Women's Perspectives on Postpartum Intrauterine Devices in Tanzania

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Despite the numerous benefits of the postpartum copper intrauterine device (PPIUD), which is inserted within 48 hours after giving birth, it is underutilized in many resource-constrained settings, including Tanzania. We conducted in-depth interviews with 20 pregnant women who received contraceptive counseling during routine antenatal care in 2016–2017 and 27 postpartum women who had a PPIUD inserted in 2018 to understand reasons for use versus nonuse and continuation versus discontinuation. Primary motivators for using a PPIUD included: convenience, effectiveness, perceived lack of side effects, and duration of pregnancy protection. Barriers to use included: fear of insertion, concerns related to sexual experiences post-insertion, and limited knowledge. Women who had a PPIUD inserted continued use when their expectations matched their experience, while discontinuation resulted from unexpected expulsion and experience of unanticipated side effects. Frequent follow-up and guidance on side-effect management influenced women's decisions to continue use. To support uptake and continued utilization of the PPIUD, postpartum contraceptive counseling should explicitly address side effects and risk of expulsion.

Many postpartum women desire to delay their next pregnancy, however, few use postpartum contraception (Ross and Winfrey 2001). Short birth intervals, defined as pregnancies conceived less than 24 months following a prior birth, are

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associated with increased risk of adverse perinatal outcomes, such as preterm birth, low birth-weight, and small size for gestational age (Conde-Agudelo, Rosas-Bermúdez, and Kafury-Goeta 2006). In low- and middle-income countries (LMICs), birth intervals of 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 (Yeakey et al. 2009; Cleland et al. 2012). Improving access to contraception following a birth is critical to avoiding unintended pregnancy and improving the health and well-being of women and their children.

The copper intrauterine device (IUD) is well-suited for use in the postpartum period. The postpartum copper intrauterine device (PPIUD) is highly effective, long-lasting, reversible, and requires little maintenance (Kapp and Curtis 2009; Polis et al. 2016). The 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 et al. 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), the PPIUD offers a cost-effective and convenient option for postpartum women wanting to avoid another pregnancy (Foreit et al. 1993). Moreover, although evidence is limited, women have reported high levels of satisfaction with the PPIUD in African settings, such as Zambia (Blumenthal et al. 2016) and Malawi (Bryant et al. 2013). Despite the numerous benefits of the PPIUD, insertion rates remain low in LMICs (Pfitzer, Anne 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 among researchers and practitioners over the last decade (Cleland et al. 2012). Only four studies have explored barriers to PPIUD use in LMICs. Fear of insertion, fear of side effects and infertility, and preference for the interval IUD (an IUD inserted on or after four weeks postpartum) or another method have been documented as barriers to PPIUD uptake in Egypt, Ghana, India, and Malawi (Mohamed et al. 2003; Bryant et al. 2015; Robinson et al. 2016; Vansjaliya et al. 2017). 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: trust in 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 et al. 2015). A more nuanced understanding of what motivates postpartum women's decisions to use or not use the PPIUD, as well as reasons for discontinuation/continuation, is needed to improve family planning programs and postpartum services.

Most Tanzanian women do not use contraception in the postpartum period. Within six months of delivery, less than 40 percent of women use modern contraception to avoid pregnancy (MOHCDGEC [Tanzania Mainland], MOH [Zanzibar], NBS, OCGS, and ICF 2016). Among women who do use contraception within 12 months after delivery, most rely on the lactational amenorrhea method (LAM) (26 percent) or injectables (23 percent), while almost

no women use the IUD (Winfrey and Rakesh 2014). Further, IUD use in the general population of currently married, reproductive-aged women is quite low (about 1 percent) (MOHCDGEC [Tanzania Mainland], MOH [Zanzibar], NBS, OCGS, and ICF 2016). Due to low contraceptive prevalence (32 percent among all women), short birth intervals are common: one in five births occurs within 24 months of the previous birth (MOHCDGEC [Tanzania Mainland], MOH [Zanzibar], NBS, OCGS, and ICF 2016).

The aims of our study were to: (1) explore pregnant women's attitudes toward the PPIUD, highlighting reasons for planned use or nonuse, and (2) understand the rationale for contraceptive decisions beyond the immediate postpartum period, including reasons for continuation or discontinuation of use, among women who had the PPIUD inserted immediately after delivery. We used data from in-depth interviews with pregnant women conducted after facility-based contraceptive counseling during routine antenatal care, and from in-depth interviews with women who had the PPIUD inserted approximately 20 months prior to the interview.

METHODS

Program Description and Parent Study

The International Federation of Gynecology and Obstetrics (FIGO), in collaboration with its national affiliates, launched an initiative in 2015 to institutionalize PPIUD services as a routine part of antenatal counseling and delivery-room services in six LMICs: Bangladesh, India, Kenya, Nepal, Sri Lanka, and Tanzania (Caestecker et al. 2018). The initiative trained community midwives, nurses, doctors, and delivery-unit staff on the provision of counseling and postpartum contraceptive services and aimed to institutionalize the provision of counseling 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, it was expected that 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 counseling aids, such as visual aids, informational brochures, and anatomical models. Women who were counseled on the PPIUD during antenatal care had the opportunity to provide advance consent to PPIUD insertion, and their medical charts were marked with their stated decision. Consent for insertion of the method was confirmed after delivery.

