Accurately capturing perspectives on fertility intentions of Kenyan women to improve reproductive life planning counseling (HerChoice)

Emmalie Griswold

A thesis
submitted in partial fulfillment of the
requirements for the degree of

Master of Public Health

University of Washington
2025

Committee:
Sarah Munro
Alison Drake

Program Authorized to Offer Degree:
Health Systems and Population Health

University of Washington

Abstract

Accurately capturing perspectives on fertility intentions of Kenyan women to improve reproductive life planning counseling (HerChoice)

Emmalie Griswold

Chair of the Supervisory Committee:

Sarah Munro

Health Systems and Population Health

Abstract

Currently, fertility intentions measures have not been designed for, and in conjunction with, women in low-and-middle income countries (LMICs). Utilizing existing scales in LMIC settings may not accurately classify fertility intentions, as they may miss cultural aspects that are important drivers of fertility intentions in LMICs. We conducted a qualitative study to understand women's feelings about fertility in LMICs and inform development of a new psychometric survey to guide person-centered reproductive health counseling. Common constructs of fertility intentions were identified to draft a preliminary psychometric survey. We recruited 40 women of reproductive age from two family planning clinics in Kenya to participate in in-depth-interviews, where they were asked about the acceptability of the draft survey. The

constructs from the preliminary survey were largely found to be acceptable with slight phrasing modifications for clarity and cultural appropriateness. These findings help to inform and refine acceptability of the psychometric survey for women in LMIC settings to better represent women's fertility intentions, which allows providers offer more nuanced and person-centered care that can empower women to carry out their fertility intentions.

Introduction

Accurate identification and measurement of current fertility intentions facilitates an understanding of reproductive health (RH) needs both at the individual and population levels.[1,2] At the individual level, accurate assessment of one's fertility intentions can guide RH counseling and service provision.[3–6] At the population level, measures often classify pregnancies on a binary indicator, as either intended or unintended, and are used for policy and programmatic development to reduce rates of unintended pregnancy,[7] as pregnancies with this classification are subject to higher rates of poor maternal and child health outcomes.[8]

Yet, classifications such as those used by Demographic and Health Surveys (DHS) [9] which use this binary classification system for pregnancies does not appropriately capture the nuance or range of feelings that many women may experience around fertility.[10,11] Fertility intentions exist on a continuum, with 30-40% of women reporting pregnancy intentions that are neither desire for pregnancy nor pregnancy prevention, either with conflicting feelings about pregnancy (ambivalence) or lack of concern about becoming pregnant (indifference).[12]

Furthermore, existing measures have other limitations that impact their ability to accurately measure fertility intentions. Retrospective measures capture feelings about the most recent pregnancy but are subject to social desirability bias and overreporting pregnancies as intended, as well as recall bias if perceptions of pregnancy differ before or after pregnancy.[13,14] In contrast, prospective measures are more appropriate to capture intentions accurately before pregnancy, as it is increasingly understood that fertility intentions are not static, but are dynamic in response to changing life circumstances.

Many factors are known to contribute to a woman's fertility intentions, such as socioeconomic standing, cultural and social norms, relationship dynamics, and access to

information and services.[15,16] While many of these contributing factors are conserved between communities, fertility intentions are dynamic and influenced by culture. Currently, there are no fertility intentions measures that are designed for, and in conjunction with, women in low-and-middle income countries (LMICs). Utilizing existing scales in LMIC settings may not accurately classify fertility intentions, as they may miss cultural aspects that are important drivers of fertility intentions in LMICs.[5,17] Developing measures that both capture the continuum of feelings about pregnancy and incorporate constructs that reflect the context, setting, and cultural perspectives in which fertility intentions measure is designed for may improve measurement accuracy, and aid in guiding decisions about planning and preventing pregnancy.[18,19]

We conducted a qualitative study to understand women's feelings about fertility in LMICs and inform the development of a new psychometric survey to guide person-centered reproductive health counseling.

Methods

Study Design

We utilized findings from a prior literature review and expert panel to draft a psychometric survey incorporating constructs and related survey items relevant to fertility intentions as identified by the review and the expert panel and evaluated relevance and acceptability of these constructs and survey items through qualitative interviews. Findings from the qualitative asdf sdafasdf interviews will be used to inform development of a culturally appropriate psychometric scale for use in LMIC settings that will be quantitatively evaluated in a subsequent study.

Ethics statement

This study was approved by the University of Washington Human Subjects Division (STUDY00016747) and the Kenyatta National Hospital Ethics and Research Committee (#P48/01/2023).

Theoretical framework

Preference constructionist theory,[29] which states that people may not have clear preferences, especially preferences that involve complex decision-making and are context specific, was used to guide development of test fertility intention survey items for the draft survey. This theory suggests that people's preferences are variable and subject to change depending on social structures, structural environment, and cognition. As a result, test survey items on attitudes, behavioral intentions, subjective and social norms, perceived power and behavioral control of pregnancy intentions were included in the test items. These concepts also informed the selection of codes and thematic data analysis.

