Providers’ views on hormonal family planning methods: a qualitative study from Dosso, Niger [version 1; peer review: 3 approved with reservations]

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Abstract
Background: Family planning (FP) providers play an important role in ensuring that clients are offered a full range of FP methods. This qualitative study explores providers’ views on three hormonal FP methods and why they think women may choose these methods in Niger.

Methods: In-depth interviews were conducted with 24 FP providers in 24 government health centers in Dosso region, Niger between February-March 2020. Providers were asked about the suitability of different FP methods for women, including adolescents and married women with children. The interviews were translated and transcribed from Hausa and Zarma into French, thematically coded, and qualitatively analyzed.

Results: Many providers believed discretion to be the most important method attribute for women. Providers report preferring implants for young clients because of the more rapid return to fertility. They disagreed on whether implants or injectables are more discrete for clients. That said, providers felt that clients appreciate the implant’s discretion, effectiveness, long-acting nature, and simplicity of use. Providers perceived that the majority of women choose injectables due to familiarity with the method, the fact that it is “invisible” to an outsider, and a lack of awareness of implants. Providers stated that while women may not initially choose the implant, when given more information about it, they were more open to adopting it, or switching from another method, and less likely to believe local myths. Providers believed that women find pills to be indiscreet.

Conclusions: The findings highlight that while providers have perspectives on suitable methods for certain women, they also
recognize that clients have their own preferences, such as how discreet the method is. As programs continue to expand method choice and new contraceptive technologies undergo research and development, highly desirable features such as discretion need to be considered.

**Keywords**
Niger, sub-Saharan Africa, family planning, counseling, method preference, provider bias

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**Introduction**

Niger, a landlocked country in the Sahel region of West Africa, had a total fertility rate of 7.6 at the time of the last Demographic and Health Survey in 2012 (Institut National de la Statistique (INS) et ICF International, 2013). Family planning (FP) use is not common in Niger, with 15% of all women, and 18% of married women reporting use of a modern method in 2017 (PMA2020, 2018). Compared to married women, fewer married adolescents aged 15–19 years (11%) and married women with 0-1 children (13%) reported use of a modern method of FP (PMA DataLab, 2021). In 2017, 21% of married women had an unmet need for FP for limiting and spacing pregnancies, that is, they reported a desire to delay or avoid pregnancy but were not using a method of contraception, putting these women at risk for unintended pregnancy (PMA2020, 2018). Since early in the FP2020 (now FP2030) initiative, the government of Niger has made commitments to increase budget allocations for FP and to increase contraceptive use through task sharing between health care worker cadres and including injectables in the basic service package offered by community health workers (Family Planning 2020, 2021). Niger is also a member of the Ouagadougou Partnership and Sahel Women’s Empowerment and Demographic Dividend project (SWEDD), two large initiatives that provide funding to Niger with the aim to increase FP use and access to reproductive health services for all women.

Modern contraceptive use in Niger is primarily characterized by pill and injectable use. In the 2012 Niger Demographic and Health Survey, among married modern FP method users, the pill was the most commonly used method (46%) followed by lactational amenorrhea method (LAM) at 32% and injectables at 17% (Institut National de la Statistique (INS) et ICF International, 2013). By 2017, among married modern FP method users, the pill and injectable each represented about 40% of the method mix and implants increased to 17% (PMA2020, 2018). Recent client exit interview data collected at 45 public-sector health centers in Dosso, Niger, show injectables as the most commonly used method, with 58% of clients surveyed using this method, followed by pills (28%) and the implant (13%) (Speizer et al., 2021). This shift in hormonal method use from pills to injectables, and later to implant use, follows the same progression that has been detected in a number of countries in Sub-Saharan Africa (Bertrand et al., 2020).

Many factors influence a woman’s FP method choice, including demand-side and supply-side factors. Studies from North America, Asia, and Sub-Saharan Africa have shown that women’s limited knowledge of fertility patterns and FP methods, conflicting norms and beliefs, fear of side effects, misconceptions about modern methods, number of living children, peers’ method use, and partner’s acceptability of the method impact method use and choice (Adinma et al., 1998; Ajong et al., 2018; Brunie et al., 2019; Calhoun et al., 2022; Guess et al., 2015; Higgins et al., 2020; Izale et al., 2014; Moronkola et al., 2006; Odwe et al., 2021; Sullivan et al., 2006; Valente et al., 1997; Wasti et al., 2017). The method’s effectiveness and the safety of the method in terms of a woman’s health have also been found to be influential in decisions around method choice (Adinma et al., 1998; Higgins et al., 2020; Moronkola et al., 2006). Structural and supply side barriers influence method choice through stock outs or limited supplies of FP products (Zuniga et al., 2022), and provider bias (Solo & Festin, 2019). In an analysis of quantitative and qualitative data from Burkina Faso and Uganda, Brunie & colleagues (2019) demonstrate through quantitative analyses that effectiveness, duration of use, side effects, cost, and access are important factors to women when choosing a FP method. Their qualitative data show that bleeding side effects, duration of use, discretion of the method, convenience of the method, predictability of side effects and cost were most important. The study by Brunie et al. (2019) demonstrates the added insights and additional themes that qualitative data can provide in examining what method attributes are important to consider for family planning programming.

FP providers play an integral role in supporting women’s access to an expanded method choice and are often considered trusted sources of knowledge for FP (Gosavi et al., 2016; Higgins et al., 2016). A study in Niger using data collected in 2014 showed that 67% and 75% of women aged 15–19 and 20–24 years, respectively, prefer to receive information about FP methods from health centers (GRADE Africa, 2021). Quality counseling on FP methods and their side effects at method initiation and additional counseling during the antenatal and postpartum period have been shown to improve continuation and increase perinatal contraceptive uptake respectively (Cavallaro et al., 2020). Providers can also serve as barriers to clients’ access to a full range of methods. A study in urban Nigeria found that many providers restricted access to methods based on age and that other eligibility criteria, such as parity and marital status, were also imposed (Schwandt et al., 2017). A review by Solo and Festin showed that providers’ bias towards clients based on age, marital status, or HIV status and their bias for or against specific methods influence the methods that clients are informed of and offered (Solo & Festin, 2019).

Given providers’ crucial role in FP counseling and method provision, understanding their perspectives on method attributes and their clients’ method preferences is important to efforts to improve use of and access to a full range of methods. This study seeks to gain a better understanding of providers’ views on the suitability of different hormonal FP methods for women using qualitative data from in-depth interviews (IDIs) with FP providers. These data provide detailed information and nuanced insight into what attributes of FP methods providers feel are desirable for women in Niger.

This study has been reported in line with the Standards for Reporting Qualitative Research (SRQR) guidelines (Speizer, 2022).

**Methods**

**Study setting**

The data for this study were collected as part of a larger assessment of a FP segmentation counseling tool used by FP providers with clients in government run integrated health centers (IHCs) in Niger. The study collected quantitative and qualitative data and was conducted at 45 IHCs in BoboYE, Dosso, Doutchi, Falmey, Loga, and Tibiri health districts in Dosso region. Dosso is a region in the south western part of Niger, where the majority of the population live in a rural
The segmentation strategy involved providers asking clients a series of 12 questions and based on the responses of the clients, the providers segmented clients into one of five groups for targeted counseling.

Study design
The overall assessment of the segmentation tool was designed with three study arms: Arm 1 was comprised of IHCs with a demand generation program and the segmentation strategy. Arm 2 included IHCs with the segmentation strategy, and Arm 3 served as a control arm where the IHCs did not have any specific demand generation or segmentation activities. Providers from all three arms (8 per arm) were interviewed about their experience providing FP services and in addition, providers in Arms 1 and 2 were asked about their experience with the segmentation counseling tool.

This qualitative study used a thematic analysis approach to analyze in-depth interview data. The semi-structured interview guide was designed with two parts. Part 1 included two vignettes of hypothetical FP clients: a 17 year old, unmarried, nulliparous adolescent who was seeking FP; and a 23 year old married woman with two children seeking a FP method. Each vignette was followed by questions about how the provider would navigate a consultation with the client and what FP methods they would recommend for each client. Part 2 of the interview guide included questions about providers’ experiences with and opinions about the segmentation tool (Arms 1 and 2 only). The interview guide was pilot tested with four providers working in IHCs outside the study area before data collection began. The guides were tested for clarity, flow, and to ensure the questions were appropriate. Modifications to the questions and the guide were made based on feedback from the pilot testing. The final guides used can be found as Extended data (Speizer, 2021).

