Title: Women's perspectives on, and experiences of using postpartum intrauterine device in Tanzania

Authors and Affiliations: Sarah Huber-Krum[1], Leigh Senderowicz[1], Kristy Hackett[1], Erin Pearson[2], Iqbal Shah[1], and Helen Siril[3]

[1] Global Health and Population, Harvard T.H. Chan School of Public Health, Boston, MA, USA

[2] Technical Innovation and Evidence, Ipas, Chapel Hill, NC, USA

[3] Management and Development for Health, Dar es Salaam, Tanzania

PAA Session: 111 Fertility, Family Planning, and Sexual Health: Programs and Policies

Abstract

Despite numerous attractive features of the immediate postpartum copper intrauterine device (PPIUD), it is underutilized in many resource-constrained settings, including Tanzania. We conducted in-depth interviews with 20 pregnant women after receiving contraceptive counseling and 27 postpartum women who had PPIUD inserted to understand reasons for use versus non-use and continuation versus discontinuation. The majority of women who received counseling planned to use PPIUD after delivery, primarily motivated by perceived lack of side-effects, convenience, and trust in information received during counseling. Barriers to PPIUD use included fear of method-specific side-effects, perceived lack of adequate information, and preference for alternative methods. We will report themes related to PPIUD continuation at the conclusion of data analysis. Postpartum contraceptive counseling may be more effective if fears associated with PPIUD are addressed more thoroughly and counselors focus on rapport-building. Our study will highlight important barriers to continued use of PPIUD which may improve programmatic efforts.

Background

Despite many postpartum women's desire to delay their next pregnancy, few use contraception (Ross & Winfrey, 2001). Short birth intervals, defined as pregnancies conceived less than 18 months following a prior birth, are associated with increased risk of adverse perinatal outcomes, such as preterm birth, low birthweight, and small size for gestational age (Conde-Agudelo, Rosas-Bermúdez, & Kafury-Goeta, 2006). In low- and middle-income countries (LMICs), birth intervals less than 36 months may result in increased risk of neonatal and infant mortality and undernutrition (Rutstein, 2005). Postpartum contraceptive use may improve health outcomes through longer birth spacing (Cleland, Conde-Agudelo, Peterson, Ross, & Tsui, 2012; Yeakey et al., 2009). Improving access to contraception following a birth is critical to avoiding unintended pregnancy and improving the health and wellbeing of women and their children.

The copper intrauterine device (IUD) is well-suited for use in the postpartum period. The immediate postpartum copper intrauterine device (PPIUD) is highly-effective, long-lasting, reversible, and requires little maintenance (Kapp & Curtis, 2009; Polis et al., 2016). PPIUD does not interfere with breastfeeding and is safe for use by the vast majority of women, including those with asymptomatic or mild HIV (Lopez, Bernholc, Hubacher, Stuart, & Van Vliet, 2015; World Health Organization, 2015) and is associated with less discomfort than insertion outside of the immediate postpartum period (Lopez et al., 2015). In low-resource settings, where many women experience access-related barriers to postnatal care (Vernon, 2009), PPIUD offers a cost-effective and convenient option for postpartum women wanting to avoid another pregnancy (Foreit, Foreit, Lagos, & Guzman, 1993). Moreover, in some African settings, women have reported high levels of satisfaction with PPIUD (Blumenthal et al., 2016; Bryant et al., 2013). Despite numerous benefits of PPIUD, insertion rates remain low in LMICs (Pfitzer et al., 2015).

