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Attitudes, Knowledge, and Correlates of Self-Efficacy for the Provision of Safer Conception Counseling Among Ugandan HIV Providers

Kathy Goggin, PhD,[1,2] Sarah Finocchario-Kessler, PhD, MPH,[3] Vincent Staggs, PhD,[1,4] Mahlet Atakilt Woldetsadik, MPH,[5] Rhoda K. Wanyenze, MBChB, MPH,[6] Jolly Beyeza-Kashesya, MBChB, MMed Ob/Gyn, PhD,[7,8] Deborah Mindry, PhD,[9] Sarah Khanakwa,[10] and Glenn J. Wagner, PhD[5]

Abstract

High rates of childbearing desires (59%) and serodiscordant partnerships (50%) among people living with HIV (PHLA) in Uganda highlight the need for safer conception counseling (SCC). Provider attitudes about counseling PLHA on the use of safer conception methods (SCM) have been explored in qualitative studies, but published quantitative investigations are scarce. Data from 57 Ugandan providers were collected to examine providers' attitudes about childbearing among PLHA and engagement in discussions about childbearing, as well as their knowledge, interest, self-efficacy, and intentions to provide SCC. Correlates of self-efficacy for the provision of SCC were explored to inform the development of training programs. Providers reported a general awareness of most SCM, especially timed unprotected intercourse (TUI); but just over half felt they knew enough to counsel clients in the future and all wanted more training. Childbearing was discussed with less than a third of reproductive aged patients and was mostly initiated by patients. Most providers saw value in providing SCC and believed that most aspects of SCM would be acceptable to their clients, but numerous barriers were endorsed. Self-efficacy was greatest among providers who had had more childbearing conversations, greater SCM awareness, perceived fewer barriers and greater intentions to counsel on TUI. Providers evidence fewer stigmatizing attitudes than in the past. However, those who endorsed more stigmatizing attitudes evidenced a trend for reporting lower self-efficacy for providing SCC. Training will need to simultaneously focus on increasing providers' SCC knowledge and skills while instilling a more realistic appraisal of the risks of assisting couples to employ SCM versus doing nothing.

Introduction

Uganda has the second highest total fertility rate in the world (6.2 children per woman),[1] and strong cultural norms that encourage large families.[2] Consistent with their countrymen, and likely encouraged by improved health and longevity provided by widespread use of antiretroviral therapy (ART), over half (59%) of Ugandan people living with HIV/AIDS (PLHA) now report a desire to have a child.[3–6] Ugandan PLHA are acting on these desires with a third of women becoming pregnant within 3–4 years of starting ART[7,8] and nearly 100,000 HIV-positive women becoming pregnant annually.[9,10]

High rates of serodiscordancy (50%)[10] coupled with recent data demonstrating that 30% of these discordant couples had

[1]Health Services and Outcomes Research, Children's Mercy Hospitals and Clinics, Kansas City, Missouri.
[2]Schools of Medicine and Pharmacy, and [4]Medicine, University of Missouri – Kansas City, Missouri.
[3]Department of Family Medicine, University of Kansas Medical Center, Kansas City, Missouri.
[5]RAND Corporation, Santa Monica, California.
[6]Department of Disease Control and Environmental Health, School of Public Health, and [8]College of Health Sciences, Makerere University, Kampala, Uganda.
[7]Mulago Hospital Department of Obstetrics and Gynaecology, Kampala, Uganda.
[9]University of California, Los Angeles Center for Culture and Health, Los Angeles, California.
[10]The AIDS Support Organization, Kampala, Uganda.

a child after discovering their serostatus,[3] and that over half of pregnancies among PLHA are planned,[11] highlight the potential risks for both horizontal (from partner to partner), as well as vertical (from mother to child) transmission. Effective and accessible safer conception counseling (SCC) is needed to help serodiscordant couples safely conceive.

While still unfamiliar to many patients[4,12] and providers,[4,13,14] low cost safer conception methods (SCM) can assist couples in reducing the risk of transmission, namely timed unprotected intercourse (TUI) where unprotected intercourse is limited to the female's fertile period, and manual self-insemination (MSI) when the male partner is negative. Sperm washing is another option, but at this time it remains unaffordable and inaccessible in many parts of sub-Saharan Africa.