Construct identification

We collated theoretical constructs captured by fertility intentions surveys and scales identified from a systematic review and convened a panel of experts to provide feedback on survey items, responses, and construct relevance for Kenyan women. Briefly, eight constructs and items from existing scales were evaluated for adaptation, elimination, or addition by the study team followed by an expert panel (Table 1). Ultimately five constructs were retained with accompanying test survey items: cognitive desires and preferences, affective feelings and attitudes, strength of fertility preferences, anticipated consequences of pregnancy, and agency. "Cognitive desires and preferences" seeks to assess the individual's thoughts, beliefs, and aspirations regarding future reproductive life goals, whereas "affective feelings and attitudes" intends to understand the emotional aspects of the decision to have, or not have, children.

"Strength of fertility preferences" assesses the certainty of one's current preferences. "Anticipated consequences of pregnancy" seeks to understand the perceived implications and outcomes of a pregnancy, while "agency" assesses an individual's ability to make their own pregnancy-related decisions.

Between two and seven survey items for each construct were included or adapted as test survey items in the draft survey. Survey items were also modified with different versions to evaluate relative preferences for variations in format (statements vs. questions) and phrasing (pregnancy vs. baby).

Study design and setting

Between March and June 2024, we recruited women to participate in in-depth individual interviews from Ahero County Hospital in Western Kenya and the Mathare North Health Centre in Nairobi, Kenya, representing both rural and urban contexts, respectively. Participants were recruited from family planning (FP) clinics, HIV care clinics (including youth friendly services), and prevention of mother-to-child HIV transmission (PMTCT)/maternal and child health (MCH) clinics.

Women were eligible for study participation if they were between 15 and 45 years of age, not currently pregnant, sexually active with a male partner within the past 12 months, had not had a tubal ligation, and spoke English, Kiswahili, or Dhouluo. Clinic staff referred potentially eligible women to study nurses, who provided more details about the study and screened women for eligibility. After providing written consent (participant age ≥18 years) or assent (age 15-17 years), women interested in enrolling either completed the interview the same day or were scheduled for a return date based on scheduling availability. We purposefully sampled approximately equal numbers of women recruited from each of the following age groups: 15-

17,18-21, 22-24, 25-34, and 35-45 with 10 women from each group (n=40 total). Within each age strata, we also stratified by prior experience with pregnancy, and aimed to enroll 2 women from each age, site, and pregnancy strata for a total of 20 women per site and 8 women in each age group (Table 2).

Interview guide development

We constructed a semi-structured interview guide to capture broad perceptions of fertility desires and fertility related constructs, elicit specific feedback about survey items and responses, and assess the acceptability of potential survey items tested and their responses. First, in the interview guide, women were asked to provide insight into their thoughts about their own fertility intentions and the constructs in their life contributing to that intention. Then, we presented survey items and asked women if they felt they were important and/or relevant to someone presenting to a FP clinic. Additionally, we asked participants to provide feedback on wording of survey items and responses. Finally, we asked women about the acceptability of the survey's implementation in the clinic context such as how long they would like to have to complete the survey, and if they would like to complete it before seeing the provider or alongside the provider.

Data collection: In-depth individual interviews

In-depth interviews (IDIs) were conducted by local Kenyan researchers trained in qualitative interviewing techniques and fluent in English, Kiswahili, and Dhoulou. Study staff verbally administered a brief survey to collect demographic characteristics, pregnancy history, partner characteristics, fertility preferences, and contraceptive use. Semi-structured interviews were then conducted and audio-recorded, transcribed, and translated into English by the interviewers. Transcripts were de-identified for analysis. After each interview, interviewers

completed a debrief report summarizing the main findings from each interview, and recorded general impressions that may not have been captured in the transcript.

Data analysis

The research team collaboratively constructed a code book using deductive and inductive methods. Deductive codes were developed to describe aspects of survey cognition, such as perceived importance and acceptability of survey items. Additional codes were generated inductively to capture emerging themes from IDIs. Transcripts were coded by four primary and secondary coders using Atlas.ti. Primary coders applied initial codes and secondary coders reviewed codes for consistent application. All coders met regularly to establish consensus on divergent code application.

Codes that were not based on reported importance or acceptability of survey items were assessed utilizing queries in Atlas.ti. We analyzed codes for repetition and common phrases and identified terms used to develop concepts. Differences in responses were stratified by age and prior pregnancy status; these concepts were further developed into themes. Queries were generated to capture responses to each survey item and content analysis was used to assess negative perceptions of survey items.

Results

Among 40 women enrolled, nearly half in each age category had prior experiences with pregnancy (Table 3). The average interview duration was 50 minutes.

Survey item and construct assessment

Construct 1: Cognitive Desires and Preferences

"Cognitive desires and preferences" involves the individual's thoughts, beliefs, and aspirations regarding future reproductive life goals. Women felt that cognitive desires and preferences were critical contributors to their fertility intentions, and an element that was both acceptable and necessary to assess. Women found survey items assessing cognitive desires and preferences to be highly relevant to guide service provision. If they expressed to the provider that they did not desire pregnancy at that time, their response could facilitate conversation about potential contraceptive methods. If they expressed that they did desire pregnancy at that time, the provider could counsel the individual on pregnancy preparation. If the individual expressed ambivalence or indifference, this could also guide further conversation with the provider.

