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Proposed changes to framework to assess contraceptive autonomy based on phased in-depth interviews in northwest Tanzania

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Abstract

Background Access to sexual and reproductive healthcare is internationally regarded as an essential human right. Use of modern contraception is typically selected as a key indicator of women's reproductive rights. However, there is a growing consensus that measuring rates of modern contraceptive use may not provide a full picture of women's reproductive autonomy. A novel framework to investigate contraceptive autonomy, which includes broader indicators to reflect knowledge, justice, and volition, has been recently proposed.

Methods We conducted in-depth interviews in three phases in eight rural communities in northwest Tanzania with users and non-users of contraceptives using open-ended questions derived from the proposed contraceptive autonomy framework. Trained female interviewers performed one-on-one interviews in Kiswahili to explore women's perspectives and knowledge about family planning (FP), decision-making, and experiences. Interviews were digitally recorded, transcribed verbatim, translated into English, and independently coded by two investigators.

Results A total of 72 women were interviewed. Women had a median age of 29.5 years [interquartile range, 24–38] and a median of 4 [2–5] children. Those using modern contraception (75%) had been doing so for 1.9 [0.75–4.0] years. In the *informed choice* domain of contraceptive autonomy, most women could correctly name at least 3 contraceptive methods and summarize benefits and side-effects; women described risks and some benefits of non-use. In the *full choice* domain, health facilities had multiple contraceptives, although some stockouts were noted. In the *free choice* domain, nearly all women reported being free to choose to use, discontinue, or refuse FP. Many also described strong external influences that affected their decision-making about FP that were not captured by the proposed contraceptive autonomy framework.

Conclusions Both users and non-users of FP in our study demonstrated many components of contraceptive autonomy. Their experiences have shaped our suggestions for ways to increase comprehensiveness in measuring contraceptive autonomy. These suggestions likely have broad applicability that extends beyond rural Tanzania to many other regions. Integrating assessment of external influences into evaluations of contraceptive autonomy will further expand global capacity to evaluate both access to, and autonomy about, contraceptive use as a fundamental human right.

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Plain language summary

The United Nations has established an international goal of ensuring access to sexual and reproductive healthcare for all people by 2030. One way that this is often assessed is by measuring the number of women who use contraception. Recently, there has been a growing recognition that this approach risks overlooking issues of women's autonomy in contraceptive decision-making. A new proposed model to measure contraceptive autonomy details key aspects of contraceptive understanding and choice that could be assessed to provide a fuller picture of the information, breadth of options, and freedom with which women use contraception. In this study, our goal was to apply this model of assessing contraceptive autonomy among women living in rural northwest Tanzania. We conducted interviews to understand women's views of and experiences with family planning and analyzed these interviews to uncover common themes. We found that many women had knowledge of multiple methods by which to plan their families, were able to access a variety of contraceptive options, and were free to choose to use, discontinue, or reject family planning. Notably, many women described experiencing strong influences from others in their families and communities that affected their decision-making about family planning. These influences were not captured by this framework. We propose modifications to the framework that we believe will increase its comprehensiveness and further strengthen its utility for assessing women's autonomy and promoting health equity globally.

Keywords Contraceptive autonomy, Contraception, Qualitative, Tanzania, Family planning

Background

Ensuring universal access to sexual and reproductive healthcare, including contraception, is one of the United Nations Development Programme's 2030 Sustainable Development Goals, agreed upon internationally as a critical measure of essential human rights. Amidst ongoing global efforts towards universal access, measures of contraceptive uptake, including unmet need for contraception and contraceptive prevalence, are typically selected as the key indicators of the effectiveness of family planning (FP) programs and of women's reproductive rights. However, in recent years there has been a growing recognition that measuring uptake of modern contraception may fail to provide a full picture of reproductive autonomy, and that additional measures are needed to ensure that women receive person-centered family planning care and are able to fulfill their reproductive goals and desires [1–3]. Such measures could assess questions integral to bodily autonomy, such as whether a woman fully understood contraceptive options, benefits, and risks, whether she had access to a range of choices of contraceptives, and whether she chose to use contraceptives without coercion [4].

A novel quantitative indicator to investigate contraceptive autonomy, which includes broader questions relevant to human rights and choice, has been recently proposed [5]. Key elements of the contraceptive autonomy indicator include knowledge of benefits and risks of various methods (*informed choice*), availability and affordability of contraceptive options (*full choice*), and the ability to decide to use or refuse contraception independently (*free choice*). The utility of this indicator was recently operationalized and explored in a survey in Burkina Faso [6], but to our knowledge has not been used in other low-income and middle-income countries, nor investigated qualitatively.