Our PPIUD study was undertaken to evaluate the causal effect of the initiative on the uptake and subsequent continued use of the PPIUD in Tanzania, Nepal, and Sri Lanka. In Tanzania, the study was conducted in tertiary and teaching hospitals in five regions: Arusha, Dar es Salaam, Dodoma, Mbeya, and Pwani. A tertiary/teaching hospital and three to four of its satellite clinics were selected in each area based on geographic representation and the percentage of women delivering in the study hospitals who may have received postnatal care at the selected satellite clinics. The FIGO intervention in satellite clinics focused on postpartum contraceptive counseling during antenatal care so that women delivering in the

teaching hospitals could be counseled and make a decision on postpartum contraceptive use prior to delivery. The published PPIUD Study protocol (Canning, David et al. 2016) provides detailed information about study procedures.

Study Design and Data Collection Procedures

This qualitative investigation was nested within our PPIUD study in Tanzania. To understand women's rationale for use or nonuse of the PPIUD after delivery, in-depth interviews were conducted between June 2016 and February 2017 with 20 women who had at least two antenatal-care visits and had not yet delivered, hereinafter known as "antenatal interviews." Then, a separate sample of 27 women who received a PPIUD after delivery was interviewed between April and August 2018 to understand reasons for continuation and discontinuation, hereinafter known as "postnatal interviews." Antenatal interviews were conducted following an antenatal-care visit. Postnatal interviews were conducted approximately 20 months postpartum. We determined our sample sizes based on what would be sufficient to achieve saturation in themes and to achieve study aims (Corbin and Strauss 2008).

We developed semistructured interview guides in English and translated the guides into Swahili. Tanzanian colleagues verified translations and back-translated the guides to ensure the content and semantic equivalence of each question, following Brislin's (1970) guide to translation in cross-cultural research (Brislin 1970). In addition, we pretested the interview guides to assess question phrasing, sequencing, and overall comprehension. The interview guides were modified on the basis of the pretesting.

Women were eligible to complete an antenatal 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 sociodemographic characteristics (higher and lower income, young women under age 25 and women age 25 or older). Two trained female interviewers worked with facility staff to identify women who met the eligibility and selection criteria. Women were purposively selected for postnatal interviews from the PPIUD study database on the basis of PPIUD outcomes (i.e., continuer, discontinuer due to expulsion, intentional discontinuer). For the postnatal interviews, we aimed to interview at least 10 women who were continued users, 10 women who experienced expulsion, and 10 women who intentionally discontinued. However, we only successfully interviewed seven women who experienced expulsion (Table 1). The proportion of women experiencing PPIUD expulsion in Tanzania was 1.2 percent ($n = 14$) in the quantitative portion of our PPIUD study, and researchers were unable to locate more women with such experiences, due to women relocating or being unreachable by phone. Interviewers called women to inform them about the interviews, briefly explained the purpose of the interviews, and requested participation. Interviewers scheduled times for women to come to the hospital or another convenient private location for interviews.

Before each interview, trained female Tanzanian interviewers asked participants to provide written informed consent to take part in the study. Participants who were unable to sign their names first provided verbal consent to participate and then a thumbprint signature with a witness's signature. No identifying information was collected from participants. Interviewers conducted the one-on-one interviews in Swahili, in a private space on-site at the facilities or in another private location (e.g., the woman's home if she preferred).

TABLE 1 Selected participants' background characteristics

	Antenatal interviews		Postnatal interviews	
Characteristic	**n**	**%**	**n**	**%**
Geographical region				
Mbeya	3	15	9	33
Mt. Meru	6	30	5	19
Dodoma	2	10	4	15
Muhimbili	5	25	6	22
Tumbi	4	20	3	11
Age (years)				
17–23	4	20	4	15
24–29	10	50	13	48
30–42	5	25	9	33
Missing	1	5	1	4
Education				
Some primary	1	5	0	0
Completed primary	3	15	6	22
Some secondary	3	15	1	4
Completed secondary	10	50	15	55
More than secondary	2	10	4	15
Missing	1	5	1	4
Marital status				
Married	15	75	21	78
Single, not living together	2	10	3	11
Single, living together	1	5	0	0
Widowed	0	0	2	7
Missing	2	10	1	4
Occupation				
Unemployed	5	25	6	22
Homemaker	1	5	0	0
Business owner	5	25	9	33
Teacher	2	10	4	15
Other (e.g., nurse, secretary, salon worker)	5	25	7	26
Missing	2	10	1	4
Religion				
Christian	15	75	20	74
Muslim	3	15	6	22
Missing	2	10	1	4
Total number of children (alive or deceased)				
0	6	30	0	0
1	8	40	11	41
2	2	10	7	26
3 or more	3	15	8	30
Missing	1	5	1	4
Consented/planned to use PPIUD				
Yes	12	60	NA	NA
No	8	40	NA	NA
Continued use of PPIUD				
Continuer	NA	NA	10	37
Intentional discontinuer	NA	NA	10	37
Discontinuer due to expulsion	NA	NA	7	26

NA = Not applicable.

