### **Competing interests**

The authors declare that they have no competing interests in this section.

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### **Authors' contributions**

Conceptualization of the study was done by J.O with the help of D.K, M.M and M.T. D.K, M.T, and M.M contributed to the study methodology and played the supervision role. J.O carried out the validation, investigation and formal analysis of data with help from D.K. J.O prepared the original draft. All the authors contributed in reviewing and editing of the manuscript. Funding acquisition was through J.O courtesy of the AKUH, N postgraduate medical education program. All authors have read and agreed to the published version of the manuscript.

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Not applicable.

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## Tables

**Table 1:** *Socio-demographic characteristics of study participants*

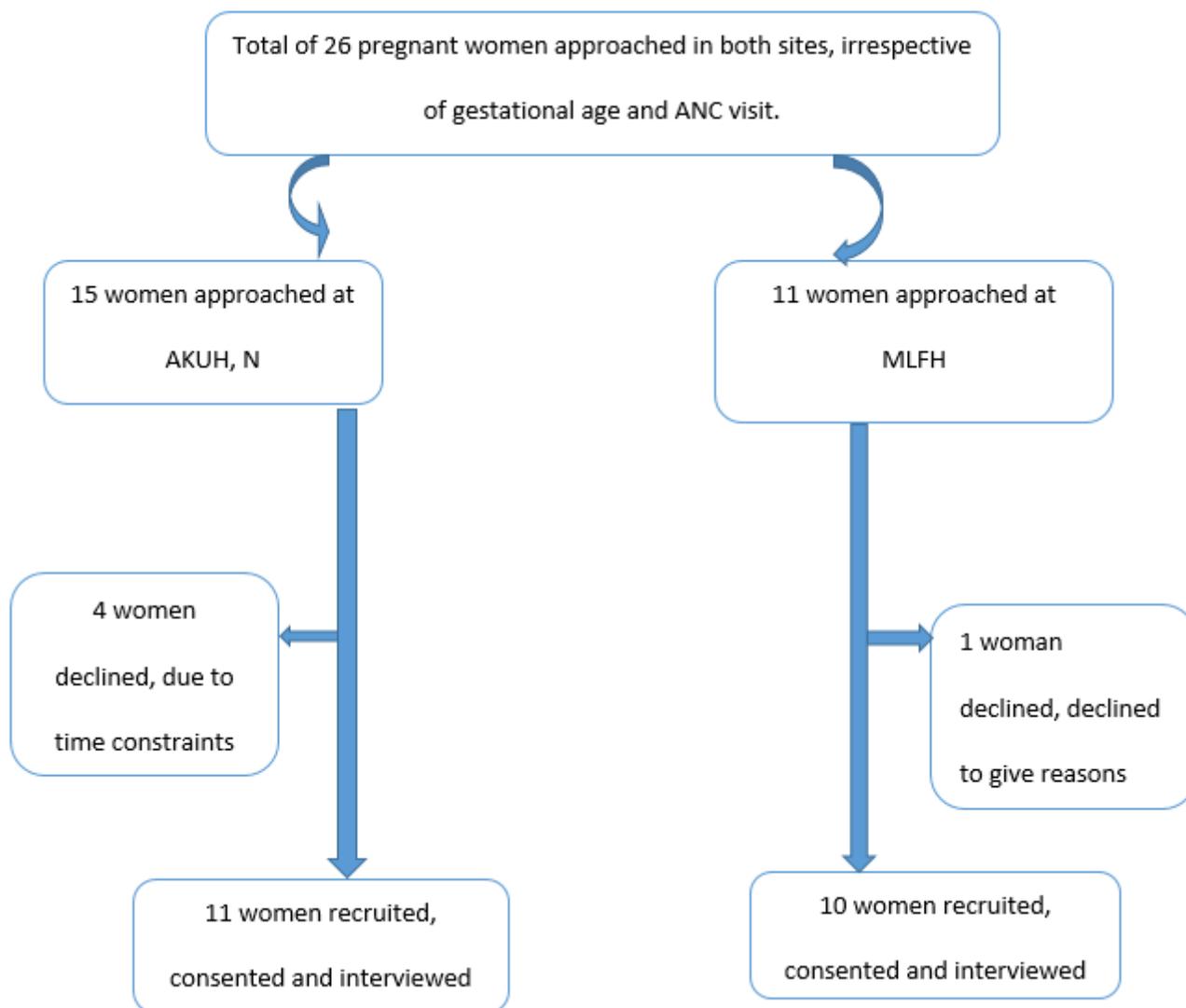
Site	AKUH, N	MLFH
Age in years	Mean=31.2	Mean=28.8
	Median=30	Median=29.5
	Range=26-39	Range=22 to 37
Marital status	Married 10/11 (90.9%)	Married 7/10 (70%)
	Widowed 1/11 (9.1%)	Single 2/10 (20%)
		Divorced 1/10 (10%)
Level of education	University 11/11 (100%)	Primary school 1/10 (10%)
		Secondary school 3/10 (30%)
		College 3/10 (30%)
		University 3/10 (30%)
Occupation	Professionals 10/11 (90.9%)	Professionals 3/10 (30%)
	Unemployed 1/11 (9.1%)	Business 3/10 (30%)
		Farmer 2/10 (20%)
		Student 1/10 (10%)
		Unemployed 1/10 (10%)
Median Parity	1+0	1+0
Fraction who received PCC	Yes 5/11 (45.5%)	Yes 3/10 (30.0%)