To fill this gap, we sought to evaluate contraceptive autonomy using in-depth interviews among women in rural Tanzania, including both those who were and were not using FP. Our goal was to determine how specific questions that were included in the indicator could capture components of contraceptive autonomy, and to explore whether other aspects of women's experiences could be relevant to the concept of contraceptive autonomy. Due to prior work in Tanzania demonstrating strong community influences on individuals' health decision-making [7–10] we hypothesized that women's interpersonal relationships could have important effects on their contraceptive autonomy.

Methods

We conducted in-depth interviews in three phases in rural areas of the Mwanza region of Tanzania from May 2021 to February 2022. Interviews were conducted among women seeking healthcare for themselves or their children at health facilities in communities that were concurrently participating in an ongoing cluster randomized trial of an educational seminar for religious leaders about family planning (clinicaltrials.gov NCT03594305) [11]. In intervention communities, Christian churches of all denominations were invited to send four leaders each to attend a one-day seminar in their community that provided education on theological, social, and medical aspects of family planning. The trial involved 24 communities, and communities assigned to the control arm received the educational seminar after the completion of one-year data collection in all communities and after

Table 1 Three-phase study design to assess contraceptive autonomy

Phase	Date of interviews	Number of interviews	Sampling criteria	Study arm
1	May 2021	33	Current and past FP users	4 intervention community health facilities
2	November–December 2021	21	Recent FP users	3 intervention community health facilities
3	February 2022	18	Recent FP users and non-users	1 intervention and 1 control community health facility

Recent user = has been using FP for less than 1 year

Current user = has been using FP for more than 1 year

Past user = has used FP in the past but currently does not

Non-user = not a current user and has not used in the past

the completion of these in-depth interviews. Communities were defined by wards, which are geographic demarcations that typically include 8,000 to 25,000 people and were drawn from two districts in the Mwanza Region of Tanzania.

In the first phase of this qualitative study, we invited current and past users of FP from health facilities in four intervention communities to participate in in-depth interviews, as can be seen in Table 1. Transcripts were coded and used to edit and clarify the interview guide in preparation for the second phase. In the second phase of the study, we sought specifically to interview women in three of these communities who had newly started using FP during the window of time after the intervention had been provided to religious leaders in their communities. Transcripts from phase 2 were coded and additional questions added in preparation for phase 3. In addition, transcripts were used to design an additional interview guide for women not using FP. In phase 3, both users and non-users of FP, from one of the previously sampled intervention communities and a control health community, were invited to participate.

Women were purposively sampled from the five total community health facilities after being invited by the nurse working at the reproductive and child health clinic to meet with our study team to learn more about the opportunity to participate in the study. Separately from the interviews, other members of our study team collected programmatic data from these health facilities to document numbers of health care providers employed at the site, population served by the facility, and availability of different contraceptives. At these facilities, the Tanzanian Ministry of Health provides a variety of modern contraceptives free of charge.

Trained female interviewers performed one-on-one in-depth interviews in Kiswahili, the local language. Based on the proposed algorithm to operationalize contraceptive autonomy [5], we designed open-ended questions to explore aspects of informed choice, full choice, and free choice that affected women's FP perspectives and utilization. Questions included women's FP use and knowledge of FP, perceived benefits and drawbacks of both FP use and non-use, ease of obtaining and discontinuing contraceptives, and their own and others' perspectives on FP. We particularly sought to understand how much decision-making power women had regarding whether or not to use FP, their motivations behind using FP, and factors influencing their decision to use or not use FP. Phase 3 interview guides, which were the integration of the guide found to be most useful for clearly assessing contraceptive autonomy, were designed for both FP users, as seen in Additional File 1, and non-users, as seen in Additional File 2.

Interviews were digitally recorded, transcribed verbatim, and translated into English. One investigator (VL) fluent in both Kiswahili and English reviewed all transcripts to ensure accuracy of translations. Transcripts were coded using NVivo version 12 (Doncaster, Australia). For the Phase 1 interviews, an initial list of codes was developed by three investigators (VL, SB, JD), who each coded 3 transcripts and collaboratively decided on codes to use. Two investigators (VL, SB) then independently read and coded all additional Phase 1 transcripts and met weekly to discuss emerging themes and to identify additional in vivo codes. In the Phase 2 and 3 interviews, an initial list of codes was developed by two investigators (VL, AS), who had also performed the Phase 2 and 3 interviews. Each coded 3 transcripts independently and then collaborated with other interviewers to finalize a consensus list of codes, with additional in vivo coding agreed by consensus during weekly meetings. Finally, codes were organized into overarching themes under which illustrative quotations were presented.