Within LMICs, barriers and facilitators of PPIUD use and continuation are underexplored in the literature. This is surprising, given the potential benefits to women in resource-constrained settings, and the renewed interest in postpartum contraception over the last decade among researchers and practitioners (Cleland et al., 2012). Only a handful of studies have explored barriers to PPIUD use in LMICs. For example, fear of insertion (Bryant et al., 2015; Vansjaliya, Prajapati, Shah, & Parmar, 2017), fear of side effects and infertility (Bryant et al., 2015; Robinson, Moshabela, Owusu-Ansah, Kapungu, & Geller, 2016; Vansjaliya et al., 2017), and preference for interval IUD or another method (Mohamed, Kamel, Shaaban, & Salem, 2003; Vansjaliya et al., 2017) have been documented as barriers to PPIUD uptake in Malawi, Egypt, Ghana, and India. Existing literature on

the facilitators of PPIUD use is even more sparse. A prospective observational study of PPIUD users in Zambia suggests that long-term protection against pregnancy was the most important motivator for PPIUD uptake (Blumenthal et al., 2016). A qualitative study of Malawian PPIUD users, discontinuers, and nonusers and their male partners revealed three primary facilitators of PPIUD use were trusting the information given by health providers, involvement of male partners in decision-making, and past experience of side-effects while using short-term hormonal methods (Bryant, Hamela, Gotter, Stuart, & Kamanga, 2015). A more nuanced understanding of what motivates postpartum women's decisions to use or not use the PPIUD, as well as reasons for dis/continuation, is needed to improve family planning programs and postpartum services.

Most women do not use contraception in the postpartum period in Tanzania. Within six months of delivery, only 23 percent of women use any method of family planning to avoid pregnancy (Winfrey & Rakesh, 2014). Among women who do use contraception within 12 months after delivery, most rely on lactational amenorrhea method (LAM) (26%) or injectables (23%), while almost no women use the IUD (Winfrey & Rakesh, 2014). Due to low contraceptive prevalence, short birth intervals are common: one in five births occurs within 24 months of the previous birth (Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) [Tanzania Mainland], Ministry of Health (MoH) [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and ICF, 2016).

The aims of this study were to 1) explore currently pregnant women's attitudes towards the PPIUD, highlighting reasons for planned use or non-use, and 2) understand the rationale for contraceptive decisions, including reasons for continuation or discontinuation of use among women who had PPIUD inserted. We use data from 20 in-depth interviews with currently pregnant women conducted after facility-based antenatal and postpartum contraceptive counseling, and from 27 in-depth interviews with postpartum women who had PPIUD inserted 9 months prior to the interview.

Methods

Program Description and Parent Study

The International Federation of Gynecology and Obstetrics (FIGO), in collaboration with its national societies, launched an initiative in 2013 to institutionalize PPIUD services as a routine part of antenatal counselling and delivery room services in six LMICs: Tanzania, Nepal, Sri Lanka, India, Kenya, and Bangladesh. The initiative trained community midwives, nurses, doctors, and delivery unit staff on the provision of counselling and postpartum contraceptive services and aimed

to institutionalize the provision of counselling and postpartum contraceptive services in selected urban health facilities. The intervention primarily focused on changing provider knowledge and behavior by training providers on postpartum family planning, with an emphasis on PPIUD counseling and insertion techniques as a newly added service. Providers were expected to improve patient knowledge and assist with informed choice through counseling delivered during antenatal care services. During these counseling sessions, clients were provided information about family planning methods, including how methods work, duration of use, effectiveness, and side effects. Furthermore, clients were shown how the PPIUD was inserted through counselling aids, such as visual aids, informational brochures, and anatomical models. Women who were counselled on PPIUD during antenatal care were able to consent to PPIUD insertion after delivery, and their medical charts were marked with their stated decision. Women who consented before delivery were also asked to provide consent a second time before PPIUD insertion to confirm their decision.

The Postpartum Intrauterine Device (PPIUD) Study was undertaken to evaluate the causal effect of the initiative on the uptake and subsequent continued use of PPIUD in Tanzania, Nepal, and Sri Lanka. In Tanzania, the study was conducted in five urban cities: Dodoma, Mbeya, Dar es Salaam, Arusha, and Pwani. A teaching hospital and its satellite clinics were selected in each area to provide national geographic coverage. The FIGO intervention in satellite clinics focused on postpartum contraceptive counseling during ANC so that women delivering in the teaching hospitals could be counseled and make a decision on postpartum contraceptive use prior to delivery. Canning et al. (2016) provides detailed information about study procedures.