Some women felt that survey items on cognitive desires with language portraying pregnancy as a dire outcome were too harsh, and specifically did not find the "the end of the world" language appropriate and recommended tempering the language.

> *"If I become pregnant, it will not be the end of the world. It's just a normal thing. Like, I'll get pregnant, give birth, and start hustling like other people." 17 year old, partnered, no prior pregnancies, rhythm method user*

> *"End of the world means a place where you don't understand what is happening, you don't even know what to do, and you feel like leaving the world. But if life is difficult, you will just struggle and make it." 28 year old, married, three prior pregnancies, implant user*

Women described that logistical capacity to care for a/another child, including ability to provide adequate food, shelter, resources, and attention was a critical contributor to their current

cognitive desires around fertility. Among women who already had children, ages and perceived neediness of their existing children was cited as an important factor. Women expressed a desire to be a good parent to both existing and potential future children, often curtailing their own desire for more children out of commitment to the health and wellbeing of their existing children.

> *"You know having two small children at once is not easy. It becomes a burden, there will be no way for you to leave to go look for work. And in fact, if you leave this small child at daycare, they start falling sick. So, I prefer if I had a small child, I care for them myself until they grow. Because with my second born, I used to take them to a daycare, but they used to have a lot of complications; so, I decided I will be caring for my child until they reach 5 years." 28 year old, married, three prior pregnancies, implant user*

Construct 2: Affective feelings and attitudes

Women felt that understanding their current "affective feelings and attitudes" – the emotional aspects of the decision to have, or not have, children – was acceptable and appropriate to assess , as survey item responses would provide critical context to providers to further guide service and counseling provision. Many women expressed appreciation for the validation of complicated or conflicting feelings about pregnancy, opening an opportunity to further discuss hopes and fears around pregnancy. Some women perceived the draft survey items assessing affective feelings and attitudes as a potential opportunity to discuss mental health alongside fertility intentions.

Construct 3: Strength of preferences

Most women felt that assessing their strength of preferences was both acceptable and appropriate. They felt that if providers assessed and understood the strength of their fertility preferences, it would have a positive impact on counseling and service provision. For example,

women felt that if the provider understood how strongly they did not want to become pregnant, the provider could further counsel on the efficacy of different contraceptive methods. They felt this was an appropriate and acceptable construct to measure which reinforced the significance of their current fertility intentions.

Construct 4: Anticipated consequences

"Anticipated consequences" – the perceived implications and outcomes of pregnancy – contribute greatly to the way that women conceptualized their own pregnancy intentions, and they felt the decision-making context given to the provider by the associated draft survey items would be helpful for the provider to guide more holistic and nuanced counseling. Additionally, they felt that addressing survey items related to anticipated consequences of pregnancy would allow the provider to have a sense of their pregnancy intention timeline, as they may not currently desire pregnancy, but with an anticipated change in circumstances, could desire pregnancy soon, and this could impact the services provided and counseling received.

Of all the constructs, women alluded to anticipated consequences the most often when describing their own current fertility intentions. Many women considered the stability of their social community as a significant factor that contributed to their readiness for pregnancy, indicating that they were mindful of the way that their social groups (friends, parents, other family members, etc.) might feel about them pursuing a pregnancy or preventing a pregnancy. Some women, particularly young women and adolescents, feared the consequences of societal stigma against young mothers, including being excluded by their families and social groups if they were to become pregnant, and felt pressure to avoid pregnancy as a result. For adolescents who lived with their parents, some feared being kicked out of the house if they became pregnant, and others feared losing friendships.

"[If I became pregnant] I will feel lonely. Because I will be afraid to walk with my friends because they will be laughing at me that I have become pregnant too early." 17 year old, partnered, no prior pregnancies, not currently using a method of contraception

While younger women more often cited social relationships with their friends and parents, older women more often discussed their partnerships. Many women expressed a desire for support in child-rearing and responsibilities in the home and stated that they wanted to feel secure in their relationship with their partner before pursuing pregnancy, even utilizing covert contraceptive methods during times of relationship stress.

"If it were that my husband and I were settled, I'd even have another child already. Even the family planning, I didn't tell him that I am on it. I lied that I came for cramps medicine. If he decided that we stay in peace, I would not have a problem having another child. But if he continues with the drama, I wouldn't want to have another child." 21 year old, married, one prior pregnancy, implant user

Many women expressed a desire to time pregnancy based on plans for school or employment. They expressed a desire to achieve their own personal goals prior to pursuing pregnancy, both for their own self-fulfillment and for the quality of life of their children.

"Okay, for now, I feel awkward [about the idea of pregnancy right now] because I'm still studying, I'm not yet employed. What I want is for my child to be able to get all the services that he or she requires… I want my child to live a better life than me." 24 year old, partnered, one prior pregnancy, implant user

Broad societal norms often shaped the way that women considered whether they were interested in pursuing a/another pregnancy. Women cited a pressure to have a baby of a particular gender

either because they have not had a child of that gender yet or because they were concerned about having a boy and not having enough land to pass along to him. Women also described fertility intentions following religious beliefs, such as pressure to avoid becoming pregnant prior to marriage but then pivot to planning pregnancy after marriage.