Sociodemographic data were extracted from questions asked of all participants during interviews and summarized by medians and interquartile ranges [IQRs] using Stata/IC Version 12 (College Station, Texas).

Data regarding contraceptive availability and health provider training was collected from each of the five health facilities where interviews were conducted. Health

Table 2 Demographic characteristics of 72 women who participated in in-depth interviews

Variable	Number (percent) or Median [IQR]
Age in years	29.5 [24, 38]
Number of living children	4 [2, 5]
Years of school attended	7 [7]
Duration of FP use (years)	1.9 [0.75, 4.0]
Primary occupation	
Farming	44 (61.1%)
Small business	22 (30.6%)
Other/housewife	6 (8.3%)
Marital status	
Married	52 (72.2%)
Divorced	9 (12.5%)
Divorced, has partner	4 (5.6%)
Has partner	4 (5.6%)
Single	3 (4.2%)
Present FP modality	
Implant	19 (26.4%)
Injections	29 (40.3%)
Calendar	4 (5.6%)
Pills	2 (2.8%)
None	18 (25.0%)
Past FP modality/modalities used (if different than present; n = 30)	
Implant	10 (33.3%)
Injections	7 (23.3%)
Intrauterine device	2 (6.7%)
Calendar	1 (3.3%)
Pills	10 (33.3%)

centers were surveyed as part of the ongoing trial to determine the number of providers trained in placing IUDs and implants, and in administering injections, oral contraceptive pills, and condoms. Data on availability of different contraceptive methods as well as stock-outs were also collected.

Results

Characteristics of respondents

A total of 72 participants were interviewed from May 2021 to February 2022. Women had a median age of 29.5 years [IQR, 24–38]. Most were married (72.2%) and had a median of four [2–5] living children. Three quarters of participants reported current family planning use at the time of interview. The most common contraceptive modality was injections; the median duration of use was almost 2 years [0.75–4.0] (Table 2). Four women reported using the calendar method, in which they described counting days since the start of their menses and avoiding intercourse on their most fertile days.

Informed choice

We adapted the concept of informed choice from the contraceptive autonomy indicator to include four key areas of knowledge: awareness of different FP methods, risks and benefits of FP, particularly focused on a woman's method of choice, risks and benefits of non-use of FP, and how to handle side effects and/or removal.

Knowledge of FP options

On average and without prompting, women were able to list 3 different methods of FP, with implant and injection being the most common (Table 3). Many women

Table 3 FP options reported by participants

Method	Number (percent) of women mentioning this option
Implant	58 (80.6%)
Injection	56 (77.8%)
Oral contraceptive pills	50 (69.4%)
Intrauterine device	47 (65.3%)
Calendar (avoiding intercourse on most fertile days)	14 (19.4%)
Condoms	13 (18.1%)
Sterilization/tubal ligation	2 (2.8%)
Emergency contraception	1 (1.4%)
Able to list both short-acting and long-acting methods*	66 (93.1%)
Able to list both provider-dependent and provider-independent methods**	66 (93.1%)

*Long-acting: implants, intrauterine devices, sterilization [12, 13]

**Provider-dependent (provider required to discontinue method): implants, intrauterine devices

described being aware of and offered the contraceptive methods that were available to them in their local health facility:

> *"They told me that there are three methods [available at the dispensary that day]: implants, pills and injections. I asked them what method would be appropriate for me? They advised me to get an implant if I do not want injections. I then decided to get an implant." (FP user, age 49)*

When quantifying numbers of women with knowledge of contraceptives with different attributes, we found that hormonal contraceptives were most well-known, while fewer than 1 in 5 women reported a barrier method. Most women knew both a long-acting and short-acting contraceptive, which corresponded with knowing both provider-dependent and -independent methods.

While not exactly able to describe how contraceptives *work* as specified in the contraceptive autonomy indicator, we found that most participants did understand how or where contraceptives are administered and often used this knowledge to determine their preferred FP method. For example, one participant reported that she didn't want to use an implant because she *"was afraid to be cut here [on the arm]."* Additionally, she stated that she didn't want to use pills because she was *"afraid of swallowing the pills"* (FP user, age 45).