Other methods for reducing sexual transmission risk during attempts to conceive that are not specific to the context of conception include ensuring an undetectable viral load in the HIV infected partner, which can reduce transmission in serodiscordant couples by 96%,[15] diagnosis and treatment of sexually transmitted infections (STIs),[16] and medical male circumcision, which decreases risk among men by 51%.[17] Finally, pre-exposure antiretroviral prophylaxis (PrEP) for uninfected partners may reduce risk during conception attempts,[18,19] but it is not widely available in Uganda. Engaging couples early and repeatedly in SCC has the potential to increase proper use of SCM that might reduce horizontal transmission to uninfected partners,[20,21] and increase prophylactic use of ART to prevent mother to child transmission (PMTCT).

Despite the known benefits of SCM, SCC is not currently offered as a standard part of HIV services in Uganda,[4,14] nor to our knowledge, elsewhere in Africa. Documented barriers to the provision of SCC include the lack of provider knowledge and training regarding SCM, as well as discomfort in discussing sexuality[22] and childbearing desires with their HIV positive patients.[4,23,24] Providers also cite the lack of a national policy recommending provision of SCC and use of PrEP for couples who are interested in conceiving,[13] and studies have repeatedly cited the pervasive stigma associated with childbearing among PLHA. Specifically, the negative attitudes of some providers towards PLHA's desires to have a child have been cited for contributing to the continued stigmatization of childbearing among PLHA,[25–30] and limited uptake of PMTCT service.[31] While some have noted a decrease,[32,33] the persistence of providers' stigmatizing attitudes can discourage many PLHA from sharing their childbearing intentions with providers, thereby limiting providers' abilities to assist in lowering risks of horizontal and vertical transmission. Qualitative studies have identified these provider barriers, but to our knowledge there are no studies that provide quantitative data on which are most prevalent among a diverse sample of providers.

This article provides novel quantitative data on providers' attitudes about childbearing among PLHA and engagement in discussions about childbrearing, as well as their knowledge, interest, self-efficacy, and intentions to provide SCC. To inform the development of provider training programs, we also explored correlates of self-efficacy for the provision of SCC.

Methods

Study setting

This study reports on baseline findings from a 2-year longitudinal cohort study conducted in collaboration with The AIDS Support Organization (TASO) sites in Kampala and Jinja, Uganda. TASO was founded in 1987 and is one of the largest indigenous non-governmental organizations in Uganda providing comprehensive HIV prevention, care, and support services for over 100,000 HIV infected and affected Ugandans annually. The Kampala TASO site is located next to the Mulago National Referral Hospital Complex and is the main and oldest branch that serves over 6700 active HIV-infected patients. The Jinja TASO site is located 45 miles east of Kampala within the Jinja Regional Referral Hospital and provides HIV primary care to over 8000 patients. In addition to ART and general counseling services, TASO provides family planning and contraception services, but no services specific to safer conception.

Participants

All medical/clinical officers and a convenience sample of nurses and counselors at the two sites were approached by the study coordinator and offered participation in the study. The time and day of the week in which nurses and counselors were approached were varied to increase the likelihood of a diverse sample. All providers who were approached gave verbal informed consent (there were no refusals), at which time we clarified that their responses would not be shared with their employer. Recruitment took place between May and October of 2013.

Providers were asked if they preferred to complete the questionnaire in English or Luganda, the most common native language in the study settings, and all but three participants chose to respond in English. Follow-up surveys were scheduled at 12 and 24 months; however only baseline data was available for these analyses. Providers received 20,000 Ush (~$8 USD) for completing each survey. The study protocol was reviewed and approved by Institutional Review Boards at Makerere University School of Biomedical Sciences and RAND Corporation, as well as the Uganda National Council for Science and Technology.

Measures

Drawing on our own qualitative research[4,14] and the literature, we adapted established scales and constructed original items to assess the following domains. Most domains are reported as single items or total scores for inventories (i.e., Awareness of SCM, Barriers to Providing SCC). The internal consistency and preliminary validity of several of the adapted and original scales (i.e., Provider Stigma of Childbearing among PLHA, Perceived Value of Providing SCC, Self-Efficacy for Provided SCC, and three Interest in Providing SCC scales) were examined and reported in detail elsewhere.[34] In short, content validity was established by submitting scale items to content experts during the iterative item development process, and face validity was explored during cognitive debriefing conducted during pilot testing with volunteers who meet study eligibility criteria. Construct validity was assessed via factor analysis using ordinary least squares estimation. We considered scree plots and the number of factors with eigenvalues larger than one in deciding the number of factors, and assigned items to factors based on the varimax-rotated matrix of factor loadings. Although we generally assigned items loading on multiple factors to the factor on which they loaded most strongly, we also considered conceptual fit with the factor's other items. Internal

consistency of scales was established with Cronbach's Alpha. Exact wording of items and response categories, as well as means (SD; range) for inventories, scales, and other items are presented in Table 1.