The qualitative data used for the analyses described in this paper are comprised of Part 1 of the 24 in-depth interviews (IDIs) collected with providers across all three study arms. Information on provider perspectives on the segmentation tool (Arms 1 and 2) are provided elsewhere (MacLachlan et al., 2022).

Data collection
Data were collected in February and March of 2020. Two interviewers, one female and one male, conducted the 24 IDIs, with each interviewer responsible for 12 interviews. Interviewers, hired by GRADE Africa as part of the data collection team, were not age or gender matched with interviewees. All participants provided written informed consent prior to being interviewed. Interviews were conducted in a private room or space within or close to study IHC where each of the providers worked. The interviews were audio recorded with the written consent of participants. The interviews were conducted in French, Hausa, or Zarma, depending on the comfort level and preference of the interviewee. The duration of the interviews ranged from 33 minutes to 104 minutes.

Analysis
All audio recordings of the IDIs were translated from Hausa and Zarma and transcribed into French by trained translators and transcriptionists in Niamey, Niger. During data collection, four transcriptions were compared to audio recordings by the supervisor in Niger to ensure the fidelity of the transcriptions. Once all interviews had been transcribed into French, de-identified and anonymized, transcripts were uploaded for analysis to Dedoose version 9.0.46, a qualitative analysis software that permits collaboration (Dedoose, 2021). A preliminary codebook was created by the master coder (EM) based on the interview guide questions and an initial review of three randomly selected interview transcripts and was entered into Dedoose for coding. The codebook included major thematic codes called “parent” codes and smaller sub-thematic codes referred to as “child” codes. This preliminary code book was used by the master coder to code six interviews. The six coded interviews were reviewed by all coders after which all coding and the code book were revised based on discussion among all coders. Four coders (AMJ, BA, EM, SC) then applied all the parent codes to the remaining interviews and two coders (AMJ, BA) then applied child codes. All four coders involved in coding parent codes had an average Cohen’s kappa score of 0.79 and a range of 0.72 to 0.89, when each was compared to a master coder (Gwet, 2014; Landis & Koch, 1977). Thematic analysis was then completed and summarized for each family planning method discussed in the interviews. The quotes presented in this paper were translated from French into English by the first author and reviewed and approved by the Niger study team to ensure accurate interpretations.

Ethical approval
Ethical approval for all consent procedures, surveys, and IDI guides was obtained from the National Ethics Committee for Health Research (CNERS) in Niger (#049/2019; approved 14 Jan. 2020), and the University of North Carolina at Chapel Hill’s Institutional Review Board (#19-3042; approved 3 Jan. 2020).

Results
Provider characteristics
One provider from each of the 24 IHCs selected for the study participated in the IDIs. Providers ranged in age from 25 years to 59 years, were predominantly female (83%), and had worked as FP providers for 1 to 28 years, with a mean of 7.5 years of experience (see Table 1). Providers interviewed included chief of IHC (12%), deputy chief of IHC (17%), midwife (25%), nurse (21%), FP provider (17%), and volunteer (8%).

Summary of main findings
The overwhelming majority of providers (92%) stated that a provider’s role is not to recommend a contraceptive method and that it is up to the client and in some cases her husband, to decide which method to use. When probed further by the interviewer and asked which method they believed would be most suitable in each of the vignettes, most providers named the contraceptive implant to be the most suitable, for both the

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1 For those seeking to use a similar qualitative data analysis software, Taguette is a free and open source qualitative data analysis software that has similar capabilities to the one used to undertake the analyses in this paper.
married and unmarried client. Regarding women’s method preferences (according to providers) one of the most significant themes emerging from the interviews was that the injectable is the most popular FP method for women coming to the IHC. Relatedly, when asked what method they thought each hypothetical client would choose, the majority of providers said that women overwhelmingly would prefer injectables. However, providers stated that while some women may not initially choose the implant, once they were told more about it, they were more open to adopting it and less likely to believe negative local myths about implants. Overall, providers did not consider the contraceptive pill to be desirable by women due to its lack of discretion and challenges associated with effective compliance.

In content analysis of interview data about the characteristics and attributes of the FP methods available and chosen by clients, several key themes emerged. The themes identified were: (a) the discretion of the method; (b) the simplicity of the use of the method; (c) comfort and familiarity with the method; (d) myths and misconceptions about methods; (e) husband opposition to the implant; and (f) concerns about return to fertility post method use. The results are presented below by the main themes that emerged through the analysis and a summary of these results can be seen in Table 2.

### Discretion of method

The providers felt that many women want a FP method that is discreet—providers stated that the majority of women seen at an IHC want to keep FP use a secret from their parents, their sexual partners, their husbands and the community at large. When asked about what method women prefer, providers would compare the methods in terms of discretion, such as this comparison of injectables and the implant versus oral contraceptive pills for adolescents:

“Interviewer: Except for forgetting, for what other reasons do you think that pills are less suitable for her?
Provider: They are less suitable because she is unmarried, once she arrives at home, you can see her with the pills and it’s a whole problem for her, but if it is injectables or the implant no one can see it.”

- Female provider, Age 35

Many providers expressed their opinion that pills are the least discreet method choice for women as they are taken daily and can be found in their belongings. One provider described the inevitability of pills being discovered in this comparison of the implant and pills:

“Interviewer: What are the reasons that would motivate the choice of the implant?
Provider: Because it is discreet, no one can know that she uses contraception, whereas if it is the pill, sooner or later someone will see it.”

- Female provider, Age 35

However, in one regard, pills were considered discreet. According to providers, pills were the method that disrupted women’s menstrual cycles the least when compared to injectables and the implant. This benefit relates to young women who want to keep their FP use secret and whose parents or sexual partners may notice changes in their menstrual cycle caused by their FP use. In contrast, injectable and implant use may be discovered as they are reported to cause more disruptions in menstruation and irregular bleeding.

Providers had divided thoughts about whether the injectable is more discreet than the implant. According to providers, pills were the method that disrupted women’s menstrual cycles the least when compared to injectables and the implant. This benefit relates to young women who want to keep their FP use secret and whose parents or sexual partners may notice changes in their menstrual cycle caused by their FP use. In contrast, injectable and implant use may be discovered as they are reported to cause more disruptions in menstruation and irregular bleeding.

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<th>Table 1. Provider characteristics.</th>
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<td>Female providers 20</td>
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<td>Male providers 4</td>
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<td>Family planning provider</td>
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...But they themselves, they prefer the implants in the sense that after having inserted it, no one knows that they are wearing it. But if they use injectables or pills, it is possible that someone knows the situation that they are in. Like, understand what they are doing. But as soon as they use implants, no one knows the situation in which the girl finds herself, unless she reveals her secret herself.

- Female provider, Age 31

For other providers the visibility of the implant itself in the arm and/or the bandage following insertion is a downside to the implant since both can be seen by others. These providers stated they would even advise against an implant for a woman since people will know she is using FP. For providers who think that injectables are more discreet, they often mentioned that the injection cannot be seen like the scars left over from implant insertion:

“...Yes because injectables if she does it it’s an injection. When she does that it’s done because no one can discover she has used injectables. Whereas the implant it’s the type that is under the skin. And maybe accidentally someone can discover that she has [it], and someone that knows what it is, can discover in seeing her arm, what does she have under her arm?

And that people can discover that there you go, she has an implant. So that’s it and there are always suppositions...”

- Male provider, Age 39

Providers also report that women voice the sentiment that injectables are less conspicuous than implants to them:

“Well you know some say that if they take the implant, you can see the scars on their arms, that is why they do not like taking it. It is injectables that the majority of clients choose because, in their opinion, it is a discreet method that no one will know she has taken.”

- Female provider, Age 30

However, some providers felt that even though the injection is discreet, it is possible injectable users can be discovered because they have to go to the clinic every three months for reinjection and cannot explain these IHC visits to their husbands and others. Providers shared that both married and unmarried women prefer not to be seen at the health center for fear of what others may think of them. This is especially true for adolescents, who will even come to the clinic at night for their follow-up injections to avoid detection:
“Interviewer: What about young clients who come for FP, you said earlier, you are from the village, some avoid you, do they go to the other providers?

Provider: Now, I really do not know, but before, there were young adolescents who came at night to get injections.”

- Female provider, Age 35

In contrast, the implant provides discretion for women by reducing IHC visits to a minimum.

“I propose the implant because not only would I say it is discreet, but it is also reliable, her husband might also never discover that she is using FP because she does not come every month or every three months to the IHC for FP, her husband will suspect that is what she is going to do whereas it is just one time with the implant, she comes and it is finished.”