**Table 2:** *Summary of the twelve themes, with an illustrative quote from the IDIs.*

Main themes	Quote	Ref (source)
1. Awareness about PCC	"If I knew there was even such a thing! I have never heard of it. No, people are not aware about it. Like myself I have heard it for the very first time with you."	PCC 009, AKUH, N
2. Availability of PCC	<b>"I think it's important it's just that I am not sure it's usually available. If I knew how to access it I would probably do it."</b>	PCC 009, AKUH, N.
3. Accessibility of PCC	<i>"If I am not able to do it financially, I would even ignore. Sometimes you even convince yourself that I don't actually need this care cos I don't have money for it"</i>	PCC 004, AKUH, N
4. Responsibility for PCC	<b>"I think the responsibility for preconception care goes both ways. The greater responsibility lying on the individual, the patient but I think the initial part at least starts with the health care professional's side."</b>	PCC 065, MLFH
5. Attitudes towards pregnancy in general	<i>"We had counseling and doctor reviews after the stillbirth of my second born, just to be ready for the next pregnancy. Before that I had never bothered to seek care before getting pregnant. I always assumed I will have a smooth pregnancy and bouncing babies. After all people get pregnant all the time, even without planning and everything goes just fine."</i>	PCC 071, AKUH, N
6. <b>Attitude towards PCC</b>	<i>"If you want a healthy baby you must take care of yourself first and rectify the things in your power to change. Sometimes things can go wrong like when you get a miscarriage or something goes wrong with your baby it is better if you know you did everything that you could have done to make things okay. Also, some people just want to be healthy during pregnancy and carry pregnancy to term without any health issues."</i>	PCC 020, MLFH
<b>Minor themes</b>		
7. <b>Previous interactions with health professionals</b>	<i>"We have been telling ourselves that doctors are harsh and bad. When you go to the hospital they can harass and embarrass you."</i>	PCC 036, MLFH
8. <b>Social influences</b>	<i>"I personally advocate for PCC. So I have been talking to a few people who I know are getting married, I have been advising them, make sure if you want to get pregnant start at an early age, quit alcohol, be fit, you know prepare your body."</i>	PCC 071, AKUH, N
9. <b>Health seeking behaviour</b>	<i>"I need to know what to expect, be aware of potential pregnancy challenges and complications and how to overcome them. Maybe most of them can actually be reduced with good planning and preparation."</i>	PCC 020, MLFH
10. <b>Health concerns</b>	<i>"Well some women have conditions that may affect the baby or their health may be worsened by the pregnancy like heart condition so they might want to talk to a doctor before they conceive."</i>	PCC 051, AKUH, N

11. <b>Level of education</b>	<i>“There are those who are learned who go to the hospital to prepare for pregnancy. Those who are uneducated don’t understand PCC”</i>	<b>PCC 019, MLFH</b>
12. Strategies for increasing PCC awareness and utilization	<i>“A good point to catch people is at the family planning clinic. Getting the PCC information out there would help even by raising awareness through the social media, just get the conversation happening.”</i>	PCC 009, AKUH, N

## Figures



**Figure 1**

Flow of participants

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [COREQchecklistreformatted.docx](#)
- [Studytools.docx](#)