Construct 5: Agency

Feelings about the acceptability of assessing a woman's 'agency' were mixed. Most women recognized that their ability to make their own pregnancy-related decisions and carry out their fertility intentions could be influenced by interpersonal relationships, and felt it was important to discuss the potential impacts of these relationships with a provider so that the provider could thoroughly understand their challenges and provide support. Other women, however, felt that it was inappropriate to assess partnership dynamics, and expressed discomfort with being asked to assume their partner's feelings about pregnancy without consulting them.

> *"I believe that [my partner and I] are deciding whether we want to have a baby. It is between us and then if he also wants to support me about family planning, it is also between us. You cannot ask me if my partner supports me or not in such decisions." 21 year old, partnered, no prior pregnancies, injectable contraceptive user*

> *"I don't know my partner's thoughts; so I can't speak for this." 17 year old, partnered, no prior pregnancies, not currently using a method of contraception*

Ultimately, despite some discomfort disclosing information about their partner's feelings with a provider, nearly all women acknowledged that other people influenced their own fertility intentions. Most women noted that their partner's interest in children was a significant factor in

their own decision-making process. While some women stated they didn't explicitly discuss pregnancy intentions with their partner, others described more open communication.

> *"If for instance, maybe [my partner and I] want to start a family or have a family, it's something I feel we can discuss, how many kids we would want, then maybe the spacing, that will influence. Because maybe I may want a kid now, then after a year or after two years, but he'll have a different view then we put our thoughts together and see a way forward." 31 year old, partnered, no prior pregnancies, currently desires pregnancy*

Women felt their partner's desires for pregnancy were important, but also felt that they, themselves, had the ultimate "veto power".

> *"I am the one who knows the situation of the home. Because if I say yes and get pregnant; because the husband will say that he wants a child, I am the one who will feel the weight. Because he will leave you there with the children, maybe there is no food, there is nothing, you are the one struggling. So, it is I myself that knows if I am ready or not." 28 year old, married, three prior pregnancies, implant user*

> *"I am a lady and I stand with my choices. No one can make my decisions for me." 17 year old, partnered, no prior pregnancies, rhythm method user*

> *"I can make the decision on my own, because my husband understands me, and I understand him. Because he can also see the responsibilities that we have ahead of us, that we don't need another child. So, I can make the decision on my own. Because I know that I have already established the base with my husband. So, when they ask me if they can set me up on family planning, I am ok with it. I have already established the base at home, so when I come [to the clinic], I have the ability to decide on my own. There are*

men who will not want to be defeated, they want to be the ones to make all the decisions, which should not be the case. You find the woman oppressed, even if there is something that's wrong, she will not speak up. yet it is the woman who knows the weight of carrying the pregnancy." 35 year old, married, three prior pregnancies, implant user

Survey item, format, and phrasing

Women felt that survey items tested would facilitate improved communication with their provider about their fertility intentions. Women disliked response options that were not explicit, such as "fairly", "strongly", "very", or "somewhat" and recommended these categories be removed to simplify responses.

Women disliked questions formatted in a "fill in the blank" style. For example, "If you became pregnant now, would that be _____? (Very bad, fairly bad, neither good nor bad, fairly good, very good, don't know)". Many women expressed confusion with this style of question, and recommended rephrasing it into a question, such as "If you became pregnant now, how would you feel?".

When asked about preferences for phrasing related to "having a baby" versus "becoming pregnant", women felt language around having a baby was preferable as the outcome of pregnancy was simpler to imagine than pregnancy. Women said there is uncertainty in the outcome of pregnancy, as it may end without a baby if women were to have a miscarriage, abortion, or fetal/infant death. Women felt imagining their life with a baby was less abstract, and it was easier to imagine the impact and commitment associated with having a baby in the long-term, rather than a pregnancy which was relatively short duration of time.

"Because I think some women just think that pregnancy is something normal, so they won't see the big deal in it. But the moment you use 'baby', then they see the responsibilities that the child comes with. So, child bears more weight than pregnancy." 17 year old, single, one prior pregnancy, currently using abstinence

Nearly all women agreed that survey items presented as questions were easier to understand. Many expressed that questions felt more supportive and encouraged them to have their own feelings about an item, whereas statements felt leading, and resulted in social desirability to answer "correctly".

[When asked 'I want to become pregnant now.' (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)] "It feels like a command, and maybe I don't want to get pregnant. If you asked me, 'Would you like to get pregnant now?' I would politely respond that I don't want to now. It should be a question and not a statement." 28 year old, married, three prior pregnancies, implant user

Acceptability and appropriateness

Many women felt the test survey items would be beneficial and appropriate for patients at many places in their fertility planning journeys. They felt survey items could help providers gain insight into the relevant experiences, and counseling could be tailored accordingly. Most women felt responding to the test survey items would be something they would be willing to spend time on prior to seeing providers because they felt it would improve the counseling experience, facilitating openness and clarity to receive more personalized care, tailored to their needs.