Open-ended interview questions solicited information about participant demographic characteristics, reproductive health intentions, family planning behaviors, and perceptions of and experiences with the PPIUD. Interviews were audio-recorded with women's permission and subsequently transcribed and translated to English for analysis. On average, interviews lasted 60–90 minutes.

Analytical Strategy

We used ATLAS.ti (Version 8.0) for data management, coding, and analysis. We applied a multistage analytical strategy to develop codebooks and identify key themes. In the first stage, we prepared an initial list of codes and definitions applicable to the antenatal

interviews, informed by the study's aims and existing literature on postpartum contraception. Two researchers independently reviewed antenatal transcripts line-by-line to apply codes and develop the final codebook. Second, the 20 antenatal interviews were divided between three researchers and thematically analyzed and coded using the finalized codebook. During this stage, we wrote analytical memos to summarize cases, make comparisons, and identify emergent themes. Additional codes were discussed and added to the codebook as appropriate. Next, we developed a preliminary codebook applicable to the postnatal interviews. We modified the antenatal interview codebook after reviewing 10 postnatal transcripts and developed a final codebook. Last, the 27 postnatal interviews were divided between two researchers. Each researcher applied codes using the finalized codebook. We reviewed each researcher's applied codes at appropriate stages and came to agreement on categories and themes to ensure analytical rigor and consistency across transcripts.

Ethical Approval

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

RESULTS

Participant Characteristics

Overall, half of the women who participated in antenatal interviews were in their mid- to late-twenties and half had completed secondary education (Table 1). The majority of antenatal interview participants were married, and most were employed. Almost one-third of antenatal interview participants had no previous children. Many others had only one previous child.

Most women who participated in the postnatal interviews were aged between 24 and 29. Over half of the postnatal interview participants had completed secondary education, and almost three-quarters were employed or operated a small business. Most postnatal interview participants were married and had either one or two children.

Facilitators of PPIUD Intended Use

Twelve women interviewed during pregnancy reported that they had consented or planned to consent to placement of a PPIUD. Among these women, all mentioned multiple benefits of the PPIUD, including minimal side effects, no impact on ability to breastfeed, and that the PPIUD is a convenient, long-lasting, and highly effective method. Women frequently mentioned the lack of hormones in the PPIUD as a positive feature of the method, which they associated with fewer side effects and less disruption to regular, monthly menstruation. One participant, 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 the injection, you won't bleed for a long time. [The nurse] was saying if you use [PPIUD], 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 [PPIUD] is good. (Planned user, age 33, married)

Many women interviewed in the postnatal interviews also mentioned that they were specifically interested in the PPIUD, because it would not interrupt breastfeeding and they did not have to remain abstinent to avoid pregnancy.

> When I had my first child, I was forced to go and stay at my parents' home for a full year just to avoid my husband and pregnancy, because I wasn't using any contraceptives. I wanted my baby to grow and breastfeed for at least two years. But after one year I had to come back to my husband, and in no time there I was pregnant and had to stop breastfeeding my baby before she could turn two years. But with the PPIUD, I didn't go anywhere, and I haven't gotten pregnant, and my baby is breastfeeding well. (Continuer, age 42, married)

Overall, the convenience of immediate insertion following delivery motivated women to consent to the PPIUD. Several women mentioned that returning to a health facility specifically for contraceptive services during the postpartum period is burdensome, given the competing demands in their daily lives, and other postpartum visits for newborn care. Further, women reported that they often do not prioritize contraceptive use during the postpartum period as they are busy attending to the health of their newborns.

> When [the nurse] told me that the [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 (specifically to obtain contraception) as time goes on. (Planned user, age 27, married)

Women also expressed that methods requiring resupply (e.g., condoms, oral contraceptives, injectables) are onerous for the same reason; thus, the PPIUD was considered a convenient option. Several women who initially planned to use traditional methods after birth, such as the calendar method or withdrawal, decided to "switch" to the PPIUD after counseling, not only because of convenience but also because of the effectiveness and "peace of mind" that the method could bring.

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

Women's preference for extended protection against pregnancy (i.e., 12 years) was the most salient factor influencing their intention to use the PPIUD over other long-acting reversible methods, such as the implant. Several women also appreciated that the PPIUD could be removed at any time and would not affect fertility. For example, one planned user stated, "If you decide to get pregnant you can have it removed or if you decide to stay 12 years without

delivering a baby, it's fine!" Another woman echoed this sentiment: "I will use the [PPIUD] … You may consider removing it at any time when you want to have another pregnancy, even before the 12 years. Any time you feel like having another pregnancy, you can simply remove it!"