Others reported choosing a specific method because of its duration of efficacy:

> *"I chose [Depo-Provera] because I saw that it goes for a short term. Short term in the sense that three months and then I decide. Let's say you have a child who is one year old or even two years and you want to become pregnant, you can get the injection for three months and decide to stop to become pregnant." (FP user, age 27)*

In contrast, one participant reported that she *"would like to [use FP], if I get enough knowledge"* (FP non-user, age 34). This exemplifies the influence that a woman's knowledge, or lack thereof, can have on FP decision-making.

Knowledge of risks and benefits of FP, and their method in particular

We found that nearly all women could state at least some risks and benefits of FP. The main two benefits of FP reported were resting between pregnancies and having the ability to pursue economic ventures. Women explained that with FP *"[your body] gets time to rest because you spend a couple of years without conceiving, unlike when you get pregnant year after year"* (FP non-user, age 25) and that using FP *"gives you time as a mother to work because you have the freedom [to do so]"* (FP non-user, age 47).

When asked about risks of FP, most women described side effects, such as experiencing no menstrual period or experiencing longer and heavier menstrual periods. Generally, their knowledge of side effects of FP was informed by their own FP experience or stories shared amongst women within the community:

> *"I have not had my period since January." (FP user, age 32)*
> *"Some people will experience longer periods. Others cannot experience a period at all." (FP user, age 28)*

In addition, a majority of women could state at least some risks and benefits of their method, especially compared to other methods. When asked how they chose their specific method, they often explained their decision by comparing aspects of the different contraceptives, including both medical and social considerations:

> *"I chose that method because it is not complicated. Because if I use the injection it lasts for three months then I will inject again. If I had chosen pills, my husband would know about it and ask me why are you taking pills every day? You see, that is why I chose injection." (FP user, age 43)*

Others described benefits of their method of choice in relation to how it affected their personal well-being, such as the statement that injections are *"a good fit for me as they caused no side effects on my body"* (FP user, age 35).

Knowledge of risks and benefits of non-use

When participants were asked about the benefits of not using FP, many struggled to answer the question and could not name a benefit. One participant responded, *"The benefit of not using family planning? There is no benefit"* (FP user, age 25).

Others stated that the only benefit is having many children. This benefit was viewed differently depending on the participant's FP status. Participants who were users of FP viewed having a lot of children as a disadvantage while participants who had never used FP viewed it as an advantage.

> *"Yes [there is a benefit of non-use], an advantage of getting a child." (FP non-user, age 28)*

In contrast, when participants were asked about the risk of not using FP, most stated that having numerous children was not economically viable.

Table 4 Statistics for health facilities in participants' communities

Community	A	B	C	D	E
Number of providers trained to counsel and administer contraceptives*	3	4	3	1	2
FP providers working each day**	4	4	3	4	4
Condoms available	Yes	Yes	Yes	Yes	Yes
Depo injection available	Yes	Yes	Yes	Yes	Yes
OCPs available	Yes	Yes	Yes	Yes	Yes
Implant available	Yes	Yes	Yes	Yes	Yes
IUD available	Yes	Yes	Yes	No	Yes
Emergency contraception available	Yes	Yes	Yes	Yes	Yes
Stockouts for 1–2 months	None	Depo-injection	None	Implant	Condoms, depo-injection, OCPs, implant, IUD
Stockouts for > 3 months	Progestin-only OCPs	OCPs	OCPs	None	None
Never experienced stockout in past 6 months	Condoms, combination OCPs, implant, IUD, emergency contraceptive	Implant, IUD, emergency contraceptive	Implant, emergency contraceptive	Condoms, OCPs, NXT (implant)	None [all contraceptives were out of stock at some point]

*The providers trained to administer contraceptives can place an IUD or implant, as well as administer injections, oral contraceptive pills, and condoms

**The providers not trained to administer contraceptives only provide injections, oral contraceptive pills, and condoms

"No there is no advantage [of non-use]. Because firstly you will have a big family that you can't sustain when compared to your income. Then that becomes a problem." (FP non-user, age 33)

For others, not having sufficient time to take care of the children or to rest were described as the main risks of not using FP.