"The [survey items] invoke a lot of issues. It is not just about yes, you're here, you're pregnant, go for the [exam], do this and do that and then you go home. It would be able to also help the counselor pick out what are the issues that pregnant women or women of reproductive age, what are they going through, what do they need. It would be able to help shape up something that would be fitting for both pregnant and those who are planning to become pregnant." 34 year old, divorced/separated, four prior pregnancies, intrauterine device user

Some women felt that the survey items could improve communication with theprovider by prompting the conversation towards the patient's most relevant concerns, including navigating lack of partner support for FP and planning for pregnancy despite family pressure to avoid pregnancy.

"Some of [the survey items] may make me to open up to the provider especially...for example, maybe if I have a problem...for example, my partner does not support my use of family planning, then I can now talk to the provider so that she can give me a method to use that is private. And if I am planning to become pregnant and my family members are putting pressure on me and I am not able to, then that can also give me the opportunity to talk to the provider so that she can advise me how to handle such pressures from the family, yes, and she can also counsel me on what to do. So I think that the questions are just appropriate." 45 year old, divorced/separated, no prior pregnancies, not currently using a method of contraception

Other women felt addressing the survey items prior to an appointment would allow them an opportunity to reflect on their concerns so that they can be more active in deciding what to discussed during counseling.

"...because already I would have interacted with [the survey questions], thought through them and chose my answers so that by the time I get to see the provider, I will already be aware of what I would like to discuss with them." 17 year old, partnered, no prior pregnancies, not currently using a method of contraception

Discussion

The findings of this study support the development of a novel psychometric survey, which has been designed for and alongside women in LMIC settings, setting the survey apart from other fertility intentions measures previously developed for high-income-country settings. Many constructs and their associated survey items were found to be acceptable in both settings; however, survey item phrasing preferences and perceived importance of constructs differentiate these populations and should be used to guide the design of the tools designed to serve them.

In congruence with findings from fertility intentions scales developed in other settings such as the Desire to Avoid Pregnancy scale (DAP)[22] and DHS,[9] we found cognitive desires, affective feelings, anticipated consequences, and strength of preferences to be relevant in describing the fertility intentions of women in LMICs. These constructs and their associated survey items were found to be acceptable with slight modification for improved clarity of phrasing.

We identified some complexity around the inclusion of the novel construct of agency in our draft survey. While women freely described the significance of the impact that their partner's ideas about pregnancy had on their own fertility intentions, they simultaneously felt hesitant to discuss this impact in the clinic setting. Prior studies have shown that greater autonomy in

reproductive decision making is associated with increased contraception use.[28] Identifying strategies to support greater agency for women in FP clinics has the potential to empower them to carry out their fertility intentions. Ultimately, the construct of agency was included in the test version of the fertility intentions survey, however, some of the concepts were not well-aligned with women's perceptions of intentions suggesting some items could be omitted or reworded to center on the woman's autonomy, rather than their partner's hypothetical feelings, as hesitancy speaking on one's partner's behalf was common. Agency was found to be a critical element of a woman's ability to identify and carry out their own intentions for some women, which indicates that identifying acceptable mechanisms to assess and support this may be important to support fertility intentions. Yet, other women found that despite the influence of partners and other interpersonal relationships that ultimately, they held autonomy in decision making, suggesting that perhaps this construct may not resonate with some women in a fertility intentions survey.

Women expressed a preference for survey items to use phrasing around "having a baby" rather than "becoming pregnant", which encourages women to think in the longer term about the implications of pursuing a pregnancy rather than the pregnancy itself when describing their fertility intentions. This finding supports the idea that women are considering many constructs when determining their pregnancy intentions, with particular interest in the anticipated consequences of having a baby.

Our results can help inform and refine the acceptability of the psychometric survey for women in LMIC settings to better represent women's fertility intentions. Accurate classification of fertility intentions allows providers to provide more nuanced and person-centered care can empower women to carry out their fertility intentions.

Strengths and limitations

In acknowledgement that our research team's positionality impacts the quality of the data collected, thoughtful steps were taken to ensure that the women we interviewed felt comfortable sharing their honest feedback on the survey items. By utilizing the skills and expertise of our local, trilingual interviewers, we can be confident that the feedback we received was genuine, though we recognize the limitations of only utilizing two recruitment sites, both in Kenya, which may impact the transferability of our results to other LMIC settings.

Potential future work

Our findings suggest that women in LMICs have complex feelings around agency in the clinical setting. Further exploring mechanisms to discuss and support women's agency in the clinical setting could be a fruitful line of study with implications for global health research and reproductive health counseling practices.