Provider demographics and practice characteristics. Beyond basic demographics of age, sex, and current position, we asked providers to report the number of years they had been in practice and years worked with HIV patients.

Frequency of childbearing discussions. We developed six items that asked providers to report on whether they had ever discussed childbearing plans with a patient (yes/no), as well as what proportion of reproductive aged female and male patients they had discussed childbearing plans with in the last 30 days, and what proportion of those consultations were initiated by the female or male patient or by the provider themselves. Providers' report of the proportion of female and male patients with whom childbearing plans had been discussed in the past month was averaged to produce a total proportion for use in analyses

Provider Stigma of Childbearing among PLHA Scale and Attitudes. We constructed five items to gage providers' views about PLHA having children. Positively worded items were reversed scored and a mean item score was computed with higher scores representing more negative attitudes. In addition, we asked providers four general questions about childbearing among PLHA and to list their top three concerns about PLHA having children

Awareness of SCM Inventory. We developed seven items to assess providers' awareness of SCM. The sum of affirmative responses represented level of awareness of SCM. In addition, we asked providers to rate whether they had adequate information to provide SCC, if they needed training, and whether they wanted training, using single items and a yes/no response format.

Perceived Value of Providing SCC. We developed six items to assess providers' views of the value of providing SCC. After reverse scoring all items, a mean item score was computed with higher scores representing greater perceived value.

Perceived Acceptability of SCM to Clients. We adapted seven items from the WHO assessment of contraceptive method preferences (WHO, 1980) to assess providers' perceptions of whether patients will view specific SCM as acceptable. Five of the seven items were used descriptively, and the final two on TUI and MSI were used as individual variables in analyses. We explored the development of a scale with all seven items, but likely due to the variety of topics covered, the psychometrics were poor.

Barriers to Providing SCC Inventory. We developed 12 items to assess barriers to providing SCC. All items were reversed scored and a mean item score was calculated, with higher scores representing a perception of the barriers being greater

Peer Support for Providing SCC. We used two items to assess providers' views about the receipt of peer support. A mean item score was computed with higher scores representing greater perceived peer support.

Interest in Providing SCC Scales. We constructed 12 items that formed three scales; Interest in providing SCC to serodiscordant couples, Interest in providing SCC regarding specific SCM, and Interest in providing SCC in the context of relational factors. A mean item score for each scale was computed with higher scores representing greater interest.

Self-Efficacy for Providing SCC Scale. We adapted a self-efficacy measure developed by Johnson et al.[35] to create eight items to assess providers' level of confidence to discuss childbearing and provide SCC to different types of couples. A mean item score was computed with higher scores representing greater confidence.

Intentions to Provide SCC. We used five items to assess providers' intention to provide specific aspects of SCC. Three items were used descriptively and two on intention to provide counseling on TUI and MSI were used in the analyses. Here again, we explored the development of a five-item scale, but likely due to the variety of SCM covered, the psychometrics were poor and thus we opted to use individual items in the analyses.

Data analysis

Descriptive statistics (frequencies, means, standard deviations, ranges) were used to describe sample characteristics and findings. Spearman correlations were used to examine correlates of self-efficacy for the provision of SCC.

Results

The sample included 57 providers (29 from Kampala and 28 from Jinja), including 10 medical/clinical officers (6 female), 13 nurses (10 female), and 34 counselors (17 female). Providers were on average 35 years of age (SD = 5.4, range 24–50 years), with just over half (57%) being female. Providers averaged 7.5 years of experience working with HIV+ patients (SD = 3.9, range 1–25). The results of most of the questionnaire items and all items that formed scales or inventories are displayed in Table 1. Results for additional items are presented in the text below.

Questionnaire results

Frequency of childbearing discussion with patients. All but one of the providers (98%) had discussed childbearing plans with a patient. However, on average, providers had discussed childbearing with only 28% of reproductive aged patients in the past month. Discussions regarding childbearing occurred with 39% of female and 18% of male patients. When these conversations did occur, female patients initiated 46% of them, whereas male patients initiated only 18%. Providers reported that they initiated these discussions only 37% of the time.