Additionally, prenatal counseling reportedly influenced women's specific method choice. One woman discussed her decision to adopt the method over permanent methods following a counseling session:

> Most of the time I was thinking of that tubal ligation. I didn't have any information on how long that PPIUD can last and [its other benefits]. So when I came here, I got counseled and received the information on the PPIUD. If I use the PPIUD for those 12 years, by that time, I will be older (i.e., not able to have children). (Planned user, age 39, married)

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

Potential Barriers to PPIUD Use

Eight women interviewed during pregnancy reported that they had not consented or did not plan to consent to placement of a PPIUD. 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 the PPIUD. This lack of knowledge was present even though participants had received counseling from a provider immediately prior to the in-depth interviews. Further, some narratives suggest that despite prior awareness of the IUD, women misunderstood the information presented about its use in the postpartum period or believed the PPIUD to be a new contraceptive method (i.e., distinct from the IUD). For example, one woman described her uncertainty:

> There is something that I haven't understood. That's why I have not provided consent to use the PPIUD, because they told me the [PPIUD] is also a loop (IUD), only that it is different in terms of insertion time. If I realize the [PPIUD] is a 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 the loop (IUD), which I know is inserted after 48 days and not immediately after delivery. (Planned user, age 25, married)

Despite positive perceptions of health care providers among planned users, for many planned nonusers, health care providers were either untrustworthy sources of information or did not provide complete and/or accurate information. Several women reported that they were not able to ask questions during counseling, and we infer from the interviews that some medically inaccurate information was provided to women with, perhaps, the motivation to

provide counseling quickly. For instance, many women mentioned that they were told the 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 get answers to their questions.

Fear of side effects and incomplete information were common themes that dissuaded some women from using the PPIUD. While some typical side effects were mentioned (e.g., body pains, weight fluctuation, irregular menstruation), many women expressed very specific concerns related to PPIUD use, including increased risk of cervical cancer and fears related to pain or discomfort during sexual intercourse. This information was largely spread through informal social networks, such as peers, relatives, and "people on the streets." Fears and concerns regarding sexual incompatibility with husbands and/or sexual partners after insertion and the influence of the PPIUD on sexual encounters were commonly expressed:

> There is something that [my friend who has the IUD] mentioned … in terms of the size of the penis. If it happens that [your sexual partner has] a bigger penis size, it pushes the device—something like that. So the size has to always be the same … If you [have sex with] a person with a different body physique from your husband, he might push it inside of you and cause problems … She told me something like even when you go for insertion you have to go with your husband. (Planned nonuser, age 25, unmarried cohabitating)

Many women also expressed fear about pain during intercourse, for themselves and their partners, while using the PPIUD.

> I heard that once you insert the [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)

Due to perceptions that sexual intercourse may be difficult for some couples after PPIUD placement or that PPIUD insertion requires women to only have sexual relationships with one partner, some women expressed concern that the PPIUD would not be an appropriate method choice for unmarried women or women who have multiple sexual partners or extramarital affairs. These perceptions may have been influenced by the counseling received, as several women were advised to stop using the PPIUD should they have multiple sexual partners, because of increased risk of infection (although specific infection was not specified by respondents):

> I was checked if the PPIUD is still there, and I was asked questions about how I was feeling. I was advised that if I have many sexual partners, I should stop [using the PPIUD] because that will affect the PPIUD, and I may get infections, which is not good. (Continuer, age 25, single)

Women who were undecided about what method to use after delivery or chose not to use the PPIUD tended to express a preference for familiar contraceptive methods that they had used in the past. For these women, the fear of side effects and lack of complete information

about the 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 that you were taught about?"
> Respondent: "Because the [PPIUD] is something new to me and it's a method that I just heard about 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 the PPIUD, you should then have intercourse with only one man. I don't know how it will be like during sexual intercourse, if it may be painful or not." (Planned nonuser, age 28, married)

Facilitators of PPIUD Continuation

Ten postnatal interview participants were still using the PPIUD at the time of the interview. The vast majority of continuous PPIUD users had no stated plans to discontinue until another pregnancy was desired, and only one PPIUD continuer was considering discontinuation at the time of the interview due to excessive bleeding. Most women who stated they were satisfied with the PPIUD did not report any negative side effects, which was the primary motivation to continue use. For example, a woman who had difficult past experiences with the use of oral contraceptives, injectables, and implants was motivated to continue with PPIUD use because of the lack of side effects:

> I liked the PPIUD, and I noticed that it was not disturbing me. I was having my menstrual periods on time. I was not putting on more weight, neither was my blood pressure high as before. I just liked everything I was told about the PPIUD, and after one month, I could clearly tell they were all true … [I haven't considered stopping the PPIUD] because I am a free person with this method. I am not feeling sick. I am busy with my daily activities with no thoughts of family planning. Like when you are taking pills, nothing can go on unless you have taken the pill. If you forget, you are always worried of conceiving. This is not the case with the PPIUD. (Continuer, age 37, married)