References

1. Santelli JS, Lindberg LD, Orr MG, Finer LB, Speizer I. Toward a multidimensional measure of pregnancy intentions: evidence from the United States. Stud Fam Plann. 2009;40(2):87-100. doi:10.1111/j.1728-4465.2009.00192.x

2. Santelli J, Rochat R, Hatfield-Timajchy K, et al. The Measurement and Meaning of Unintended Pregnancy. Perspect Sex Reprod Health. 2003;35(2):94-101. doi:10.1363/3509403

3. Dorney E, Barrett G, Hall J, Black KI. Measures of Pregnancy Intention: Why Use Them and What Do They Tell Us? Semin Reprod Med. 2022;40(5-06):229-234. doi:10.1055/s-0042-1760118

4. Robbins CL, Zapata LB, D'Angelo D, Brewer LI, Pazol K. Pregnancy Intention: Associations with Maternal Behaviors and Experiences During and After Pregnancy. J Womens Health 2002. 2021;30(10):1440-1447. doi:10.1089/jwh.2021.0051

5. Hall JA, Benton L, Copas A, Stephenson J. Pregnancy Intention and Pregnancy Outcome: Systematic Review and Meta-Analysis. Matern Child Health J. 2017;21(3):670-704. doi:10.1007/s10995-016-2237-0

6. Kost K, Lindberg L. Pregnancy intentions, maternal behaviors, and infant health: investigating relationships with new measures and propensity score analysis. Demography. 2015;52(1):83-111. doi:10.1007/s13524-014-0359-9

7. Bearak JM, Popinchalk A, Beavin C, et al. Country-specific estimates of unintended pregnancy and abortion incidence: a global comparative analysis of levels in 2015–2019. BMJ Glob Health. 2022;7(3). doi:10.1136/bmjgh-2021-007151

8. Unintended pregnancy and abortion by income, region, and the legal status of abortion: estimates from a comprehensive model for 1990–2019 - The Lancet Global Health. Accessed June 9, 2025. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30315-6/fulltext

9. The DHS Program - Quality information to plan, monitor and improve population, health, and nutrition programs. Accessed June 9, 2025. https://www.dhsprogram.com/

10. Bachrach CA, Newcomer S. Intended pregnancies and unintended pregnancies: distinct categories or opposite ends of a continuum? Fam Plann Perspect. 1999;31(5):251-252.

11. Grace B, Shawe J, Johnson S, Usman NO, Stephenson J. The ABC of reproductive intentions: a mixed-methods study exploring the spectrum of attitudes towards family building. Hum Reprod Oxf Engl. 2022;37(5):988-996. doi:10.1093/humrep/deac036

12. Huber, Esber, Garver, Banda, Norris. The Relationship Between Ambivalent and Indifferent Pregnancy Desires and Contraceptive Use Among Malawian Women. Int Perspect Sex Reprod Health. 2017;43(1):13. doi:10.1363/43e3417

13. Joyce T, Kaestner R, Korenman S. On the validity of retrospective assessments of pregnancy intention. Demography. 2002;39(1):199-213. doi:10.1353/dem.2002.0006

14. Koenig MA, Acharya R, Singh S, Roy TK. Do current measurement approaches underestimate levels of unwanted childbearing? Evidence from rural India. Popul Stud. 2006;60(3):243-256. doi:10.1080/00324720600895819

15. Kodzi IA, Johnson DR, Casterline JB. To have or not to have another child: life cycle, health and cost considerations of Ghanaian women. Soc Sci Med 1982. 2012;74(7):966-972. doi:10.1016/j.socscimed.2011.12.035

16. Cheslack Postava K, Winter AS. Short and long interpregnancy intervals: correlates and variations by pregnancy timing among U.S. women. Perspect Sex Reprod Health. 2015;47(1):19-26. doi:10.1363/47e2615

17. Rocca C, Krishnan S, Barrett G, Wilson M. Measuring pregnancy planning: An assessment of the London Measure of Unplanned Pregnancy among urban, south Indian women. Demogr Res. 2010;23:293-334. doi:10.4054/DemRes.2010.23.11

18. Mumford SL, Sapra KJ, King RB, Louis JF, Buck Louis GM. Pregnancy intentions-a complex construct and call for new measures. Fertil Steril. 2016;106(6):1453-1462. doi:10.1016/j.fertnstert.2016.07.1067

19. Kavanaugh ML, Schwarz EB. Prospective assessment of pregnancy intentions using a single- versus a multi-item measure. Perspect Sex Reprod Health. 2009;41(4):238-243. doi:10.1363/4123809

20. PMA Data. Accessed June 9, 2025. https://www.pmadata.org/

21. One Key Question® Online 2025 | Power to Decide. Accessed June 9, 2025. https://powertodecide.org/one-key-question

22. Analyzing the Desire to Avoid Pregnancy Scale | ANSIRH. Accessed June 9, 2025. https://www.ansirh.org/research/ongoing/desire-avoid-pregnancy-dap-scale

23. Alam N, Ali T, Razzaque A, et al. Health and Demographic Surveillance System (HDSS) in Matlab, Bangladesh. Int J Epidemiol. 2017;46(3):809-816. doi:10.1093/ije/dyx076

24. Beguy D, Elung'ata P, Mberu B, et al. Health & Demographic Surveillance System Profile: The Nairobi Urban Health and Demographic Surveillance System (NUHDSS). Int J Epidemiol. 2015;44(2):462-471. doi:10.1093/ije/dyu251

25. The DHS Program - Malawi: Standard DHS, 2024. Accessed June 9, 2025. https://dhsprogram.com/methodology/survey/survey-display-592.cfm

26. Barrett G, Wellings K. What is a 'planned' pregnancy? empirical data from a British study. Soc Sci Med. 2002;55(4):545-557. doi:10.1016/S0277-9536(01)00187-3