"There is not any benefit [of not using FP] because we see how they [women who don't use FP] are struggling when they have children with no intervals; one child is here and another one is there. There is a short interval between them. So, it becomes very hard to raise them." (FP non-user, age 24)

Side-effects and removal

Women consistently reported that they could consult the nurse or doctor when facing side effects or seeking reversal of contraception.

"When I went there for the first time, to be honest I felt that I was bleeding, then later I called the nurse and asked her why I was bleeding so much? And she said that is the side-effect of the medicine. Just sit and relax and later you will not see that situation again. It is true I did not see that situation again, and I started enjoying it until now." (FP user, age 39)

Others demonstrated autonomy when recounting times in which they switched methods or discontinued FP use due to side effects. For example, a 38-year-old woman explained that she switched to injections after experiencing headaches with oral contraceptive pills. Another woman described the combination of side effects and marital stress that led her to discontinue FP:

"FP is good but every time I use it, I face some challenges including feeling sick and even fainting sometimes. You decide to use it regardless but at the end of the day, you feel sick and so you remove it [the FP method]. The first time when I was still married to my first husband, I used FP but became sick. There was so much bickering and accusations [of using FP], and so at the end of the day I removed it." (past FP user, age 31)

Full choice

The concept of full choice as a component of contraceptive autonomy encompasses local availability and affordability of contraceptives, as well as the ability and affordability of discontinuing or removing a contraceptive method [5]. The Tanzanian Ministry of Health makes a variety of FP methods freely available at local health facilities, which mitigates many of the affordability barriers for women in the country.

Availability of methods and removal

A survey of the study communities indicated that each facility had at least 1 healthcare provider who had received FP training and was capable of administering

and removing a variety of contraceptives, including IUDs and implants (Table 4). Condoms, injections, pills, implants, and emergency contraceptive pills had all been available at all five facilities at some point in the past six months. Only one facility did not provide IUDs. At any given time, each facility had at least two forms of contraception available. Implants, condoms, and emergency contraceptive pills were least frequently out of stock while injections were most frequently out of stock.

We found that stock-outs did sometimes impact women's FP choices. For example, a 34-year-old woman explained that, on the day she sought FP, injections were out of stock and "*they told me that I should take pills for a day.*" After starting the oral contraceptive pills, she *"decided that I should keep on using the pills because I didn't see any problems"* (FP user, age 34).

Women consistently stated that, if they wanted their method removed, they would seek assistance at their health facility. No woman described financial or other barriers to discontinuing use of FP.

Free choice

The third proposed aspect of contraceptive autonomy is free choice, meaning women's ability to voluntarily choose when to use and not to use FP. Respondents consistently described feeling that they had voluntary choice and experiencing provider agreement to remove an FP method. Our data also demonstrated the need for further clarification of the question on voluntary refusal and the importance of the influence that other people wield on a woman's free choice in the cultural context of rural Tanzania.

Voluntary choice

Many women reported choosing both to use FP and the method of FP that they preferred, depending on what was available at the clinic. Women often took it upon themselves to further investigate FP and whether they wanted to use it.

> *"As for me, talking to [other people] about FP was scary because everyone has his or her own opinion. So I just decided to go and see by myself." (FP user, age 32)*

In addition, a substantial number of women admitted seeking FP despite their partner's objection. Their statements demonstrated both the voluntariness and the independence of their choice to use FP:

> *"After discussing it with [my partner], he wasn't in favor of FP. But since I am the mother and the one in need of FP … I am the one who might face the challenge of being too exhausted to conduct my activities, so after my partner was against FP, I decided to go for FP on my own without involving him." (FP user, age 35)*

Voluntary refusal

Women frequently expressed their ability to refuse FP use if they did not wish to use contraception. A non-user of FP described the autonomy with which she made her decision, "*No, I was not forced [to refuse FP]. Because I myself wasn't willing to use it. Maybe it's because I wasn't advised enough to be convinced [to use FP]"* (FP non-user, age 45).

Similarly, all participants who had used FP stated that they did not feel pressured or forced by any individual to start using FP:

> *"She [the nurse] did not force me at all. I liked [FP] on my own and wanted to rest like other women who rest and take care of their children very well. And so, I too decided [to do that]. I wasn't forced, I decided on my own." (FP user, age 39)*

Additionally, all participants denied knowing someone who had been forced to use FP. Women universally agreed that *"they [women using FP] are not being forced, they do it out of free will…. Yes, they love it willingly"* (FP user, age 25).