- Male provider, Age 39

The level of discretion a method can provide is a decisive factor that providers feel affects the preferences of clients and affects their method choice. While differing opinions of the providers are reported regarding whether or not the implant or injectable is more discreet, the discretion of the implant and injectables is an important factor for providers and their clients.

Simplicity of use of a method

Overall, providers expressed widespread support for the use of implants by both married and unmarried women due to their effectiveness, long-acting nature, and the simplicity of their use. A principal reason providers favor implants is that there is no risk of non-compliance with using this method of FP. Once inserted into a woman’s arm, she does not need to take a daily dose or return to the health center for refills or re-injections. Providers frequently contrasted this characteristic of the implant with the risk of clients forgetting to take the pill correctly or not returning for injections every three months, thus putting themselves at risk for pregnancy. Many providers strongly recommend the implant for adolescent users, who they believed would struggle with forgetfulness, for these reasons.

“In my opinion, it is the implant that would suit them. If I clearly explain to her the different methods, she will understand that there are methods that once applied there is a determined period after which you remove them. The other methods make it so women will regularly go to the infirmary. And these methods are characterized by forgetting or by errors in compliance. You can also forget the appointments.”

- Female provider, Age 30

Other providers stated that married women with children may be more forgetful than younger women since they have more responsibilities to manage. Similarly, some providers put women’s preference for the 3 month injectable schedule in contrast to the daily use of oral contraceptive pills. These providers indicated that the relatively long time period of three months between injections was appreciated by the women, who could put off going to the IHC at least during those months:

“‘Sayana’ or injectables are taken every three months as opposed to pills, it is every day and the woman must take them at the same time. If she forgets to take the pill one time, she can become pregnant. On the other hand, ‘Sayana’, the injectable is done at the IHC and she only renews it three months later at an IHC.”

- Female provider, Age 35

Comfort and familiarity with the family planning method

Another theme that emerged from the interviews was the idea of women’s familiarity and overall comfort, both physical and psychological, with the various FP methods. Pills and injectables have a longer history in Niger. One provider eloquently explained the historic popularity of injectables as one of the only FP methods available to women outside of oral contraceptive pills:

“Interviewer: For the woman that we just described [an unmarried and nulliparous 17 year old], I’d like to know if she physically presented herself in front of you and after having explained the different methods available, which method do you think she will choose? Because after the explanation you have an idea of what method she will choose.

Provider: It’s the injectable that she will choose, like I just explained to you.

Interviewer: Why?

Provider: Ahh, it is their mentality. They only prefer injectables. It’s now with the evolution of the change in methods. There are others, you will do everything, the explanation, physical presentation of the briefcase [of methods], they will say that I want the injectable.

Interviewer: Why do you think they have this idea of wanting injectables?

Provider: Simply because in the past when we provided FP services, it was only injectables and pills. And if they take pills, they easily forget, whereas with injectables they know that it’s for three months, so they cannot forget. In other words, in years past there was not the implant, it was only the pill and the injectable.”

- Female provider, Age 59

Many providers described this preference as starting in the community during discussions between women; a large
proportion of whom are already injectable users encourage other women who need FP to come to the IHC to start injectables. Women can sometimes be reluctant to try any other method, even with counseling:

“Provider: It’s the conversations, if a woman comes, she does not let someone else come and we present them different methods, she will say that me, I got injectables and since it did not cause any side effects, she will tell her friend if you go you have to take this too, they already have this in mind when they come here. They say I want the injectable.

Interviewer: So what do you think, does this mean that friend’s and acquaintance’s choice have a bigger influence on method choice than what you propose as a health care provider?

Provider: That’s it. Since even if you try to explain, like I just said, if in my opinion I will give her the implant, but if they come they already have a method in mind, whatever efforts you make to explain here are the side effects, she will tell you yes, but this is what I want. That is what they say.”

- Female provider, Age 30

Even so, a strong theme that emerged was that women will come into the clinic with injectables as their first choice but will then switch to implants after counseling from the provider. Providers shared that clients, both new and returning, when “counselled well” and presented with the full range of methods, will sometimes switch their choice to the implant. This occurrence happens at IHCs because when informed about the implant, women appreciate the implant’s attributes when compared to injectables:

“Sometimes a woman presents herself and says that she has come to get injectables. But when you present and explain the briefcase of methods, they prefer the implant. Those who chose pills are the exceptions.”

- Female provider, Age 30

Women are also hesitant to choose implants because of their fear of the pain of implant insertion and removal. Providers mentioned several times that women, after hearing stories in their communities about the process of insertion and removal, fear the implant.

“Or someone said I had a wound on my arm when they gave me the implant, the others will say that can happen to them if they get the implant. Others say that in getting the implant, they cut your arm to put it in and at the moment of removal they have to cut into you to remove it, so fear will make it so they refuse to change methods. Sometimes really it is these rumors from others that frighten women.”

- Female provider, Age 32

Providers recounted that clients have heard negative stories of women’s experiences of pain due to implant insertion and/or removal, perhaps without receiving anesthesia. The providers gave examples of women who initially refuse the implant due to the fear of being cut and then accept it after hearing an explanation of the process and use of anesthesia.

“Myths and misconceptions about methods
Out of all the methods, the most discussion of rumors was surrounding implants. Several rumors in the community were mentioned by providers, including beliefs that a woman who dies with an implant in her arm will go to hell or not be able to “reach paradise”, and that if a woman gains too much weight with an implant, the implant can get lost in her body.

“I believe that they are more comfortable with injectables. But she rejects the implant just because of religious reasons which say that if you die with an implant in your arm you go directly to hell. There is also the thought that if a woman gains a bit of weight the implants disappear in her body. We always try to provide information. Some understand, others do not.”

- Female provider, Age 30

These myths and misconceptions are described as having a powerful influence over women’s contraceptive method choice and they counter providers’ appreciation for the implant as a method. Providers discussed having to address these perceptions among women through counseling or by encouraging satisfied implant users to help dispel implant myths in their communities. While providers state that these myths are common, some providers shared that women’s attitudes and openness towards implants are changing with more education and counseling about FP methods.

“I told them you also, you have to go tell people what you have seen, and also people should no longer say that when you get an implant, if you die, you will go directly to hell, so you should not believe in that.”

- Female provider, Age 33

Husband opposition to the implant
While providers spoke of husbands being opposed to FP use generally, some providers also discussed husbands specifically being opposed to their wives using an implant as a method of FP. They mentioned that a woman’s use of an implant could be contentious enough as to cause serious marital problems between her and her husband. Four providers gave specific
examples of instances when a client returned to the health center and demanded that the implant be removed at the request of her husband. In the excerpt below, one provider recounts a time when a client returned with her husband who demanded she remove her implant but accepted her use of injectables instead.

“Interviewer: Have you had cases where the husband comes to complain about the contraception that his wife is using?
Provider: At my level of service, I have not encountered cases of complaints. But in the village, I hear of rumors where the woman is even threatened at home. But it is true I had a case where the husband threatened to kick his wife out if she did not remove the implant that she had inserted.
Interviewer: Did you remove it for her?
Provider: I asked that the woman bring her husband. I counseled them, after which the husband understood the importance of FP. Instead of stopping, he asked to change method. He preferred to remove the implant and take injectables. He made a change in method.”
- Male provider, Age 26

Concerns about return to fertility post method use
One reason providers preferred implants for both married and unmarried women is the rapid return to fertility after removal of the implant relative to injectables or pills. Providers stated that once a woman decides she wants to become pregnant, she can remove the implant and conceive a child without delay. The immediate return of fertility is particularly important for unmarried clients who could potentially get married at any point while using the implant and want to start childbearing soon after marriage.

“Interviewer: What other information can you share with her on these long-acting methods that she has chosen?
Provider: On the chosen method? You see I will tell them that the implant here that she has already chosen is an efficient method and it is a method that when she will have the chance to get married and want to get pregnant if she removes it, she will have a pregnancy without problem.”
- Female provider, Age 31

Providers felt strongly about injectables as the wrong choice when compared to the implant when serving adolescents. Providers’ preference for the implant for adolescents is mainly due to injectables’ known side effect of delaying the return to fertility after stopping use (Barden-O’Fallon et al., 2021) and the implications this has for adolescents wanting to become pregnant when they marry later on:

“Interviewer: If you still keep in mind her age of 17 years, unmarried, without children, has never used FP, and does not want children in the next two years, in the logic of this example, which methods will you choose for this client?
Provider: The implant
Interviewer: What other methods?
Provider: Implants, Implanon or Jadelle
Interviewer: Why these methods?
Provider: Because for these methods the return to fecundability does not take time. As soon as she removes it she can get pregnant. Whereas injectables bring a delay that brings women on the quest for sterility. So for a client who has never given birth the preference is for her to use an implant.”
- Female provider, Age 30

At least one provider mentioned that the delay in return to fertility, that is a common side effect of stopping injectables, can lead to permanent sterility:

“Because you know all the contraceptives are used according to their duration of action. After one it is the other. After the progesterone only pill it is the combined oral contraceptive pill that comes after six months of breastfeeding. Usually injectables are indicated for a woman who has at least three children. But now in the health system there are a lot of things that happen just like that. Because there are women when they take injectables they can no longer get pregnant.”
- Male provider, Age 36

As previously discussed, changes to bleeding and menstruation cycles were a side effect that providers stated some clients found to be troublesome and undesirable especially if they make the method more detectable; however, this did not emerge as a major theme beyond how they related to return to fecundability.