Study Design and Data Collection Procedures

This qualitative investigation was nested within the PPIUD Study in Tanzania. To assess the performance of the initiative, in-depth interviews were conducted with 20 women who had had at least two antenatal care visits and had not yet delivered (conducted between June 2016 and February 2017), hereafter known as baseline interviews, and a separate sample of 27 women who received a PPIUD after delivery (conducted between April and August 2018), hereafter known as follow-up interviews. Baseline interviews were conducted following an antenatal care visit. Follow-up interviews were conducted approximately 12 to 18 months postpartum. We determined that a sample size of 20 and 27 women for baseline and follow-up interviews, respectively, would be sufficient to achieve saturation in themes and to achieve study aims (Corbin & Strauss, 2008).

We developed semi-structured interview guides in English and translated the guides into Kiswahili. Tanzanian colleagues verified translations and back-translated the guides to ensure

content and semantic equivalence of each question (Brislin, 1970). In addition, we pre-tested the interview guides to assess question phrasing, sequencing, and overall comprehension. The interview guides were modified on the basis of the pre-testing.

Women were eligible to complete a baseline in-depth interview if they received at least two antenatal care sessions in a teaching hospital or satellite clinic receiving the FIGO intervention. Four women were purposively sampled from each urban area on the basis of their socio-demographic characteristics (higher and lower income, and young women under age 25 and women age 25 or older). A trained female data collector worked with facility staff to identify women who met the eligibility and selection criteria. Women were purposively selected for follow-up interviews on the basis of PPIUD outcomes (i.e., continuer, discontinuer due to expulsion, intentional discontinuer). Hospital staff called women to inform them about the interviews, briefly explained the purpose of the interviews, and requested participation. Hospital staff scheduled times for women to come to the hospital for interviews.

Before each interview, trained Tanzanian researchers gave participants a choice of providing oral or written consent to take part in the study, depending on their literacy and ability to sign their names. Participants who were unable to sign their names provided a thumbprint signature with a witness' signature. No identifying information was collected from participants. Trained Tanzanian researchers conducted the one-on-one interviews in a private space on-site at the facilities and in the Kiswahili language. Open-ended interview questions solicited information about participant demographic characteristics, reproductive health and family planning behaviors, and perceptions of and experiences with PPIUD. Interviews were audio-recorded with the woman's permission, and subsequently transcribed and translated to English for analysis. On average, interviews lasted 60 to 90 minutes.

Analytical Strategy

We used ATLAS.ti (Version 8.0, Scientific Software Development, Berlin) for data management, coding, and analysis. We approached data analysis from a narrative approach and thematic inquiry (Padgett, 2008). The analysis involved four stages in order to develop the codebooks and identify key themes. In the first stage, the second author prepared an initial list of codes and definitions applicable to the baseline interviews, informed by the existing literature on postpartum contraception and aims of the study. Two analysts independently reviewed baseline transcripts line-by-line to apply codes and develop the final codebook. Second, the 20 baseline interviews were divided between the first, second, and third authors and thematically analyzed and

coded using the finalized codebook. In addition, the lead author reviewed the general context of every transcript and tabulated sociodemographic characteristics and contraceptive behaviors. Next, the first author developed a preliminary codebook applicable to the follow-up interviews. The first author modified the baseline codebook after reviewing ten follow-up transcripts and developed a final codebook. Lastly, the 27 follow-up interviews were again divided between the first, second, and third authors. Analysis of the follow-up interviews is on-going and will be completed by October 1, 2018.

Ethical approval

Ethical approval as exempt was granted by the Harvard T.H. Chan School of Public Health Office of Human Research Administration. The study received approval from the National Institute for Medical Research in Tanzania.