When PPIUD continuers did experience issues with the method, many sought follow-up services from nurses who supported continued use by counseling and teaching them how to manage side effects. For example, a participant experienced several challenges immediately after insertion, such as stomach pains and feeling the method; however, through continued feedback and support from health center nurses, she persevered through the initial side effects and reported being very satisfied:

> I can say the [follow-up] counseling I received gave me hope and improved my perceptions. For me, I expected that when you have the PPIUD inserted, you don't feel anything right from the start. But the nurses told me that, just like any other change introduced to the body, you need to give it some time, and afterward, the body will adjust and everything will be normal, And that is how it was. (Continuer, age 27, single)

Participant narratives provide several examples of clinical staff who were highly supportive (e.g., reassuring and empathetic health workers), which seemed to influence whether or not a woman continued using the PPIUD after experiencing side effects. Some women were proactively followed up by health care workers through biweekly or monthly telephone calls, which helped support PPIUD continuation. Further, many PPIUD continuers were provided with information about potential symptoms and danger signs directly after insertion and advised at multiple time points (e.g., after insertion, at follow-up, at postnatal-care appointments) to seek medical care if they believed they had a problem with the PPIUD. One woman said:

> I can say those health providers are always calling me, and have supported me by reminding me to attend clinic for the PPIUD and have been very friendly and willing to help. Like when you come to the hospital, they always make sure they hand you over to someone who will give you the services, and in most cases, you don't have to wait in the queue. They also ask how you are doing and sometimes check to see if the PPIUD is still in. They are very friendly even when they talk to you on the phone. (Continuer, age 37, married)

Several PPIUD continuers reported that during counseling before the insertion, they had their questions answered by health care providers and felt satisfied with the amount of counseling they received. When asked what they wished they had known about the PPIUD before they had it inserted, most PPIUD continuers responded that they had received a sufficient explanation by the health care providers. PPIUD continuers' experiences of use seemed to match or exceed expectations, as the participant below states:

> To be honest, I thought that having the PPIUD will be painful because the nurse, during the education sessions, had said that there might be minor effects that one might feel after having the PPIUD inserted, and they would go away with time. But I have never felt anything. I feel normal, and I am happy that the nurses told us about this method … There is no difference between what the nurse told me and what we were told during the counseling sessions [and what I have experienced]. To me, it has been a good method. I was told that there would be minor effects, but I didn't even feel any of that. I am happy with the PPIUD. (Continuer, age 25, single)

Reasons for PPIUD Discontinuation

We report the reasons for discontinuation of the PPIUD as they relate to two distinct scenarios: expulsion and intentional discontinuation.

Expulsion

Seven women who were interviewed discontinued PPIUD use because of device expulsion. While some women had an IUD inserted after expulsion, others encountered barriers in obtaining a replacement. For instance, a participant reported expulsion within a week of delivery

and placement. It took her almost a month to get an interval IUD inserted due to conflicting advice from a hospital nurse:

> I did not stay with the [PPIUD] for even a week, then it came out … There is a nurse at [the hospital] who gave me her phone number and told me to call her whenever I have anything I want to ask about. So, I called and asked her, "Why has this [PPIUD] come out?" and I described the object I was seeing. But she did not understand me. She told me, "it's no problem, there is another one that has remained inside. Keep the one that has come out until the day when I will call you to bring it." So I stayed about a week, and then I decided to go to [the hospital] because I was a bit worried. At [the hospital], I explained everything to them. They told me to go on the bed, and they checked me …and told me that [the PPIUD came out]. (Discontinuer from expulsion, age 29, married)

Another participant was also told to wait for a replacement IUD from a hospital nurse:

> When [the PPIUD] was expelled, I told [my husband] and he told me to come back [to the hospital] and have it inserted again. But when I called the nurse, I was told to come after 40 days … After my PPIUD was expelled, it was so hard for me to decide which method I should use. I thought a lot about it but I was unable to get quick answers. Had [the health providers] agreed to give me another IUD immediately when I called to inform them that the PPIUD had been expelled, maybe I would have continued using it. But after staying for a long time, I went to the hospital only to be told that I wasn't fit for another IUD because of my problem. It was discouraging. (Discontinuer from expulsion, age 36, married)

Many women who experienced expulsion seemed to lack comprehensive information about risks and side effects, especially information about expulsion. Thus, when the PPIUD was expelled, they were surprised and became frightened or did not know what steps they should take to have another inserted or how to switch to a different method. A first-time mother reported that the method expelled two weeks after delivery. Rather than seeking care or attending her follow-up visit, she consulted with friends and went to a different facility to have the implant inserted:

> I wish I had known that the PPIUD could come out any time. Among all the things I was told, I was never told that it could come out in such a short time. Had I been told, I would not have gotten scared and maybe I could have disclosed to my husband what happened, and I would have come back to the hospital and asked to be given another IUD. What I was told was that it can last for a long time until you decide to remove it. I think, like I said, it would be good to tell a person everything that may happen because that is one's body, so that when they decide [about the PPIUD] they may accept anything that may happen. (Discontinuer from expulsion, age 22, married)

Many women who experienced expulsion expressed frustration by the lack of information they received. Lack of complete and adequate information about the PPIUD led women

to be fearful and untrusting of the method. This distrust was a primary barrier to having another IUD inserted, and most women who experienced expulsion reported that they should have been told about all risks before insertion.