Provider agreement to remove FP

No woman interviewed reported any issues with providers being unwilling to discontinue or change provider-dependent methods of FP. Many women described wanting to change their FP method due to their personal preference or side effects and were able to easily do so at their local health facility. A 32-year-old woman explained that "*I felt like a nuisance to come and get an injection after every three months so I decided to change into implants… I just decided by myself. I told a nurse and she agreed*" (FP user, age 32).

Others described having their FP method removed due to their desire to have more children: "*It [FP] can protect a woman [from pregnancy], for example when I kept it I had it [an implant] for three years. I came [to the healthcare facility] and removed it, and when I removed it I stayed and later got pregnant"* (FP user, age 39).

Lack of attention to external influences on women's autonomy

Despite these quotes that consistently indicate women's voluntary choice and voluntary refusal, we also found evidence of the strong influence that others had on women's decision-making. Nearly all women, both those who decided to use and not to use FP, described how

people around them affected their decision. The majority explained how others' influence had either guided them towards their ultimate decision about FP or required them to wrestle with the decision about FP if opinions were contrary to their own desires.

Friends were frequently described as yielding positive influence and encouraging women to seek FP. Some women, particularly those with many children, had been advised by other women to seek FP: *"My friend advised me about FP and that's when I decided to come here and get the implant placed. Until now my 9th child is a 2 year and 5 months old young girl, and I am fine"* (FP user, age 38).

Less frequently, women's partners sometimes advised that they use FP, occasionally even taking the lead with this conversation: *"My husband [is the one who influenced me to start using FP].... because I give birth with no space in between.... I did not know [about FP before talking to him]"* (FP user, age 22). Also less commonly, parents sometimes advised women to use FP such as a 23-year-old woman's parents who influenced her to seek FP because of *"the problems [I] faced during [my] first pregnancy and complications during delivery that caused [me] to have an operation"* (FP user, age 23).

In other cases, women described being strongly influenced not to use FP. Such influences were frequently felt from husbands and parents. Some women responded to these influences by conceding, while other women outwardly agreed with these people's external influence but then sought FP surreptitiously. One woman, who used FP without her husband's knowledge, recounted how her husband *"was against it, when I used to tell him that I should go and get FP, he refused"* (past FP user, age 23). Another woman openly defended her choice to her father: *"He mentioned that he heard that there are challenges associated with FP but I responded that we will see those challenges for ourselves and not rely on hearsay. He is now thankful I used it"* (FP user, age 49).

Together, these data suggest that free choice for FP in Tanzania exists but is nuanced and sometimes driven by external influences from a variety of people. Such influences must be further considered in order to understand contraceptive autonomy in this and similar cultural contexts. Of note, we found that influences were important in both intervention and control communities from the cluster randomized trial. We did not find major differences in women's contraceptive autonomy between these two groups and no woman reported any instance of coercion to use contraception.

Discussion

Our exploratory qualitative analysis of contraceptive autonomy among women in rural Tanzania indicates the critical importance of including external influences in this proposed framework. Observations in our study are consistent with use of the Social Ecological Model or the Social Action Theory to understand factors affecting contraceptive uptake, both of which integrate influences from others as major factors affecting contraceptive decision-making [14–18]. We posit that incorporating external influences into the proposed contraceptive autonomy indicator will strengthen its applicability and comprehensiveness for programs seeking to offer high quality, human rights-based family planning in a variety of global contexts.

Our work augments and complements findings from the one other published study to date that has explored contraceptive autonomy using the novel indicator [6]. In that study, nearly 4000 women in Burkina Faso answered a quantitative survey designed to operationalize the contraceptive autonomy indicator. Investigators reported that women had challenges answering several of the specific questions about informed choice, which is similar to the difficulties we encountered with these questions when explored qualitatively. In particular, the requirement to "know how to use a method from each group" was often answered qualitatively by women who were able to list several methods and mention where and/or how the method worked in simple terms. Whereas many of these women may have been classified as not having contraceptive autonomy on the quantitative survey, we found that most women in our study did possess basic knowledge of several different contraceptives. However, we also recognize that many women's knowledge of specific methods may have depended on what was mentioned to them as options by their health provider, which could have been affected by the health provider's personal biases as well as the methods available at the health center at the time when the woman was seeking services. This illustrates how both free and full choice interdigitate with informed choice, as the availability of methods along with the individual influence of a provider's opinions can affect the knowledge imparted to the woman seeking services. We similarly observed difficulties with the requirement to "know a risk/disadvantage of their method," with women often answering more generally about risks/disadvantages of family planning overall. Many also had difficulty naming a benefit of non-use of family planning, as similarly reported from the Burkina Faso survey [6].