Results

Participant Characteristics

Baseline Interviews. Overall, half of women were in their mid- to late-twenties and half had completed secondary education (Table 1). The majority of women were married (75%), and most were employed (60%). Almost one-third of women had no previous children. For many other women, they had only one previous child (40%).

Follow-up Interviews. Upon completion of analysis, we will report the participant demographics and PPIUD behaviors of women who participated in follow-up interviews.

Baseline Interviews

Facilitators of PPIUD Intended use. More than half of women reported that they had consented or planned to consent to placement of PPIUD. Among these women, all mentioned multiple benefits of PPIUD which included the following: minimal side-effects, no impact on breastfeeding, and that PPIUD is a convenient, long-lasting, and highly effective method. Women frequently mentioned the lack of hormones in PPIUD as a positive feature of the method, which they associated with fewer side-effects and less disruption to regular, monthly menstruation. One respondent, who became pregnant as a result of method failure while using oral contraception, expressed these sentiments:

> "I heard about the injection… People tell you that once you use injection, you won't bleed for a long time. [The nurse] was saying if you use loop (IUD), you will get normal menstrual periods. So I wish to see that. I don't want to miss my period without knowing where that blood goes every month. As a woman, I wish to get my monthly period as usual, and if a person tells me to

use injection and I won't bleed, I become hesitant; where does that blood go? For me, I think loop (IUD) is good." (Planned user, age 33, married)

Overall, the convenience of immediate insertion following delivery highly motivated women to consent to PPIUD. Several women mentioned that returning to a health facility during the postpartum period is burdensome, given the competing demands in their daily lives.

"When [the nurse] told me that this [PPIUD] is inserted after you give birth, that was so good to hear. As you know, after giving birth one feels tired and lazy going back to the dispensary as time goes on." (Planned user, age 27, married)

Women also expressed that methods that require resupply (e.g., condoms, oral contraceptives, injectables) are onerous for the same reason; thus, PPIUD was considered a convenient option among women who did not want to worry about resupply:

"… I have decided that am going to use [PPIUD] instead of calendar method… With [PPIUD] you become more confident; not like other methods, for example, pills which needs someone to have a good memory so that you have to take it every day and if you have a poor memory, it becomes a loss. So [PPIUD] is better. With [PPIUD], even if you come home drunk, there is no problem because you are confident it is there." (Planned user, age 25, married)

Perceived effectiveness and length of pregnancy protection of PPIUD were also valued characteristics among women who planned to use the method. Women's preference for extended protection against pregnancy was the most salient factor influencing their intention to use PPIUD over other long-acting methods, such as the implant. Several women also appreciated that PPIUD could be removed at any time and would not affect fertility. For example, one woman who was planning to use PPIUD said, "…If you decide to get pregnant you can remove it or if you decide to stay 12 years without delivering a baby, it's fine." Another woman stated, "I will use [PPIUD]… You may consider removing it at any time when you want to have another pregnancy, even before the ten to twelve years. Any time you feel like having another pregnancy you can simply take it off!" Additionally, the counseling influenced women to adopt PPIUD over permanent methods:

"Most of the time I was thinking of that tubal ligation. I didn't even have any information on how that PPIUD can last for how long and so on. So when I came here I got counselled and [received] the information on PPIUD, if I use this and I can stay for those 13 years by that time I will be older so even the [side] effects that people say about tubal ligation won't be there because I won't be any younger." (Planned user, age 39, married)

Among women who planned to use PPIUD, health care providers were considered a valued source of information and motivation to adopt PPIUD. Women's fears and misperceptions about PPIUD were often mitigated by the PPIUD counseling, especially when counseling involved teaching aids, and when providers took the time to address all of their concerns. For example, a planned user said, "… I have obtained clarification, before I was scared but now I have clarification, I think [PPIUD] safe… I will use [PPIUD]."