Discussion
Providers play an integral role in clients’ method selection as well as having access to privileged insight into the reasons behind client’s method choice. This qualitative study found that providers felt that implants were the most suitable method for the 17-year old unmarried woman without children and for the 23-year old married woman with 2 children described in the vignettes; however, they also believed that both women would choose injectables instead. The level of discretion that a method offers to women emerged as the most prominent theme that providers felt was important to women when considering which method was most suitable for them. Another important consideration was simplicity of use and ease of
adherence to the method and their implications on a method’s effectiveness. Providers reported that women’s familiarity with injectables, other women’s method recommendations, myths and misconceptions within the community about implants, and husband’s disapproval of implants influenced women’s FP method choices and contributed to women’s preference for injectables. The delay in the return to fertility was a side effect that providers believed to be important when considering which method would be the best fit for a woman and was an often-cited reason for believing the implant was the most suitable for a woman, regardless of marital status.

These themes appear in other studies on FP method preferences, but many of the studies use quantitative methods. The IDIs with FP providers used for this study provide nuanced insight into their views on the attributes of the implant, injectables, and pills and the contraceptive needs and preferences of their clients. In a mixed-methods study that was conducted in Burkina Faso and Uganda in 2016–2017 to investigate preferred method characteristics from women, men, and providers, quantitative results showed that method effectiveness, duration of contraceptive coverage, side effects, cost, and access were the characteristics most reported as important by women in both countries (Brunie et al., 2019). In Burkina Faso, the quantitative data illustrated that discreet use of the method was an additional desirable characteristic, but this was not reported as frequently as the other characteristics listed above. Conversely, in qualitative data, discreet use and side effects emerged as the highest-ranking method characteristics reported by women through focus group discussions and providers through IDIs in both countries. Other characteristics that the qualitative data showed as important included the quick return to fertility, partner approval of the method, and family or friends recommending the method (Brunie et al., 2019). This aligned with what was found in our data suggesting that qualitative studies identify different valued features of methods than quantitative studies.

In a predominantly Muslim society like Niger where early marriage is common and family planning is not normative (Samandari et al., 2019), FP use is something women would like to keep private (Baiden et al., 2016; Silverman et al., 2020) and therefore how discreet a method is plays an important role in method preferences for women. Providers in our study voiced discrepant perspectives regarding whether implants or injectables were the more discreet method. Some providers felt that the implant was visible to others while others felt it would not be seen. Further, some providers felt that injectables, that require visits to the health facility every three months, may be less discreet than the implant that requires less frequent visits.

Women’s preference for injectables, as reported by providers, was mainly related to the belief that they are the most discreet method and to women’s familiarity with this method. Pills have been a commonly used modern method of FP in Niger; a provider explained that pills and injectables have a longer history in Niger than other FP methods like implants. In a sample of clients from health centers in Dosso, Niger, injectables were the most commonly used method, confirming the reports from providers that clients prefer injectables (Speizer et al., 2021). Notably, providers did not think that pills fulfilled the needs of women very well. Pills were considered to be the least discreet method and were also regarded as difficult for women to remember to take properly.

While injectables are the most common method chosen by women in Dosso, a main theme that came out of the IDIs was that when clients were counseled on all methods, a number of them would identify that the implant fit their FP needs the best. Since 2014, implant use has rapidly and considerably increased throughout Sub-Saharan Africa including Niger (Jacobstein, 2018). This can be attributed to the method’s positive attributes, updated eligibility guidance, increased availability, and lower commodity costs (Jacobstein, 2018). The transition in hormonal method mix from pills, to injectables, to implants is a documented trend in a number of places in Sub-Saharan Africa (Bertrand et al., 2020).

Important barriers to implant use discussed by providers were myths and misperceptions about implants and partner disapproval of implants. A study in Ethiopia found that 67% of women surveyed had heard myths and misconceptions about long acting and permanent methods, including implants (Meskele & Mekonnen, 2014). Providers in our study frequently discussed the commonly held misconception that a woman will go to hell if she dies with an implant in her arm. This misconception along with others were thought to discourage women from adopting the implant.

Partner approval of a FP method is associated with method choice (Odwe et al., 2021) and husband disapproval of implants was discussed by providers as a reason for women not choosing or discontinuing implant use. Husband disapproval of implants was described as strong enough to create marital troubles for implant users whose husbands did not consent to their use. The findings of this study suggest that increasing awareness within the community of implants and unbiased counseling on all FP methods can be important to help ensure that women in Niger have access to an expanded method choice.

International aid funders, such as the Bill & Melinda Gates Foundation, have prioritized and made investments into developing new contraceptive technologies in order to better address women’s reproductive needs. Studies have been done in various countries in Sub-Saharan Africa to explore women’s openness and opinions about different characteristics of family planning methods (Brunie et al., 2021; Callahan et al., 2019; Callahan et al., 2021; Cartwright et al., 2020). Similar to our study, one study found that duration of use, and familiarity with methods were important attributes of methods in Burkina Faso and Uganda; however, irregular bleeding emerged as a more important attribute to consider than in our study and discreet use was not as prominently discussed (Callahan et al., 2019). A deeper understanding of women’s preferences and the degree of importance which various attributes of contraceptive methods hold for women can provide useful insight into family planning programs and the development of new contraceptive technologies.
This study has several limitations. First, this study uses data from providers only and does not include information from clients. Providers speak about the method they believe to be most suitable for women as well as their experience with what their clients have chosen. However, to get a better understanding of the reasons behind actual contraceptive choices, interviews with clients would be necessary. Second, for this analysis, we only undertook IDIs with 24 providers; a larger sample could have provided more in-depth information. Relatedly, while data were collected from three study arms, there were not enough observations in each arm to determine if responses to the scenarios differed by whether the provider was trained on the segmentation strategy. Third, the data from this study are from one region in Niger and are not representative of other regions of Niger or elsewhere in West Africa or beyond.

Conclusion
It is important to consider the characteristics of FP methods that matter the most to clients as funding goes into programs to promote FP use and to develop new contraceptive technologies. Furthermore, FP visits and counseling sessions are important opportunities for providers to not only provide FP methods but also to help women identify the method that best meets their needs as well as to allay concerns about method side effects to help ensure that all women are able to choose from a full range of methods when or if they want to use contraception.

Data availability
Underlying data
The qualitative data generated and analyzed during the current study are not publicly available in order to protect the identities of the participants involved but are available from the last author (speizer@email.unc.edu) on reasonable request that clarifies how the data will be used and provides plans for safeguarding the data in a manner that protects the participants identities.

Extended data

This project contains the following extended data:

- FAFC Niger Segmentation Study In-Depth Interview Guides

Reporting guidelines

Data are available under the terms of the Creative Commons Zero “No rights reserved” data waiver (CC0 1.0 Public domain dedication).

Acknowledgements
The authors of this paper would like to acknowledge the assistance and support from Pathfinder International for this study. We would also like to thank the health care providers in Niger who gave their time for the in-depth interviews.

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Dieudonne Bidashimwa
FHI 360, Morrisville, NC, USA

This article reports on FP providers' perspectives on women's choices and preferences of hormonal FP methods, and underlying reasons, in Niger. The results show that providers believe that both married and unmarried women might choose to use the implant and the injectable compared to other hormonal methods. However, there is no consensus on which of the two methods, implant or injectable, would be the most preferred. Providers also believe that women's choice of contraception is shaped by a set of methods' attributes and factors, the ability to conceal the method's use, the method's simplicity of use, comfort and familiarity with the method, myths and misconceptions around the method, husband opposition, and concerns about return to fertility after the method is discontinued.