Our observations of women's reported experiences—particularly the salient external interpersonal influences that they described—highlight gaps in the current contraceptive autonomy indicator. The green boxes in Fig. 1

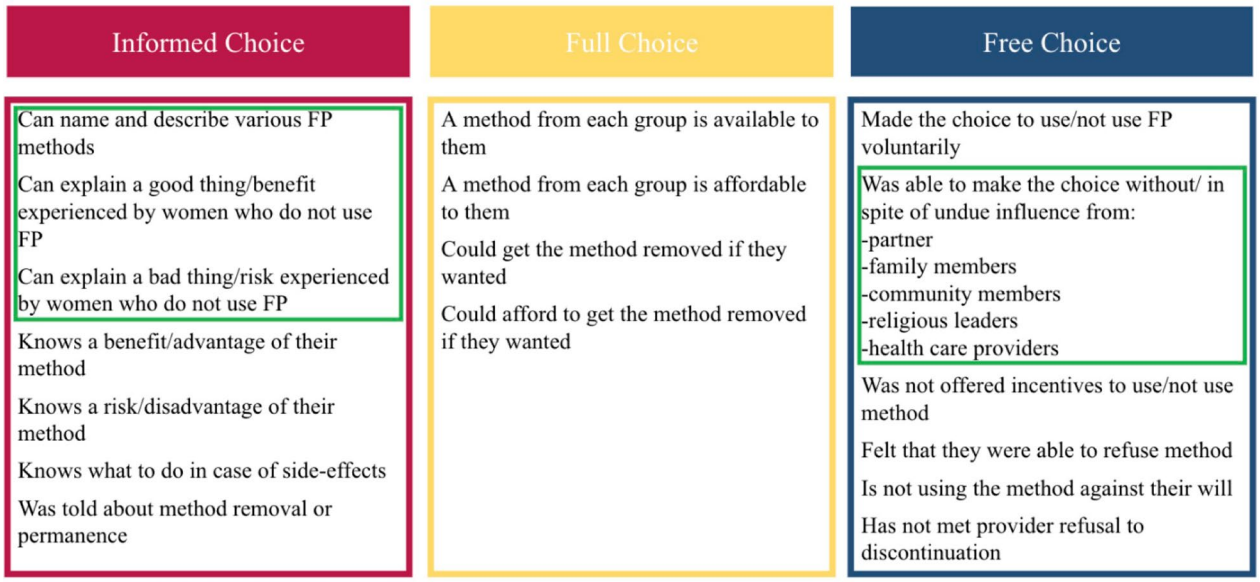

Fig. 1 Proposed adaptations to contraceptive autonomy indicator

show proposed modifications to the original indicator [5] that would increase comprehensiveness and clarity in assessing contraceptive autonomy. We edited the first aspect of *informed choice* to reflect women's ability to name and describe various FP methods rather than the original wording stating "Knows how to use a method from each group" as the number and definition of groups is broad. We also suggest rewording the question about knowing the benefit of non-use of FP. While women in our study and in Burkina Faso struggled to understand this question, we appreciate the effort for symmetry in the contraceptive autonomy indicator and suggest that this question may be more easily understood when respondents are asked to think of a woman who does not use FP and to describe a good thing or advantage that she might experience. We have suggested sources of influence that we found to be most common amongst our population of women under the category of *free choice* in order to capture the varied influences that may impact women's decision to use or refuse FP.

Our study was unique in that we used in-depth interviews, with questions designed to explore the external influences on women's contraceptive autonomy, to assess for nuances in free choice. Our qualitative study contrasts with and complements the survey in Burkina Faso [6], which sought to quantify contraceptive autonomy through assigning numerical values to survey responses and designing an algorithm to calculate an appropriately weighted contraceptive autonomy score. Our qualitative approach allowed investigation of the subtleties of informed, full, and free choice that may be challenging to capture numerically. Strategies to integrate these approaches could optimize the need to survey large numbers of women, perhaps for policy or financial reasons, while also gaining understanding of how a FP program is being interpreted and received by women in communities. Targeted quantitative data collection, specifically aimed at assessing informed choice and full choice, could pinpoint needed changes at the level of health care providers and health centers and thereby impact healthcare policy. Coupling quantitative data with targeted qualitative data collection will further allow for exploration of weaknesses and strengths of programs, allowing for iterative improvement in program delivery.