Barriers to PPIUD use. While most women displayed awareness of several modern contraceptive methods (e.g., pills, injections, condoms), few had extensive IUD-specific knowledge, contributing to delayed decision-making or stated preference to not use PPIUD. This lack of knowledge was present even though participants had received counseling from a provider immediately prior to the in-depth interviews. Further, a few women's narratives suggest that despite prior awareness of the IUD, they misunderstood the information presented about its use in the postpartum period or believed PPIUD to be a new contraceptive method (i.e., distinct from the IUD). For example, a planned nonuser from Muhimbili (age 25, married) stated:

"There is something that I haven't understood. That's why I have not provided the answer [about using the PPIUD], because they told me [PPIUD] is also a loop (IUD), only that it is different in terms of insertion time. If I realize [PPIUD] is loop (IUD) and the only difference is insertion time, I will use it… I will ask [about this]. If I find that I haven't obtained a satisfactory response, I might leave and [will use loop], which I know is [inserted] after forty-eight days and not immediately after delivery."

Women's limited knowledge of PPIUD may have stemmed from incomplete or low-quality contraceptive counseling. A handful of women reported that they were not able to ask questions during counseling, and we infer from the interviews that some misinformation was provided to women with, perhaps, the motivation to provide counseling quickly. For instance, many women mentioned that they were told PPIUD does not have any side effects or that it is the "best" method to use. One woman mentioned that if there was not enough time in the counseling session and patients did not understand the information, then patients were instructed to read the informational posters in the clinic to have their questions answered.

Fear of side effects and incomplete information were common themes that influenced women's decisions to not use PPIUD. While some common side-effects were mentioned (e.g., body pains, weight fluctuation), many women expressed very specific concerns related to PPIUD use, including increased risk of cervical cancer and fears related to sexual intercourse. This

misinformation was largely spread through informal social networks, such as peers, relatives, and "people on the streets." Fears regarding sexual compatibility and the influence of PPIUD on sexual encounters were the most commonly expressed health concerns by women, highlighting the importance of sexual acceptability (i.e., the influence of contraception on sexual experiences) of contraceptive methods. The following women who were not planning to use PPIUD expressed this:

> "[My friend who has loop] only talked about the good side of it; that it is good. But there is something she mentioned, that it requires being a husband and wife in terms of the size of penis. If it happens that you have a bigger penis size, it pushes the device; something like that, so the size has to be the same always... If you go to a person with a different body physique from your husband, he might push it inside and cause problems... She told me something like that even when you go for insertion you have to go with your husband." (Planned nonuser, age 25, unmarried/cohabitating)

> "…I heard that once you insert [PPIUD], you can't make love to your husband. One may tell you that if a man has a long penis, he pushes it and you feel pain; they also claim that you can get back and stomach pains." (Planned nonuser, age 29, married)

For the above mentioned reasons, some women expressed disapproval of PPIUD use by unmarried women or women who have multiple sexual partners. Furthermore, women expressed fear about pain during intercourse, for themselves and their partners, while using the PPIUD, possibly an indication of incorrect knowledge about PPIUD placement.

Women who were undecided or chose not to use the PPIUD tended to prefer other contraceptive methods, including methods they had used in the past. For these women, the fear of side effects and lack of complete information about PPIUD outweighed any perceived benefits of the method. The conversation below highlights this thought pattern:

> Respondent: "I have decided to use the same implant [as I was using before]."
>
> Interviewer: "Why the implant and not the PPIUD which you were taught about?"
>
> Respondent: "Because it is something new to me and it's a method that I just heard today, so I can't make the decision to use it or not, just now. I don't know its side effects. As some women say when you insert PPIUD, you should then have intercourse with only one man. Also, I don't know how will it be like during sexual intercourse, if it may be painful or not." (Planned nonuser, age 28, married)

Women's male partners and husbands' preferences for specific methods may have influenced women's PPIUD decision-making. One woman mentioned that she will use the calendar method after delivery, because it is the method her husband is familiar with and prefers.