> [I would have liked to know more] information about the PPIUD; signs that will need attention and not to wait—generally, the bad signs like how they tell pregnant women to rush to the hospital when they see blood. Things that one sees or feels that they should go to the hospital to check and make sure everything is ok … I [wish] I had been given a lot more details about it, like it can come out on its own even before you [have sex] with a man. I never expected it to come out that early. I thought it would only be disturbed when one starts indulging in sex. (Discontinuer from expulsion, age 20, married)

Some women resorted to less effective methods after expulsion due to fear and uncertainty about effectiveness.

> I have become fearful [of the PPIUD] because if I had it inserted and it just came out, that means I can get pregnant anytime without having planned and when thinking that I have a method. I thought that even when I go back and have another one inserted, it can also end up the same way the first one did. So, together with other reasons, I found it better to go back to pills. (Discontinuer from expulsion, age 30, married)

Intentional Discontinuation

Ten women who were interviewed intentionally discontinued the PPIUD. All women who had intentionally discontinued the PPIUD sought removal because of side effects and/or other health issues. Commonly reported side effects included menstrual irregularity, abdominal pain, abnormal vaginal discharge or infections, vaginal pain due to the PPIUD strings, and pain during sex for women or their partners. Many women recognized that some health issues they experienced could have been attributed to other experiences (e.g., cesarean section, postpartum health issues), and many actively sought to rule out other possibilities. However, most women believed that, ultimately, the PPIUD was the root cause of their health issues:

> I removed it because it was causing me problems. I was always suffering pains in my lower abdomen and vaginal discharge that made it hard for me to continue with it … From the time I inserted it, I never menstruated. Not even for a single month did I see blood flow, apart from the dirty discharge. I tried asking people, but I never got any satisfactory answer. Some said it was normal for a breastfeeding woman not to bleed, and others said it must be the effect of the PPIUD. So, this statement also made me want the PPIUD removed. (Intentional discontinuer, age 28, married)

Another woman recounted the reasons why she had the PPIUD removed, including perceived complex issues that were created as a result of the method:

> There are several reasons why I removed it. The main reason is the vaginal itching and infections that occurred … I got treatment but after a few weeks,

> it would recur. I decided to remove [the PPIUD] and see if it is the thing that has been contributing to this infection … Also, when I had the PPIUD inserted after delivery, they told me to go to the hospital six weeks after so that I can have the threads cut. When I went to [the health center], the nurses told me that the threads were not seen and they asked me to come back after three months, maybe the threads will have dropped and they will cut them then; but the threads were never seen. Up to the time I went to remove it, the issue of cutting the threads had never been done and this was worrying me so much. (Intentional discontinuer, age 25, married)

Most women who intentionally discontinued reported that they were assured during counseling that the PPIUD "has no side effects" and decided to adopt the method for this reason. Thus, when some women experienced challenging side effects (e.g., prolonged menstruation), they were unsure how to manage these conditions or when/how to seek care. Many women who discontinued reported that their experience using the PPIUD did not match their expectations and felt misinformed about the method. This discordance between expectations and experiences ultimately led to frustration, and many women sought to have the device removed. Narratives suggest that while the downplaying of potential side effects during counseling may encourage women to adopt the PPIUD initially, if they eventually experience side effects, discontinuation may be more likely.

> It was worse and never matched my expectations. From the counseling, I thought that I would not have any challenges with the PPIUD. And when I was feeling pains from the start, I thought the pains were because I was operated upon (cesarean section) … I still wonder why [the PPIUD] caused me all that pain when they said that it doesn't have any hormones. I am now off contraceptives, breastfeeding my baby, and surviving on God's mercy not to get pregnant. (Intentional discontinuer, age 36, married)

> I wish the providers who gave me the PPIUD would have told me [what to expect] like those who gave me the implant told me. They told me, you have chosen to have the implant but expect to miss your menstrual periods, you may gain weight, and so on. They told me a list of things to expect, though they never talked about the positive things. It should have been the same with those who gave me the PPIUD. If they would have told me the challenges that I was likely to face, when they happened I would not have been worried. They only talked about the positive aspects of the PPIUD, and I made my decision based on those. (Intentional discontinuer)

> I will never use the PPIUD again. It is not what the health providers say it is. I think they need to be clear and say that there are people that will get problems with the PPIUD and not to tell women that it has no side effects. It all depends on the woman's body or how they insert it. After going through all the challenges, I said, "No, this is enough. (Intentional discontinuer, age 28, married)

A final barrier to continued use of the PPIUD was a lack of adequate information about follow-up care and how to obtain it. In contrast to women who continued PPIUD use, most discontinuers reported that health care providers were unenthusiastic and most women rarely received consistent follow-up services:

> After I came back from [the hospital], no one followed up to see if the PPIUD was working for me, until I removed it six months later. By that time, one [nurse] called to check on me, but I had already removed it. (Intentional discontinuer)

DISCUSSION

In this study, we identified inconsistencies between women's expectations of the PPIUD and their actual experiences using the device, which influenced their postpartum contraceptive decision-making. Most women were motivated to use the PPIUD because of its convenience, effectiveness, perceived lack of side effects, and duration of protection against pregnancy. In contrast to planned PPIUD users, women who did not intend to use it reported fears related to side effects, concerns regarding sexual acceptability or compatibility, a lack of IUD-specific knowledge, and fear of an unfamiliar method. Women who had the PPIUD inserted continued use when their expectations matched their lived experiences, primarily when they did not report side effects. In contrast, unexpected expulsion and side effects primarily drove decisions to discontinue the PPIUD. Women who received frequent follow-up and detailed information about side-effect management were more likely to continue use, which illustrates the critical role of supportive, comprehensive, and ongoing counseling from health care professionals.

Reported motivators to use the PPIUD were generally not specific to the postpartum period, and are consistent with those reported in other studies (e.g., Bryant et al. 2015; Robinson et al. 2016; Vansjaliya et al. 2017). For example, women in other settings believe the IUD to be long-lasting, reversible, and convenient (Bryant et al. 2015; Robinson et al. 2016; Vansjaliya et al. 2017). Our findings also 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, and Potts 2006; Williamson et al. 2009; Diamond-Smith, Campbell, and Madan 2012; Wulifan et al. 2016). Studies in sub-Saharan Africa and Asia have documented women's fears about use of the IUD within and outside the postpartum period, highlighting general side effects or fears of future infertility (Mohamed et al. 2003; Bryant et al. 2015; Robinson et al. 2016; Vansjaliya et al. 2017). Women in our study valued the PPIUD because of its lack of hormones, and they believed this feature would prevent or minimize side effects including irregular menstruation. Similar sentiments have been expressed by Malawian women (Bryant et al. 2015). Further, women reported some benefits and barriers to using the PPIUD that are true for other methods, perhaps an indication of a lack of comprehensive counseling about all methods and low familiarly with IUDs. While some of women's concerns are not PPIUD-specific, these barriers have to be addressed during counseling if PPIUD-focused interventions are to be successful. Comprehensive counseling

would improve women's understanding about the similarities and differences in features between methods.

We found several reasons why pregnant women did not plan to use the PPIUD after delivery, including lack of knowledge, fear of side effects, fear of an unfamiliar method, and concerns regarding sexual acceptability. Lack of IUD-specific knowledge has been reported in other studies as a barrier to use (Robinson et al. 2016). However, given that our antenatal interview participants were interviewed on the same day they received contraceptive counseling, their lack of knowledge may be an indication of incomplete or rushed counseling. Participants' narratives also point to method-specific concerns that the PPIUD might impede sexual function or experiences, or cause pain for women or their partners during sex. These beliefs may stem from incorrect knowledge about PPIUD placement or simply be the result of unaddressed fears. Similar beliefs have been documented in Malawi, such as the IUD can be dislodged during sex (Bryant et al. 2015) and cause pain to men during sex (John, Babalola, and Chipeta 2015). Yet, information about sexual function, specifically with regard to the IUD, is largely absent from routine contraceptive counseling and few studies have explored these relationships in low- and middle-income settings (Higgins and Smith 2016). Given the nature of these fears, it may be beneficial to include male partners in counseling sessions.

Few studies have explored reasons for PPIUD continuation (e.g., Bryant et al. 2015); thus, our study offers novel insights about how to support continued contraceptive use in the postpartum period. Two important findings emerged from the postnatal interviews: (1) when women's expectations about the PPIUD are consistent with their lived experiences, they are likely to continue using the method, even if side effects or other challenges are encountered; and (2) women who are proactively followed up by a health care provider and who receive the information necessary to seek follow-up services are likely to continue using the PPIUD. Because women's expectations about the PPIUD were largely informed by contraceptive counseling, women who received more complete and accurate information about how the PPIUD works and its potential side effects had more "realistic" expectations of the method. Consequently, these women were less perturbed when they encountered side effects and better equipped to manage other challenges, including expulsion. This is consistent with research in neighboring Malawi (Bryant et al. 2015) where women who were highly engaged with health care providers and received complete information about the IUD were more likely to continue use of the method. Taken together, these findings suggest that training programs must focus on adequate counseling and supporting women's changing needs over time, which will in turn support long-term, continued IUD use, as opposed to incentivizing providers to increase the number of new adopters. Further, family planning programs should expand efforts to improve follow-up of women who received counseling, for example, through mobile text messages, phone calls, and community health worker home visits, and strengthen existing follow-up mechanisms, such as postnatal care.