Overall, the article is scientifically sound. The authors did a good job applying an appropriate methodology for collecting, coding, and analyzing qualitative data. Particularly, data collection and analysis procedures are well described. The prominent findings are clearly and concisely explained. Results are summarized, discussed against the current knowledge, and some programmatic implications are suggested in the discussion and conclusion sections.

However, the authors need to address three major problems in the manuscript. The major challenges are as follows:

1. The manuscript does not provide sufficient information on their sampling approach. Specifically, it is not clear how the 45IHC and the FP providers within each IHC were selected. More information is needed on the sampling design, inclusion criteria, and any challenges encountered during the selection of participants.

2. It would be helpful for readers, especially those without a strong background in FP, to understand the constructs measured by the two vignettes and their relevance for FP access or service provision. Also, please provide more details about the process of developing the vignettes (based on the literature or other sources? Which ones?) in the methods section.

3. Please, discuss more policy, programmatic, and research implications of your findings for
the local and the global contexts.

The minor issues to address are listed below by section:

**Methods:**

**Setting**
- Please, provide more contextually relevant information about the Dosso regions, such as the mCPR/unmet needs or access to FP services.
- Also, explain more why the Dosso region was selected for the main project (FP segmentation)

**Study design**
- The second paragraph starts with some elements of the analytical process. For better clarity, use this paragraph only to describe the tools, and keep any details about the analytical approach in a separate paragraph.
- Provide details on how the two vignettes in part 1 of the questionnaire were developed and what they intended to measure.
- Provide more details about the questions asked as follow-ups to each vignette. For example, what do you mean by “how the provider would navigate the counseling?” Which aspects of the counseling did you ask the providers about?

**Analysis**
- Overall, the methodology for the analysis is very well described.
- Please, provide more information on how the apriori codes were developed (from the questionnaire, the literature, a conceptual framework, etc.?)

**Other comments on the methods**
- How did the study sample the 45 IHCs? What were the inclusion criteria?
- Provide details on the sampling approach for providers within each IHC. Did you select all the providers or one provider per IHC? If one provider was selected in each IHC, what criteria did you use to decide between two or more providers?

**Results**

**Provider characteristics**
- Remove the first sentence in this section and move it under a paragraph describing your sampling methodology in the methods section
- Are the chief and deputy chief of IHC and volunteers involved in the routine provision of FP services? If not, please discuss any implications for data validity in the limitations
Summary of the findings

○ Please, differences between male and female providers if any

Discretion

○ The last paragraph in this section is a bit repetitive. Please, revise to keep it concise.

Simplicity of use

○ This section is mostly about method compliance than the simplicity of use per se. Consider changing the subtitle for more clarity.

Comfort and familiarity with the family planning method

○ Please, clarify the highlighted section in the following sentence: “Many providers described this preference as starting in the community during discussions between women; a large proportion of whom are already injectable users encourage other women who need FP to come to the IHC to start injectables.”

○ At first, it seems as if counseling has no effect in helping women decide to use another method than the injectable if they came to the IHC with clear recommendations from their friends or family members. Yet, the authors later mention that counseling could sway women's choice towards the implant, even if they have a pre-determined choice for the injectable. This is referred to as a “strong theme.” Perhaps the authors should nuance between the two themes to clarify which of the two themes was more prominent.

Concerns about return to fertility post method use

○ The first two sentences of the last quote are not very clear.

Discussion

○ About FP misconceptions (see sentence: “This misconception along with others were thought to discourage women from adopting the implant.”) The sentence is true, but could you say more about the high prevalence and persistence of these misconceptions in Niger and other settings? For example, could this phenomenon be linked to a misalignment of FP SBCC with local cultural and religious considerations? Are there other factors explaining the misconceptions?

○ About partners' opposition to implants (see sentence: “The findings of this study also suggest that increasing awareness within the community of implants and unbiased counselling on all FP methods can be important to help ensure that women in Niger have access to an expanded method choice.”). From a social/gender norms perspective, this finding confirms the prevalence of gender norms and their impact on FP choice and use in Niger as reported in previous studies. This seems to indicate a need for (more) interventions and policies allowing women's empowerment in making FP decisions themselves or jointly with their partners.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Family planning and reproductive health, women’s health, infectious diseases, and health policy

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 24 Sep 2022
Ilene S. Speizer

Reviewer 3
Reviewer: Overall, the article is scientifically sound. The authors did a good job applying an appropriate methodology for collecting, coding, and analyzing qualitative data. Particularly, data collection and analysis procedures are well described. The prominent findings are clearly and concisely explained. Results are summarized, discussed against the current knowledge, and some programmatic implications are suggested in the discussion and conclusion sections. However, the authors need to address three major problems in the manuscript.

Response: Thank you for the positive feedback. Responses to the three major areas are described following the description of those areas below.

Reviewer: The manuscript does not provide sufficient information on their sampling approach. Specifically, it is not clear how the 45 IHC and the FP providers within each IHC were selected. More information is needed on the sampling design, inclusion criteria, and any challenges encountered during the selection of participants.

Response: This information has been added to the methods section.

Reviewer: It would be helpful for readers, especially those without a strong background in
FP, to understand the constructs measured by the two vignettes and their relevance for FP access or service provision. Also, please provide more details about the process of developing the vignettes (based on the literature or other sources? Which ones?) in the methods section.

Response: Based on this reviewer and another reviewer’s inputs, we have added greater detail into the methods section about the design and use of the vignettes.

Reviewer: Please, discuss more policy, programmatic, and research implications of your findings for the local and the global contexts.

Response: This information has been added to the Discussion section of the paper.

Reviewer Minor issues, with responses below each one:

Methods:

Setting:
1. Please, provide more contextually relevant information about the Dosso regions, such as the mCPR/unmet needs or access to FP services.
2. Also, explain more why the Dosso region was selected for the main project (FP segmentation)

Responses (Setting): Greater details on the setting have been incorporated into this section.

Study Design:
1. The second paragraph starts with some elements of the analytical process. For better clarity, use this paragraph only to describe the tools, and keep any details about the analytical approach in a separate paragraph.
2. Provide details on how the two vignettes in part 1 of the questionnaire were developed and what they intended to measure.
3. Provide more details about the questions asked as follow-ups to each vignette. For example, what do you mean by “how the provider would navigate the counseling?” Which aspects of the counseling did you ask the providers about?

Response (Study Design): We have made the changes recommended including added details of probes and the design and focus of the vignettes, as requested in the overall comments by this reviewer.

Analysis:
1. Overall, the methodology for the analysis is very well described.
2. Please, provide more information on how the apriori codes were developed (from the questionnaire, the literature, a conceptual framework, etc.?)

Response (Analysis): Thank you for the positive feedback on this section. We have added more information on development of the codes for analysis. A priori codes were developed from the interview guide and for the three hormonal methods of interest (implants, injectables, birth control pills). No other conceptual framework or literature source was used to develop our a priori codes.

Other comments on the methods:
1. How did the study sample the 45 IHCs? What were the inclusion criteria?

2. Provide details on the sampling approach for providers within each IHC. Did you select all the providers or one provider per IHC? If one provider was selected in each IHC, what criteria did you use to decide between two or more providers?

Response: These additional details have been added, as requested in the overall comments above.

Reviewer (Results):
Reviewer (Provider Characteristics):
1. Remove the first sentence in this section and move it under a paragraph describing your sampling methodology in the methods section.
2. Are the chief and deputy chief of IHC and volunteers involved in the routine provision of FP services? If not, please discuss any implications for data validity in the limitations.

Response (Provider Characteristics): For the first item, this sentence has been moved. We have clarified in the text that all providers interviewed provided family planning services in their facilities as an eligibility criterion.

Reviewer (Summary of findings): Provide any differences between male and female providers if any

Response (Summary): No differences were found by provider gender and this is now mentioned in the text based on this reviewer and reviewer 1's inputs.

Reviewer (Discretion): The last paragraph in this section is a bit repetitive. Please, revise to keep it concise.

Response (Discretion): This paragraph has been revised with this in mind.

Reviewer (Simplicity of Use): This section is mostly about method compliance than the simplicity of use per se. Consider changing the subtitle for more clarity.

Response (Simplicity of Use): Thank you for pointing this out. We have changed this section to be Compliance with method use.

Reviewer (Comfort and Familiarity with the FP Method):
1. Please, clarify the highlighted section in the following sentence: “Many providers described this preference as starting in the community during discussions between women; a large proportion of whom are already injectable users encourage other women who need FP to come to the IHC to start injectables.”