> Respondent: "As you know, such things you need to share with your husband. You may say you are going for family planning and perhaps he asks you that who told you that I can't count the days. You may find that other men are good at counting the days in a calendar."
>
> Interviewer: "But you have gone for counselling two to three times, but you haven't spoken about it?"
>
> Respondent: "He advises me to use the calendar, because he is good at counting it."
>
> Interviewer: "So, that is the method he knows?"
>
> Respondent: "Yes." (Planned nonuser, age 29, married)

Facilitators and Barriers to PPIUD Continuation

Results from the analysis of 13 in-depth interviews with women who discontinued use of PPIUD and 14 with women who continued use of PPIUD will be presented upon completion of analysis (anticipated October 1, 2018). The purpose of this analysis is to explore women's contraception decisions post-PPIUD placement. By understanding women's reasons for continuation and discontinuation, we aim to inform the development of strategies to support and meet women's contraceptive needs in the postpartum period.

Discussion

Overall, over half of the pregnant women interviewed in this study were interested in using the PPIUD to prevent pregnancy after delivery. Most women were motivated to use the PPIUD due to its perceived effectiveness, convenience, and duration of protection against pregnancy. However, the most salient facilitator of PPIUD intended use was that it does not release hormones, and is therefore thought to cause fewer side effects compared to alternative methods. In contrast to planned PPIUD users, women who did not intend to use it described method-specific side-effects as primary deterrents. These findings support previous research demonstrating that women's perceptions about the presence or absence of side-effects, the types of side-effects, and the magnitude or severity of side-effects are key decision-making components in contraceptive behaviors (Campbell, Sahin-Hodoglugil, & Potts, 2006; Williamson, Parkes, Wight, Petticrew, & Hart, 2009; Wulifan, Brenner, Jahn, & De Allegri, 2016).

Family planning programs should ensure that counsellors address women's individual needs and fears, local beliefs and misinformation, and address side-effects explicitly. However, a "one size

fits all" approach may be inappropriate. Women in this study were concerned about the potential impact of PPIUD on sexual compatibility and experiences, and the influence on their partner's sexual experience. In other LMICs, women have expressed fears about contraception directly related to sexual pleasure, performance, and libido (Bisika, 2008; John, Babalola, & Chipeta, 2015). Despite this body of work, the effects of contraception on sexual function and experience is not frequently discussed with women during counseling.

Our study had several limitations. First, since participants were recruited from six hospitals participating in a study of PPIUD provider training and patient counseling, our sample likely has a large representation from women who have access to health care. Thus, we cannot transfer findings to women who may have poorer access, such as those in rural settings. Second, as in any interview study, social desirability bias was a risk. We had highly trained Tanzanian researchers, with similar ethnic backgrounds, conduct interviews in private settings in the local language to help minimize perceived power dynamics between researcher and participant. Additionally, interviews were conducted at the facility where services were received, which may have also contributed to social desirability bias. On the other hand, the strength of this design is that women were interviewed on the same day of the counseling, so we were able to capture their initial reactions.

Postpartum family planning programs may be more effective in their promotion efforts if they recognize and address women and their partners' nuanced perceptions of specific contraceptive methods. With respect to PPIUD, contraceptive interventions that highlight the non-hormonal features of the method and address sexual acceptability of the method may be valuable. Counseling may be more effective if women trust the information they receive from providers; thus, attention should be paid to client-provider interactions and long-term relationship building, rather than one-time counseling sessions. To improve PPIUD uptake in Tanzania, we recommend improving postpartum contraceptive counseling that addresses women's concerns, clarifies misinformation, and emphasizes the benefits that women value most.

References

Bisika, T. (2008). Cultural factors that affect sexual and reproductive health in Malawi. *The Journal of Family Planning and Reproductive Health Care*, *34*(2), 79–80.

Blumenthal, P. D., Chakraborty, N. M., Prager, S., Gupta, P., Lerma, K., & Vwalika, B. (2016). Programmatic experience of post-partum IUD use in Zambia: An observational study on continuation and satisfaction. *The European Journal of Contraception & Reproductive Health Care*, *21*(5), 356–360.