We note that the findings from all groups of women suggest that there was provider bias in favor of the PPIUD, over other contraceptive methods, during counseling. This is most likely due to the focus of the intervention and how providers were trained by FIGO. Consequently, provider favoritism toward the PPIUD may have resulted in the barriers and facilitators women perceived to using the method. For example, women reported that lack of

hormones was a preferred feature because it results in fewer side effects, but women received this information from providers. Ideally, interventions should anchor the PPIUD within the available method mix, and providers should present unbiased information about available methods. Enabling women to make informed choices about the methods they want to use should be the focus of family planning programs.

Strengths and Limitations

This study has some limitations. First, since participants were recruited from five hospitals participating in a PPIUD provider training and patient counseling intervention, our sample includes only women who had accessed facility-based services. Thus, study findings may not transfer to women with poorer access to health care, such as those residing in rural settings. On the other hand, our study samples allowed us to compare the experiences of women with varying background characteristics and PPIUD user profiles; this enhanced the richness of the data and provided a "bigger picture" about contraceptive decision-making in the antenatal and postpartum period. Second, as in any interview study, social desirability bias was a potential risk. To minimize this risk, interviews were conducted in private settings by highly trained Tanzanian researchers who were not associated with service provision or the PPIUD intervention. Additionally, although interviews were conducted in private spaces and confidentiality was prioritized, some interviews were conducted at the facility where services were received, which may have also contributed to social desirability bias. The strength of this design, however, is that women who participated in the antenatal interviews were interviewed on the same day of the counseling and women who participated in the postnatal interviews were followed after a long duration. Thus, we were not only able to capture women's immediate reactions and perceptions of the PPIUD, but also personal experiences with the method. Further, this study was part of an independent evaluation of the intervention; researchers had no special interests in the success of the program, limiting potential bias.

Implications

Study findings may have implications for programs and strategies to increase uptake of the PPIUD in Tanzania and in other similar African settings. Emphasizing the nonhormonal benefits of the PPIUD, especially the ability to breastfeed while using the method, may appeal to a broad audience of women, since women in our study reported this characteristic of the PPIUD as a primary motivator for use. However, if women's experience with the method mismatches their expectations, the long-term effect could be reduced uptake and more discontinuation. We found that when women were uninformed about side effects, they often discontinued the method. Women must be informed of all medically accurate risks, including risk of expulsion and side effects, together with benefits, and providers should confirm that women understand the information provided. Ultimately, greater transparency is needed during contraceptive counseling so that women have the information they need to make a fully informed decision for themselves and their families. Further, health care providers should provide accurate information tailored to counteract common negative beliefs about the PPIUD (Lewandowsky et al. 2012). For example, health care providers

should address how the PPIUD can affect sexual activity and male partners, and demonstrate to clients how and where the method is placed with the use of visual/pictorial aids. Providers should offer compelling alternative explanations when women express concerns, rather than merely stating that the issue is not attributed to the PPIUD or negating the concern.

Finally, the information provided during contraceptive counseling should be consistent across all groups of women, while tailoring the counseling to fit women's specific needs. Some women in our study did not get full information about the PPIUD, a possible indication of inconsistent delivery of the intervention. This may be due to differences in providers' workload, biases, or training. Oversight and supportive supervision of providers may be one way to ensure consistency and high-quality counseling across patient–provider interactions.

With increasing availability and use of the IUD in LMICs, the method will become more familiar to nonusers; however, this progression could take some time. To facilitate awareness and familiarity with the method, programs could target women and their partners in community settings, through community health worker visits, for example. Community-based programs would complement facility-based interventions by delivering positive and balanced messages about the IUD and increasing women's demand for the method, and helping to dispel widely held fears or concerns about the method. Furthermore, proactive follow-up among women who have the PPIUD inserted is critical to continuation. Providers should counsel women and their partners about specific concerns or challenges, using probes to assess whether the woman is experiencing challenges or may be at risk of discontinuing while wanting to avoid pregnancy. Practical strategies, such as telephone calls or text message reminders, may be appropriate communication channels in urban settings, although such strategies require mobilization of resources within the health care sector to cover airtime costs and may be difficult to implement and sustain.

Postpartum family planning is crucial to the health and well-being of women and their families. For programs to be effective, it is critical to understand why women choose to use or not use and continue or discontinue postpartum contraception. Our study contributes to the PPIUD knowledge base in several ways. First, it highlights the shortcomings in current antenatal counseling that provides incomplete, sometimes skewed, information on the advantages and disadvantages of contraceptive methods. Second, unlike other studies, women in our study share their perspectives on the basis of having had the PPIUD rather than knowledge or perceptions based on no experience of use, as was often the case in previous studies. Third, women's narratives, based on actual experience of using the PPIUD, identify new information on the importance of the link between the PPIUD and sexual behavior, infertility, and infections. Programs may be more effective if they recognize and address perceptions of specific contraceptive methods. With respect to the PPIUD, contraceptive interventions that highlight the nonhormonal features of the method and address sexual acceptability of the method may be valuable. Counseling may be more effective if providers give balanced information, promoting trust between women and their providers. To improve PPIUD uptake and continued use in Tanzania, we recommend improved postpartum contraceptive counseling that adequately addresses women's concerns, clarifies information, and provides transparent information on potential side effects and how to manage them.

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