2. At first, it seems as if counseling has no effect in helping women decide to use another method than the injectable if they came to the IHC with clear recommendations from their friends or family members. Yet, the authors later mention that counseling could sway women's choice towards the implant, even if they have a pre-determined choice for the injectable. This is referred to as a “strong theme.” Perhaps the authors should nuance between the two themes to clarify which
of the two themes was more prominent.

Response (Comfort and Familiarity with the FP Method): We have revised the complex sentence and have tried to better clarify the role of counseling and friend influences in this section. We have also clarified the importance of strong counseling in affecting women's choices in contrast to their pre-determined preferences upon arrival at the facility.

Reviewer (Concerns about Return to Fertility Post Method Use): The first two sentences of the last quote are not clear.

Response (Concerns about Return to Fertility Post Method Use): We have revised this quote to only include the important components that relate to this theme.

Reviewer:

Discussion:

1. About FP misconceptions (see sentence: “This misconception along with others were thought to discourage women from adopting the implant.”) The sentence is true, but could you say more about the high prevalence and persistence of these misconceptions in Niger and other settings? For example, could this phenomenon be linked to a misalignment of FP SBCC with local cultural and religious considerations? Are there other factors explaining the misconceptions?

2. About partners’ opposition to implants (see sentence: “The findings of this study also suggest that increasing awareness within the community of implants and unbiased counselling on all FP methods can be important to help ensure that women in Niger have access to an expanded method choice.”). From a social/gender norms perspective, this finding confirms the prevalence of gender norms and their impact on FP choice and use in Niger as reported in previous studies. This seems to indicate a need for (more) interventions and policies allowing women's empowerment in making FP decisions themselves or jointly with their partners.

Response: Thank you for these inputs. Based on this reviewer's and other reviewer's comments, the discussion section has been revised to include greater details on issues raised by all reviewers. We agree with the reviewer that women need access to accurate and unbiased information about the implant and other methods in the community, not just from providers. Our study showed that they need this kind of education and information before they can truly be empowered to make FP decisions.

Competing Interests: No competing interests were disclosed.
Overall, this is a well written and interesting paper, providing some much-needed nuanced qualitative data from FP providers in Niger. The paper is well motivated and referenced and the chosen quotes from providers in the results section are illuminating. Importantly, the results mainly focus on method attributes of hormonal family planning methods but there is no mention of how the vignettes, which focused on an adolescent and a young woman, were received by providers in a context where seeking FP services, especially by an unmarried adolescent, can be taboo. The discussion section could be strengthened by grappling with nuances and questions outlined below.

Introduction:
○ The objective of this manuscript and analysis includes the phrase “what attributes of FP method providers feel are desirable for women” – this can be influenced by a number of things such as social norms, their own biases and own experiences, and/or their understanding of their clients based on their experience as a provider. I’d like to see the authors acknowledge this in the discussion section and expand out a bit their discussion around the important role that providers play to include this.

○ It’s not clear in the objective (or often in how the results are talked about) whether the focus is on adolescents and young women. I assume so given the ages of the clients in the vignettes, but it would be helpful to clarify and to be clear throughout what age groups these findings are focused on.

Methods:
○ Can you say a little more about the providers – they work within an integrated health center but are they dedicated FP providers or do they provide a range of services? Do you have any information about how many clients, on average, they see and whether they see a lot of clients ages 15-24 (I’m trying to get a sense as to whether providers are responding more hypothetically to the vignettes about a 17-year-old adolescent and 23-year-old woman or more from experience with these particular age groups)?

Results:
○ The authors find that “The overwhelming majority of providers (92%) stated that a provider’s role is not to recommend a contraceptive method and that it is up to the client and in some cases her husband, to decide which method to use.” – the nuance between recommend and decide seems important here. ‘Recommend’ is different from telling a client what to do and other studies have found that clients trust providers and want them to recommend a method and then the client can decide whether to take that recommendation. Did this nuance appear at all? Do the authors think that this is reflecting some social desirability bias (in this particular example or more generally)? I’d suggest that a discussion of this would be worthwhile to help a reader not over-interpret findings, as appropriate.

○ The focus of the findings is mainly on the attributes of and comparisons between implants, injectables, and to some extent pills. But in Niger it’s very taboo to be an adolescent, especially an unmarried adolescent, seeking FP services – I’m surprised there aren’t more findings around the bias or stigma providers might have in these scenarios (though of
course, this is hard to get at when interviewing providers themselves).

- For example, the authors state: “Overall, providers expressed widespread support for the use of implants by both married and unmarried women due to their effectiveness, long-acting nature, and the simplicity of their use” – the widespread support is very surprising. Did this come up at all in the interviews? Either way, I would suggest the authors acknowledge this in the discussion section.

- Myths and misconceptions about methods: this section of findings is framed generally “about methods” but talks exclusively about the implant. Might this be hinting at too strong of a focus by providers on the implant? If the data exist, perhaps this section would be expanded to include other methods. If not, I would suggest that the authors reflect on this. A short discussion of this in the discussion section could be helpful.

Discussion:

- I have similar questions about the exclusive focus on implants in the male opposition section.

- The inability to investigate whether these findings are consistent across providers in different arms is listed as a study limitation but one that likely needs more than a sentence in the limitation section. I would have liked to have seen some discussion around what the providers in Arms 1 and 2 are trained on as part of the study arm and whether findings should be interpreted with more caution than currently put forth: how much of the attributes of the implant that providers are citing as positive attributes come from their training and what they've been told about the method versus benefits about the method's attributes that they've heard clients citing as reasons for selecting the method (especially those that came in for injectables initially)?

- I'd highlight caution of over-interpretation of the findings. The authors find that providers say the implant would be most suitable but there do seem to be mixed findings on which method provides the greatest amount of discretion and the authors note that in a setting such as Niger, discretion is often paramount. There also seem to be mixed findings in ‘simplicity of use a method’ as one of the two examples given highlights the preference for injectables over pills for this reason.

- While the authors do acknowledge that providers “believed that both women would choose injectables instead”, I'd love to see the discussion section grapple a bit more with this misalignment. Clients of course do change their minds during counseling if a method better aligns with their needs, but what might be some of the implications when providers think one method is most suitable for certain clients, but clients have a different preferred method (at least initially)?

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

**If applicable, is the statistical analysis and its interpretation appropriate?**
Not applicable

**Are all the source data underlying the results available to ensure full reproducibility?**
Yes

**Are the conclusions drawn adequately supported by the results?**
Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Sexual and reproductive health research and program evaluation

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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**Author Response 24 Sep 2022**

Ilene S. Speizer

**Reviewer 2**

Reviewer: Overall, this is a well written and interesting paper, providing some much-needed nuanced qualitative data from FP providers in Niger. The paper is well motivated and referenced and the chosen quotes from providers in the results section are illuminating. Importantly, the results mainly focus on method attributes of hormonal family planning methods but there is no mention of how the vignettes, which focused on an adolescent and a young woman, were received by providers in a context where seeking FP services, especially by an unmarried adolescent, can be taboo. The discussion section could be strengthened by grappling with nuances and questions outlined below.

Response: Thank you for this positive feedback. We have added some detail into the methods section of the development of the vignettes. We included vignettes because we were seeking to understand how providers might respond to clients who would have important, but possibly less supported family planning needs. Notably, many providers responded with a variety of different client scenarios and used our questions to summarize their thoughts in general about methods women may or may not like to use and why. As described in our response to Reviewer 1, providers did not say that the unmarried adolescent should not use FP. Any concern that providers expressed around unmarried FP users was that the hypothetical unmarried adolescent was sexually active, but that if she was, it was better for her to use FP for pregnancy prevention as well as for STI protection than not to.

Reviewer:  
Introduction:
- The objective of this manuscript and analysis includes the phrase “what attributes of FP method providers feel are desirable for women” – this can be influenced by a
number of things such as social norms, their own biases and own experiences, and/or their understanding of their clients based on their experience as a provider. I’d like to see the authors acknowledge this in the discussion section and expand out a bit their discussion around the important role that providers play to include this.

- It’s not clear in the objective (or often in how the results are talked about) whether the focus is on adolescents and young women. I assume so given the ages of the clients in the vignettes, but it would be helpful to clarify and to be clear throughout what age groups these findings are focused on.

**Response:** In the revised version of the manuscript we have edited the discussion section to address a number of Reviewer 2’s inputs, including addressing social barriers to family planning use that providers potentially impose based on their own comfort level and social norms. We have revised the introduction and objectives of the paper to clarify that providers are asked specifically about young women profiles but also provided input on use preferences for all women (see response regarding the use of vignettes). We have also changed the title so that it is clearer the focus on younger women.