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, *1*(3), 185–216.

Bryant, A. G., Hamela, G., Gotter, A., Stuart, G. S., & Kamanga, G. (2015). Reasons for intrauterine device use, discontinuation and non-use in Malawi: A qualitative study of women and their partners. *African Journal of Reproductive Health*, *19*(4), 50–57.

Bryant, A. G., Kamanga, G., Stuart, G. S., Haddad, L. B., Meguid, T., & Mhango, C. (2013). Immediate Postpartum versus 6-week Postpartum Intrauterine Device Insertion: A Feasibility Study of a Randomized. *African Journal of Reproductive Health*, *17*(2), 72–79.

Campbell, M., Sahin-Hodoglugil, N. N., & Potts, M. (2006). Barriers to fertility regulation: A review of the literature. *Studies in Family Planning*, *37*(2), 87–98.

Canning, D., Shah, I. H., Pearson, E., Pradhan, E., Karra, M., Senderowicz, L., … Langer, A. (2016). Institutionalizing postpartum intrauterine device (IUD) services in Sri Lanka, Tanzania, and Nepal: study protocol for a clusterrandomized stepped-wedge trial. *BMC Pregnancy & Childbirth*, *16*.

Cleland, J., Conde-Agudelo, A., Peterson, H., Ross, J., & Tsui, A. (2012). Contraception and health. *The Lancet*, *380*(9837), 149–156. https://doi.org/10.1016/S0140-6736(12)60609-6

359 Conde-Agudelo, A., Rosas-Bermúdez, A., & Kafury-Goeta, A. (2006). Birth spacing and risk of
360 adverse perinatal outcomes: A meta-analysis. *JAMA*, *295*(15), 1809–1823.
361 Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research (3rd ed.): Techniques and Procedures for*
362 *Developing Grounded Theory*. 2455 Teller Road, Thousand Oaks California 91320 United States:
363 SAGE Publications, Inc. https://doi.org/10.4135/9781452230153
364 Foreit, K. G., Foreit, J. R., Lagos, G., & Guzman, A. (1993). Effectiveness and Cost-Effectiveness
365 Of Postpartum IUD Insertion in Lima, Peru. *International Family Planning Perspectives*, *19*(1),
366 19–33. https://doi.org/10.2307/2133378
367 John, N. A., Babalola, S., & Chipeta, E. (2015). Sexual pleasure, partner dynamics and contraceptive
368 use in Malawi. *International Perspectives on Sexual & Reproductive Health*, *41*(2), 99–107.
369 https://doi.org/10.1363/4109915
370 Kapp, N., & Curtis, K. M. (2009). Intrauterine device insertion during the postpartum period: a
371 systematic review. *Contraception*, *80*(4), 327–336.
372 https://doi.org/10.1016/j.contraception.2009.03.024
373 Lopez, L. M., Bernholc, A., Hubacher, D., Stuart, G., & Van Vliet, H. A. (2015). Immediate
374 postpartum insertion of intrauterine device for contraception. *Cochrane Database of Systematic*
375 *Reviews*. https://doi.org/10.1002/14651858.CD003036.pub3
376 Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC)
377 [Tanzania Mainland], Ministry of Health (MoH) [Zanzibar], National Bureau of Statistics
378 (NBS), Office of the Chief Government Statistician (OCGS), and ICF. (2016). *Demographic*
379 *and Health Survey and Malaria Indicator Survey (TDHS-MIS) 2015-16*. Dar es Salaam, Tanzania,
380 and Rockville, Maryland, USA.

Mohamed, S. A., Kamel, M. A., Shaaban, O. M., & Salem, H. T. (2003). Acceptability for the Use of Postpartum Intrauterine Contraceptive Devices: Assiut Experience. *Medical Principle Practice*; *12*, 170–175.

Padgett, D. K. (2008). *Qualitative Methods in Social Work Research* (2nd ed.). Thousand Oaks, CA: Sage Publications, INC.