27. Childbearing Preferences and Family Issues in Europe - September 2006 - - Eurobarometer survey. Accessed June 9, 2025. https://europa.eu/eurobarometer/surveys/detail/406

28. Atake EH, Gnakou Ali P. Women's empowerment and fertility preferences in high fertility countries in Sub-Saharan Africa. BMC Womens Health. 2019;19(1):54. doi:10.1186/s12905-019-0747-9

29. Dietz T, Stern PC. Toward a theory of choice: Socially embedded preference construction. J Socio-Econ. 1995;24(2):261-279. doi:10.1016/1053-5357(95)90022-5

Appendix

Construct	Objectives	Surveys	Example survey item	Process
Childbearing preference	Prospectively measure preferences for if/when one would like to have a/another child in the future	DHS,[9] PMA,[20] One Key Question [21]	Would you like to become pregnant in the next year?	Survey items reviewed/adapted by expert panel **Result**: Combined with "cognitive desires and preferences"
Cognitive desires and preferences	Prospectively understand thoughts, beliefs, and aspirations of individuals regarding future pregnancy and reproductive life goals	DAP,[22] DHS[9]	How much of a problem would it be if you found out you were pregnant in the next few weeks?	Survey items reviewed/adapted by expert panel **Result**: Retained for interview assessment
Affective feelings and attitudes	Prospectively understand emotional and attitudinal aspects associated with the decision to have or not have children	DAP,[22] PMA,[20] DHS [9]	If you became pregnant now, how would you feel?	Survey items reviewed/adapted by expert panel **Result**: Retained for interview assessment
Strength of fertility preferences	Prospectively gain further understanding of fertility intentions by assessing strength and certainty of stated fertility preferences	Matlab Health Demographic Surveillance System- Bangladesh,[23] Nairobi Urban Health Surveillance System[24]	How important is it to you to avoid becoming pregnant now?	Survey items reviewed/adapted by the expert panel **Result**: Retained for interview assessment
Stability of fertility preferences	Prospectively assess internal validation of stated fertility preferences	Matlab Health Demographic Surveillance System,[23] Nairobi Urban Health Surveillance System[24]	How likely is it that you might change your mind regarding whether you want a/another child or not?	Survey items reviewed by expert panel **Result**: Exclusion from survey recommended due to hypothetical nature of survey items
Anticipated consequences of pregnancy	Prospectively assess perceived outcomes and implications of pregnancy	DAP,[22] Malawi Demographic Surveillance Site (DSS) Survey[25]	I would worry that having a baby in the next year would make it harder to achieve other things in my life.	Survey items reviewed/adapted by the expert panel **Result**: Retained for interview assessment
Pregnancy Planning	Prospectively assess individual preparations for getting pregnant	LMUP [26]	Before you became pregnant, did you do anything to improve your health in preparation for pregnancy? (e.g. took folic acid, stopped smoking)	Survey items reviewed by expert panel **Result**: Exclusion from survey recommended as construct does not assess feelings or desires surrounding pregnancy
Ideal number of children	Prospectively indicate desired fertility	DHS,[9] MICS, PMA,[20] Eurobarometer [27]	If you could have exactly the number of children you want, how many children would you want to have?	Survey items reviewed by expert panel **Result**: Exclusion recommended due to abstract nature of survey items
Agency	Prospectively assess individual's ability to make their own pregnancy-related decisions	N/A	Who has the most say about whether you use a method to prevent a pregnancy?	Survey items recommended by expert panel **Result**: Added for interview assessment

Table 1: Constructs considered during survey development

	Ahero (N=20)		Mathare (N=20)	
Age groups	**No prior pregnancy**	**Prior pregnancy**	**No prior pregnancy**	**Prior pregnancy**
15-17	2	2	2	2
18-21	2	2	2	2
22-24	2	2	2	2
25-34	2	2	2	2
35-45	2	2	2	2
Total	**10**	**10**	**10**	**10**

Table 2: Purposive sampling schematic

Characteristic	N (%)
Interview primary language:	
English	23 (58)
Swahili	13 (32)
Dhouluo	4 (10)
Prior Pregnancy	18 (45)
Age (Years)	
15-17	8 (20)
18-21	9 (23)
22-24	8 (20)
25-34	7 (17)
35-45	8 (20)
Education Level	
Primary	6 (15)
Secondary	16 (40)
Post-Secondary	18 (45)
Desires a child/more children at some point in the future	
Yes	23 (57)
No	5 (13)
Not Sure	12 (30)
Family planning method	
None	15 (37)
Injectable	4 (10)
Implant	9 (23)
Intrauterine device	2 (5)
Oral contraceptive pills	1 (2.5)
Rhythm/Standard days method	4 (10)
Condoms	4 (10)
Abstinence	1 (2.5)