**Reviewer: Methods**
- Can you say a little more about the providers – they work within an integrated health center but are they dedicated FP providers or do they provide a range of services? Do you have any information about how many clients, on average, they see and whether they see a lot of clients ages 15-24 (I’m trying to get a sense as to whether providers are responding more hypothetically to the vignettes about a 17-year-old adolescent and 23-year-old woman or more from experience with these particular age groups)?

**Response:** All providers included in this study offered family planning services in their facilities, no matter their job title. This was a key selection priority of identifying eligible providers. That said, providers also provided other health care services in the facility, given the size of the facilities and lack of other nearby facilities. We have added to the text that all providers offered family planning services. While we do not have routine data for these facilities, we have included information from the exit interviews in these same facilities to demonstrate that about 13% of family planning clients in the facilities were ages 15-19 years and 28% were ages 20-24 years; most of these clients were married and had two or more children. Thus, the hypothetical young clients are realistic; however, the unmarried nulliparous client is definitely an exceptional case.

**Reviewer: Results**
- The authors find that “The overwhelming majority of providers (92%) stated that a provider's role is not to recommend a contraceptive method and that it is up to the client and in some cases her husband, to decide which method to use.” – the nuance between recommend and decide seems important here. ‘Recommend’ is different from telling a client what to do and other studies have found that clients trust providers and want them to recommend a method and then the client can decide whether to take that recommendation. Did this nuance appear at all? Do the authors think that this is reflecting some social desirability bias (in this particular example or more generally)? I’d suggest that a discussion of this would be worthwhile to help a reader not over-interpret findings, as appropriate.

- The focus of the findings is mainly on the attributes of and comparisons between
implants, injectables, and to some extent pills. But in Niger it's very taboo to be an adolescent, especially an unmarried adolescent, seeking FP services – I'm surprised there aren't more findings around the bias or stigma providers might have in these scenarios (though of course, this is hard to get at when interviewing providers themselves).

○ For example, the authors state: “Overall, providers expressed widespread support for the use of implants by both married and unmarried women due to their effectiveness, long-acting nature, and the simplicity of their use” – the widespread support is very surprising. Did this come up at all in the interviews? Either way, I would suggest the authors acknowledge this in the discussion section.

○ Myths and misconceptions about methods: this section of findings is framed generally “about methods” but talks exclusively about the implant. Might this be hinting at too strong of a focus by providers on the implant? If the data exist, perhaps this section would be expanded to include other methods. If not, I would suggest that the authors reflect on this. A short discussion of this in the discussion section could be helpful.
  ○ I have similar questions about the exclusive focus on implants in the male opposition section.

Response (Results):
○ For the first bullet, we think this is a question of word choice. The providers felt passionately that it was not their choice, it was the client's choice as to what method to adopt. We have retained recommend because we used this word choice in our study tools. Unfortunately we do not have enough additional data to make any more nuanced interpretations since the counseling process was not the main aim of this analysis and there were very few questions about this process in the interview guide. There certainly could be social desirability bias if these providers were trained in adolescent-friendly services and had been heavily trained in client choice. This possibility has been added to the Discussion.

○ We have incorporated into the results a brief discussion on the providers' perspectives on non-marital sex and contraceptive use that addresses this point. Basically, providers did not condone non-marital sex but also acknowledged that if the young person was having non-marital sex, better that she uses a method to avoid an unintended pregnancy or sexually transmitted infection. This has also been added to the discussion.

○ Although providers responded to hypothetical vignettes (i.e., scenarios) that involved unmarried adolescents, in reality the providers seemed to very rarely interact with unmarried adolescents due to the extremely strong stigma in Niger that the reviewer points out. This has been noted in the limitations section of the paper.

○ We did find widespread support for use of implants among the providers in the study. That said, providers acknowledge that clients have different preferences and typically chose the injectable. This has been clarified in the text.
○ The reviewer is correct that the section on myths and misconceptions focuses on implants and the title of this section has been changed accordingly.
Reviewer: Discussion:
- The inability to investigate whether these findings are consistent across providers in different arms is listed as a study limitation but one that likely needs more than a sentence in the limitation section. I would have liked to have seen some discussion around what the providers in Arms 1 and 2 are trained on as part of the study arm and whether findings should be interpreted with more caution than currently put forth: how much of the attributes of the implant that providers are citing as positive attributes come from their training and what they’ve been told about the method versus benefits about the method’s attributes that they’ve heard clients citing as reasons for selecting the method (especially those that came in for injectables initially)?

- I’d highlight caution of over-interpretation of the findings. The authors find that providers say the implant would be most suitable but there do seem to be mixed findings on which method provides the greatest amount of discretion and the authors note that in a setting such as Niger, discretion is often paramount. There also seem to be mixed findings in ‘simplicity of use a method’ as one of the two examples given highlights the preference for injectables over pills for this reason.

- While the authors do acknowledge that providers “believed that both women would choose injectables instead”, I'd love to see the discussion section grapple a bit more with this misalignment. Clients of course do change their minds during counseling if a method better aligns with their needs, but what might be some of the implications when providers think one method is most suitable for certain clients, but clients have a different preferred method (at least initially)?

Response: We have revised the overview of the segmentation counseling strategy to provide more context on what the providers were trained on. In addition, based on this reviewer’s comments and those of the other reviewers, we have revised the discussion section to address many of the points raised by this reviewer, including over-interpretation of findings and discussion about the mismatch between provider and client re. method choice (especially the implant).

Competing Interests: No competing interests were disclosed.
Overall: This paper presents qualitative findings from a subset of Family Planning (FP) providers in Niger who took part in a larger study to assess the effects of a FP segmentation counseling tool. The results of the larger study have been presented elsewhere.

○ In general, this is a well-written and interesting paper. The introduction is thorough and well-referenced. The introduction itself makes a great contribution to the literature, given the relatively sparse data on Niger, a country with one of the highest fertility rates in the world.

○ However, the presentation of themes focuses exclusively on comparisons of several attributes across the three contraceptive methods (e.g., discretion, simplicity, familiarity etc.) The authors do not seem to consider:

1. How the context of the intervention might have influenced provider perspectives – for example, might the intervention have elevated providers’ enthusiasm for the implant relative to other methods?

2. How providers’ perspectives on the relative value of different methods might have varied by provider characteristics (e.g., age, gender or years of service).

○ During analysis, did the authors explore providers’ knowledge of – and approaches to counseling about the different methods? For example, how do providers counsel about side effects, especially bleeding, as related to the three methods? How long do they counsel/expect women to use an implant before removing? What about return to fertility, side effects, etc related to oral contraceptive pills?

○ In addition, given the overall lack of enthusiasm for FP in Niger, I would assume that even the providers in this study may have had some concerns about FP use among unmarried adolescents. However, the paper does not suggest any such concerns. What, if any, differences did providers make in counseling approaches for married and unmarried women?

○ Finally, the authors should provide a more nuanced understanding of how the various aspects of the three methods ranked – what themes were most and least often endorsed? For which types of users?

Specific comments:

○ The methods section is well laid out and procedures for coding are best-practice. However, the authors do not describe what strategies they used beyond coding to identify their findings. For example, did the team develop any memos to get a more nuanced understanding of themes or matrices to identify any patterns of responses (perhaps any differences between perspectives of providers by age, gender, or length of service?)

○ Results:

1. Discretion: return to fertility appears to be a consideration for choosing the injectable. However, what if anything, did providers say about the impact of OCs on fertility or the potentially long period of “infertility” due to implant use? Was there any discussion about access to removal of an implant prior to its expiry if a woman wanted to get pregnant? (For a married woman who is using implants without a partner’s knowledge, does an extended period of “infertility” belie her use of a FP
2. Familiarity: some of the information provided in this section might actually fit under “simplicity” – since the insertion and removal method for implants is perceived (whether correctly or not) as more complicated and potentially painful. Previous literature describes both the physical challenges of Norplant removal, as well as providers’ unwillingness to remove implants at the request of the user. These issues have probably been addressed over the years, but it would be useful to know whether providers in this study have confronted any challenges in removing implants.

3. Male partner opposition to implant – in the specific example provided, what if any explanation did the provider give for the husband's opposition to the implant? If, for example, he also was concerned about the potential lack of discretion from implant use, it would be useful to include that perspective in the “discretion” section of the results.

Discussion: The results section does not really provide insight into how commonly providers endorsed certain ideas. For that reason, the authors should be careful not to over interpret the qualitative findings. (For example, the inference that if women were counseled on “all methods” they would identify the implant as the best method, or the suggestion that “providers frequently discussed the misconception that women would go to hell” if they died with an implant in their arm.)