Pfitzer, A., Mackenzie, D., Blanchard, H., Hyjazi, Y., Kumar, S., Lisanework Kassa, S., … Smith, J. M. (2015). A facility birth can be the time to start family planning: Postpartum intrauterine device experiences from six countries. *International Journal of Gynecology & Obstetrics*, *130*, S54–S61. https://doi.org/10.1016/j.ijgo.2015.03.008

Polis, C. B., Bradley, S. E. K., Bankole, A., Onda, T., Croft, T. N., & Singh, S. (2016). *Contraceptive failure rates in the developing world: An analysis of demographic and health survey data in 43 countries*. New York, NY: Guttmacher Institute.

Robinson, N., Moshabela, M., Owusu-Ansah, L., Kapungu, C., & Geller, S. (2016). Barriers to intrauterine device uptake in a rural setting in Ghana. *Health Care for Women International*, *37*, 197–215. https://doi.org/10.1080/07399332.2014.946511

Rutstein, S. O. (2005). Effects of preceding birth intervals on neonatal, infant and under-five years mortality and nutritional status in developing countries: evidence from the demographic and health surveys. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*, *89 Suppl 1*, S7-24. https://doi.org/10.1016/j.ijgo.2004.11.012

Vansjaliya, H., Prajapati, K., Shah, M. C., & Parmar, N. (2017). Analysing Barriers In Acceptance of Postpartum Intrauterine Device (PPIUCD) At Tertiary Care Hospital of Gujarat. *National Journal of Integrated Research in Medicine*, *8*(5), 9–12.

Vernon, R. (2009). Meeting the family planning needs of postpartum women. *Studies in Family Planning*, *40*(3), 235–245.

Williamson, L. M., Parkes, A., Wight, D., Petticrew, M., & Hart, G. J. (2009). Limits to modern contraceptive use among young women in developing countries: a systematic review of qualitative research. *Reproductive Health*, *6*(1), 3. https://doi.org/10.1186/1742-4755-6-3

Winfrey, W. L., & Rakesh, K. (2014). *Use of family planning in the postpartum period* (DHS Comparative Reports No. 36). Rockville, Maryland, USA: ICF International.

World Health Organization. (2015). *Medical eligibility criteria for contraceptive use, Fifth edition*. Geneva, Switzerland: World Health Organization.

Wulifan, J. K., Brenner, S., Jahn, A., & De Allegri, M. (2016). A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Women's Health*, *16*(2), 1–15. https://doi.org/10.1186/s12905-015-0281-3

Yeakey, M. P., Muntifering, C. J., Ramachandran, D. V., Myint, Y., Creanga, A. A., & Tsui, A. O. (2009). How Contraceptive Use Affects Birth Intervals: Results of a Literature Review. *Studies in Family Planning*, *40*(3), 205–214.

Table 1. Participant's characteristics

	Baseline Interviews	
Characteristic	n	%
Location		
Mbeya	3	15
Mt. Meru	6	30
Dodoma	2	10
Muhimbili	5	25
Tumbi	4	20
Age		
17 – 23	4	20
24 – 29	10	50
30 – 39	5	25
Missing	1	5
Education		
Some Primary	1	5
Completed Primary	3	15
Some Secondary	3	15
Completed Secondary	10	50
More than Secondary	2	10
Missing	2	10
Marital Status		
Married	15	75
Single, not living together	2	10
Single, living together	1	5
Missing	2	10
Occupation		
Unemployed	5	25
Homemaker	1	5
Business owner	5	25
Teacher	2	10
Other (e.g., nurse, tailor, secretary, salonist)	5	25
Missing	2	10
Religion		
Christian	15	75
Muslim	3	15
Missing	2	10
Total No. of Children (alive or deceased)		
0	6	30
1	8	40
2	2	10
3 or more	3	15
Missing	1	5
Consented/Planned to use PPIUD		
Yes	12	60

No	8	40