Table 3: IDI Participant demographics

Construct	Survey Item	# of times item deemed relevant/ # of times feedback was elicited N (%)	Adaptation recommendations
Cognitive Desires	A1: If you became pregnant now, would that be…? (Very bad, fairly bad, neither good nor bad, fairly good, very good, don't know)	35/38 (92%)	Change *'would that be'* to *'how would you feel?'* Luo translation to be simplified Reduce number of options; e.g. bad, neither good nor bad, good Change *'fairly bad'* to *'bad'*
	A2: How much of a problem would it be if you became pregnant now? (No problem, small problem, big problem, don't know)	33/39 (85%)	One respondent didn't like the word 'problem' Quantifying problem as 'big' or 'small' can be challenging
	A3: I want to become pregnant now. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	21/38 (55%)	Most respondents didn't like the statement format Change to *'would you like to become pregnant now?'* Luo translation to be simplified
	A3a: I do not want to become pregnant now. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	4/9 (44%)	Most respondents didn't like the statement format Change to *'would you like to become pregnant now?'* Luo translation to be simplified
	A4: If I became pregnant now, it would be bad for my life. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	28/37 (76%)	Some respondents didn't like the statement format and recommended rewording as question
	A4a: If I became pregnant now, it would be good for my life. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	3/10 (30%)	Some respondents didn't like the statement format and recommended rewording as question
	A5: If I became pregnant now, it would be a positive addition to my life. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	25/40 (63%)	Wording on *'positive addition'* confusing; replace with *'something good in my life'* Kiswahili translation to be simplified
	A6: If I became pregnant now, it would be the end of the world for me. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	24/34 (71%)	Most respondents found *'end of the world'* wording inappropriate Can be replaced with *'it would be a struggle'*
Affective feelings and attitudes	B1: If you became pregnant now, how would you feel? (Very happy, sort of happy, neither happy nor unhappy, sort of unhappy, very unhappy, don't know)	35/40 (88%)	Question acceptable as is; was easy to understand "Sort of" wording difficult to understand
	B2: How happy would you be if you became pregnant now?	20/36 (55%)	Many respondents didn't like the question; didn't align with current

	(Very happy, sort of happy, neither happy nor unhappy, sort of unhappy, very unhappy, don't know)		pregnancy desires "Sort of" wording difficult to understand
	B3: How worried would you be if you became pregnant now? (Not worried at all, sort of worried, extremely worried, don't know)	24/36 (67%)	Many respondents didn't like the question; didn't align with current pregnancy desires "Sort of" wording difficult to understand
	B4: How upset would you be if you became pregnant now? (Not upset at all, sort of upset, extremely upset, don't know)	14/24 (58%)	Concept similar to B3; wording preferable in B3 "Sort of upset", "extremely upset" wording difficult to understand
	B5: When I think about becoming pregnant now, I have mixed positive and negative feelings. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	21/37 (57%)	Many respondents found 'mixed positive and negative feelings' phrasing confusing
	B6: Thinking about becoming pregnant now makes me feel excited. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	17/35 (49%)	Most respondents didn't like the question; 'excited' term confusing Replace 'excited' with 'happy'
	B7: Thinking about becoming pregnant now makes me feel stressed out. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	24/40 (60%)	Many didn't like the question; didn't align with current pregnancy desires Luo translation to be simplified
Strength of preferences	C1: How important is it to you to avoid becoming pregnant now? (Not at all important, somewhat important, very important, don't know)	33/38 (87%)	Luo translation to be simplified Change to "Not important, important, don't know"
	C2: How certain are you about whether or not you want to become pregnant now? (Very certain, somewhat certain, uncertain/unsure, don't know)	27/36 (75%)	Some respondents found it difficult to understand Change *"certain"* to *"sure"* Change *"certain"* to *"sure"* in responses too
Anticipated Consequences	D1: If I become pregnant now, it would be hard for me to manage raising the child. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	37/38 (97%)	Question acceptable as is; was easy to understand
	D2: If I become pregnant now, it would be hard for me to achieve other things in my life. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	32/37 (86%)	Question acceptable as is; was easy to understand Some feel question appropriate only for younger women
	D3: If I become pregnant now, I would be concerned about the effects on my own health. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	34/38 (89%)	Most respondents found it easy to understand Some had difficulty understanding *"concerned"*; replace with *"worried"*

Agency	E1: Who has the MOST say about whether you use a method to prevent a pregnancy? (My partner, both my partner and me, me, other family members, others, don't know)	36/38 (95%)	Most respondents found it easy to understand Some respondents felt *"other family members"* option is unnecessary
	E2: Who has the MOST say about when you become pregnant in your life? (My partner, both my partner and me, me, other family members, others, don't know)	30/37 (81%)	Most respondents found it easy to understand Some respondents felt *"other family members"* option is unnecessary
	E3: My partner would support me if I wanted to use a method to prevent pregnancy. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	31/38 (82%)	Some respondents felt it could be difficult to answer due to relationship status, current pregnancy desires and need to align with partner or not Luo translation to be simplified
	E4: My partner would support me if I wanted to become pregnant now. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	26/34 (76%)	Some respondents felt it could be difficult to answer given relationship status
	E5: My partner would support me if I did not want to become pregnant now. (Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, don't know)	24/35 (69%)	Many respondents found it inappropriate – relationship status, too personal to discuss with provider, their own pregnancy desires

Table 4: Participant feedback on survey items from the IDI