We did not find any violations to free choice in our qualitative exploration. However, it is possible that women did not feel able to voice their true feelings and experiences with violations to free choice due to social desirability bias or skewed power dynamics. This is important to consider as some qualitative reports exist of women in sub-Saharan Africa experiencing coercion and limited contraceptive autonomy due to FP policies in the region that prioritize numerical targets in contraceptive uptake, the way in which specific methods are offered in certain settings, and provider bias due to cultural norms [4, 19, 20]. Others have reported barriers to removal of long-acting contraceptives such as implants and IUDs [21]. In our study, many women reported knowing that they can get their implant or IUD removed at health facilities; however, this may not have fully captured whether women felt they could access removal when they needed

to, or whether their doubts about accessing removal services affected their outlook on IUDs or implants.

Ensuring that women's contraceptive autonomy is measured and prioritized has recently been gaining traction globally [1, 2, 22, 23]. An existing body of literature from multiple countries in sub-Saharan Africa describes correlations between contraceptive use and "women's autonomy" more generally, as defined by women's decision-making power within their families. These data, collected from standardized national demographic health surveys conducted in multiple countries, generally indicate that variables reflective of women's empowerment, such as women obtaining their own health care and women being involved in decisions about household expenditures, were largely associated with use of contraceptives (24–27). Contraceptive education and implementation programs have the opportunity to extend women's autonomy by requiring that contraceptive autonomy is considered and measured, both before and after program implementation. Our data suggest that honest assessment of contraceptive autonomy may be particularly important for programs that promote FP in partnership with other influential figures in women's lives, including partners and religious or other community leaders.

Limitations to this paper include geographic constriction, as data was only collected from one region of Tanzania. However, the data are consistent across communities that are relatively isolated from one another, suggesting generalizability of the data. Additionally, due to social desirability bias, respondents may have been hesitant to share instances when they did not have autonomy, skewing the responses toward freedom of choice. We also invited women who were seeking care for themselves or family members at health facilities to participate, but due to this sampling strategy were not able to learn from perspectives of women who do not access the local health facility in their community. Interviewing women who do not access the local health facility would allow further investigation into limitations women face when accessing contraception, as well as the opinions and viewpoints of women who are not actively seeking out health services. Furthermore, as women were recruited and interviewed at health facilities, there is a chance that women felt pressured to voice positive opinions regarding family planning and their local health providers. Future studies would benefit by expanding the sample population to include women who are not actively accessing services at a health facility.

Conclusions

In conclusion, women who participated in our study demonstrated contraceptive autonomy in all three pillars of informed choice, full choice, and free choice. The perspectives and experiences that they shared have shaped our suggestions for ways to increase comprehensiveness in assessing contraceptive autonomy. We believe the modified framework that we have proposed is a strong step towards thinking holistically about contraceptive access, uptake, and equity. FP programs that are committed to measuring and promoting contraceptive autonomy have the dual opportunity to promote not only the United Nations Sustainable Development Goal 3.7 of achieving universal access to reproductive health care by 2030, but also to further global progress towards Goal 5 of empowering all women and girls.

Abbreviation

FP Family planning

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12978-025-01963-w.

Additional file 1. Family planning in-depth interview for FP users

Additional file 2. Family planning in-depth interview for FP non-users

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Author contributions

VJL, AHM, and JAD designed the study. VJL, AN, AS, NM, and HY performed interviews. SB, VJL, AS, and JAD analyzed data. AN, NM, HY, RS, and SEK guided interpretation and analysis of the data. SB and JAD wrote the manuscript. VJL, AN, AS, NM, HY, RS, SEK, and AHM revised the manuscript. All authors read and approved the final submitted version of the manuscript and had final responsibility for the decision to submit for publication.

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Availability of data and materials

The data that is available includes illustrative quotes drawn from excerpts of the transcripts and these are presented within the paper. Additional excerpts and full transcripts are not publicly available as they contain sensitive and sometimes specific detailed information on women's families and reproductive health choices that were collected from small communities and could be identifiable.

Declarations

Ethics approval and consent to participate

Ethical permission to conduct this study was obtained from the National Institute for Medical Research (NIMR/HQ/R.8c/Vol.I/1330, Dar es Salaam, Tanzania) and Weill Cornell Medicine (1604017171, New York, USA). All women provided written informed consent prior to participation.

Competing interests
The authors declare no competing interests.

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