Is the work clearly and accurately presented and does it cite the current literature? 
Yes

Is the study design appropriate and is the work technically sound? 
Partly

Are sufficient details of methods and analysis provided to allow replication by others? 
Partly

If applicable, is the statistical analysis and its interpretation appropriate? 
Not applicable

Are all the source data underlying the results available to ensure full reproducibility? 
Yes

Are the conclusions drawn adequately supported by the results? 
Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** I am a social science researcher with expertise in qualitative and mixed method research, with a focus on acceptability, preference, adherence and use of sexual and reproductive health technologies.
I confirm that I have read this submission and believe that I have an appropriate level of
ease to confirm that it is of an acceptable scientific standard, however I have
significant reservations, as outlined above.

Author Response 24 Sep 2022
Ilene S. Speizer

Reviewer 1
Reviewer: In general, this is a well-written and interesting paper. The introduction is
thorough and well-referenced. The introduction itself makes a great contribution to the
literature, given the relatively sparse data on Niger, a country with one of the highest
fertility rates in the world.

Response: Thank you

Reviewer: The presentation of themes focuses exclusively on comparisons of several
attributes across the three contraceptive methods (e.g., discretion, simplicity, familiarity
etc.) The authors do not seem to consider:
1. How the context of the intervention might have influenced provider perspectives – for
example, might the intervention have elevated providers' enthusiasm for the implant
relative to other methods?
2. How providers' perspectives on the relative value of different methods might have
varied by provider characteristics (e.g., age, gender or years of service).

Response: The themes presented were the main themes that came out of the providers’
responses. In the revised version of the paper, we have noted that there were no differences
identified by study arm. The intervention—the segmentation tool—is meant to be a counseling
tool that helps identify how to counsel clients based on various characteristics linked to an
identified profile. The segmentation strategy does not favor any method over another.

To address the queries by this reviewer and others, we did further analysis of the data by study
arm, age, gender, years of service, and method recommendations by provider. In looking at the
methods providers said they thought were most suitable for either the married or unmarried
hypothetical women, there was no difference in enthusiasm or preference towards one method
(e.g., implants) by study arm. Most providers mentioned the implant as the most suitable method
for both women for the same reasons—length of duration, ease of use, discretion, and ability to
remove at any time with a rapid return to fertility. Overall, providers’ reasoning behind favoring
implants for the unmarried woman were consistent across age, gender, and years of service. We
have included in the text a brief mention of this additional analysis. We are also limited by the
number of interviews (n=24) in so far as we can ascertain demographic differences in themes that
emerged by provider characteristics. This limitation has been added to the discussion.

Reviewer: During analysis, did the authors explore providers' knowledge of – and
approaches to counseling about the different methods? For example, how do providers
counsel about side effects, especially bleeding, as related to the three methods? How long
do they counsel/expect women to use an implant before removing? What about return to
fertility, side effects, etc. related to oral contraceptive pills?
Response: Information was not explored around providers’ knowledge of and approaches to counseling on the different methods and these questions were not included in our interview guide. Our study was focused on provider opinion and potential bias towards clients and method selection. That said, providers did discuss different side effects for each method. In particular, the delay in return to fertility associated with injectable use was of concern for young unmarried women who may want to quickly become pregnant if they get married. This was discussed in the paper in the section on concerns about return to fertility post method use. One of the frequently mentioned desirable attributes of the implant mentioned by providers was that it could be removed whenever needed. Return to fertility and side effects of pills were not mentioned by providers. For pills, providers spoke of the difficulty in remembering to take the pill every day, understanding how to properly take the pill (not to skip weeks of taking the pill and then restarting), and the likelihood of pills being found in a woman’s belongings. In terms of side effects, pills were described as preferable for women who wanted to maintain their regular menstrual cycle. These responses all contributed to the themes that emerged in our analysis around method discretion, compliance, and return to fertility.

Reviewer: In addition, given the overall lack of enthusiasm for FP in Niger, I would assume that even the providers in this study may have had some concerns about FP use among unmarried adolescents. However, the paper does not suggest any such concerns. What, if any, differences did providers make in counseling approaches for married and unmarried women?

Response: All the providers expressed clearly that their job as a provider is to present all FP methods to clients, let them make their method choice, and then administer the chosen method. Providers did not say that the unmarried adolescent should not use FP. Any concern that providers expressed around unmarried FP users was that the hypothetical unmarried adolescent should not be sexually active; however, providers said that if she was sexually active, it was better for her to use FP for pregnancy prevention as well as for STI protection than not to. We have added this information into the text based on this and another reviewer’s inputs. The differences in counseling of married and unmarried women was one of the factors providers took into consideration when discussing which methods were best suited for each hypothetical woman.

Reviewer: Finally, the authors should provide a more nuanced understanding of how the various aspects of the three methods ranked – what themes were most and least often endorsed? For which types of users?

Response: The reasons providers gave for thinking the different methods were suitable or not suitable for married and unmarried women typically fell into the theme categories and are discussed in the summary table. The rapid return of fertility associated with the implant was the only method characteristic that was noticeably mentioned more as being desirable for unmarried women. We did not feel comfortable ranking the responses by method based on the small number of interviews.

Reviewer: The methods section is well laid out and procedures for coding are best-practice. However, the authors do not describe what strategies they used beyond coding to identify their findings. For example, did the team develop any memos to get a more nuanced
understanding of themes or matrices to identify any patterns of responses (perhaps any differences between perspectives of providers by age, gender, or length of service?).

Response: Thank you for this comment, we have added relevant text into the methods section that describes the process in more detail. In particular, we describe that the team developed a matrix of the emerging themes in MS Excel and discussed the themes extensively during team meetings. At times the team decided to merge themes, add new themes or take out themes based on the consensus view of the team.
As discussed above, no differences were observed by the characteristics of the providers.

Reviewer:
Results:
○ Discretion: return to fertility appears to be a consideration for choosing the injectable. However, what if anything, did providers say about the impact of OCs on fertility or the potentially long period of “infertility” due to implant use? Was there any discussion about access to removal of an implant prior to its expiry if a woman wanted to get pregnant? (For a married woman who is using implants without a partner’s knowledge, does an extended period of “infertility” belie her use of a FP method?)

○ Familiarity: some of the information provided in this section might actually fit under “simplicity” – since the insertion and removal method for implants is perceived (whether correctly or not) as more complicated and potentially painful. Previous literature describes both the physical challenges of Norplant removal, as well as providers’ unwillingness to remove implants at the request of the user. These issues have probably been addressed over the years, but it would be useful to know whether providers in this study have confronted any challenges in removing implants.

○ Male partner opposition to implant – in the specific example provided, what if any explanation did the provider give for the husband’s opposition to the implant? If, for example, he also was concerned about the potential lack of discretion from implant use, it would be useful to include that perspective in the “discretion” section of the results.

Response: We have tried to clarify the points below in the text, when relevant and below is some explanation of what we had (or did not have) in the data.

○ Return to fertility was discussed in the context of a long return to fertility with injectable use only. Providers did not mention return to fertility regarding OCs and implants were discussed favorably in the context of a rapid return to fertility whenever the implant was removed. There was no mention of the long period of ‘infertility’ when using an implant and neither were difficulties getting implants removed. Instead, providers spoke about how women could come get the implant removed whenever they wished to become pregnant. It is an interesting observation that women using the implant in secret may need to explain long periods of infertility; this should be researched more but did not come up in these interviews.

○ The reason we discussed fear of implant removal in familiarity was because this fear was
mentioned in terms of frightening things women had heard from others about the implant that were exacerbated by women's overall lack of familiarity and awareness about the implant. None of the providers interviewed mentioned difficulties in removing implants or refusing to remove implants from clients requesting their removal. Implant removal was discussed in terms of clients being afraid of pain from both insertion and removal of the implant.

The interviews did not include mention of the possible reasoning behind men's opposition to the implant, only that husband opposition to implants was a reality faced by women and providers. The authors' conjecture is that husbands also faced unfamiliarity and lack of awareness about the implant which increased their fears—this has been added to the discussion.

Reviewer: Discussion: The results section does not really provide insight into how commonly providers endorsed certain ideas. For that reason, the authors should be careful not to overinterpret the qualitative findings. (For example, the inference that if women were counseled on “all methods” they would identify the implant as the best method, or the suggestion that “providers frequently discussed the misconception that women would go to hell” if they died with an implant in their arm.)

Response: We have revised the discussion section with this comment in mind and have tried to avoid over-interpretation of results.

Competing Interests: No competing interests were disclosed.