Provider Attitudes about Childbearing among PLHA. The majority of providers strongly/somewhat (96%) agreed that it was ''okay'' for PLHA to have children and 85% strongly/somewhat disagreed with the statement that ''PLHA should

Table 1. Providers' Responses to Selected Survey Items and Scales

Survey items	*M (SD; range)*	*% Yes or agree*
Provider Stigma of Childbearing among PLHA Scale (1 = strongly disagree to 4 = strongly agree; $\propto = 0.87$)	2.0 (0.5; 1.2–3.2)	
Children born to an HIV+ parent face more challenges than are necessary.	2.8 (0.9; 1–4)	63%
HIV+ people often lack all that they need to bring a child into the world.	2.1 (1.0; 1–4)	30%
HIV+ people who want to have children are being selfish.	1.6 (0.8; 1–4)	16%
Helping HIV+ people have children is a distraction from more important issues that we need to address as providers.	1.2 (0.5; 1–3)	2%
Ensuring patients are always having safe protected sex is more important than helping HIV+ people to have children.	2.5 (0.8; 1–4)	44%
Awareness of SCM (0 = no, 1 = yes, 3 = not sure)	4.2 (1.3; 1–7)	
Are you aware of methods to increase the safety of conception in mixed status couples…		
…(sero-discordant) couples where one partner is HIV+ and the other is HIV-negative?		86%
…by having them engage in unprotected or live sex only during the few days of the month when the woman is most fertile?		75%
…whereby the man ejaculates into a container or condom and then the semen is injected into the woman's vagina?		51%
To the best of your knowledge, have guidelines from any organization been established yet to guide providers in addressing the comprehensive reproductive needs of HIV+ individuals and couples who want to have children?		30%
Are you aware of technology that removes HIV from the man's semen and thus increase the safety of conception in couples where man is HIV+ and woman negative?		53%
Do you know where to refer a client or couple who want to use any of the methods described above to make conception more safe?		37%
HIV medication that can be taken by a HIV-negative partner who wants to conceive with a HIV+ partner to reduce his/her risk of infection?		84%
Perceived Value of Providing SCC Scale (1 = strongly disagree to 4 = strongly agree; $\propto = 0.73$)	1.8 (0.7; 1–3.7)	
Providing guidance on safer conception…		
…to a female client is a waste of time as they won't be able to get their man to agree to modify their sexual practices.	1.4 (0.7; 1–3)	12%
…to a female client is a waste of time as their man will demand live sex.	1.7 (0.9; 1–4)	21%
Clients who are counseled to have unprotected or ''live'' sex during a few days a month when the woman is most fertile will not want to resume using condoms afterward.	2.4 (0.9; 1–4)	49%
Perceived Acceptability of SCM to Clients (1 = strongly disagree to 4 = strongly agree)		
Will clients be okay with being asked to make a conception plan with a health care provider?		91%
Will couples be willing to collect the man's semen [perhaps by having sex with a condom] and inject it into the woman's vagina?		61%
Will couples be willing to have unprotected or ''live'' sex only during the few days a month when the woman is most fertile?		93%
Will couples be willing to have the man's sperm washed to remove HIV with the use of technology, and then inserted into the woman's vagina if cost was not a factor?		82%
Will HIV+ partners would be willing to start HIV medication early if they knew it would reduce their risk of transmitting the virus to a partner.		98%
Will HIV negative partners of HIV+ patients would be willing to take HIV medication every day during the months in which they were trying to conceive in order to reduce their risk of infection.		79%
Barriers to Providing SCC (1 = Not at all, 2 = somewhat, 3 = definitely a barrier)	2.3 (0.4, 1.2–2.8)	
How much of a barrier is…		
…poor access to male members of couples who want to have a child.		96%
…lack of HIV disclosure within couples who want to have a child.		91%
…no established guidelines or recommendations for how to provide such counseling.		89%
…not having any educational tools to use in counseling clients.		88%
…poor access to ARVs that can be taken by uninfected partners during periods of unprotected sex when trying to conceive?		86%

(*continued*)

TABLE 1 (CONTINUED)

Survey items	*M (SD; range)*	*% Yes or agree*
…lack of training for how to provide such counseling.		84%
…client reluctance to discuss childbearing needs.		81%
…lack of resources and support from the clinic administration for such counseling.		75%
…poor access to ART for patients who want to have a child but their CD4 is not low enough to quality for ART.		75%
…not having enough time to talk further with clients.		67%
…my personal reluctance to discus with client their desires to have children.		65%
Peer Support for Providing SCC (1 = strongly disagree to 4 = strongly agree)		
People I know and respect think I should…		
…talk to HIV patients about their desires to have children?		95%
…discuss the availability and use of methods to increase the safety of conception with HIV clients who have a desire to have children.		93%
Interest in Providing SCC Scales (1 = low interest to 10 = high interest or 1 = strongly disagree to 4 = strongly agree; $\propto = 0.73$)		
Interest in Providing SCC to Serodiscordant Couples Scale ($\propto = 0.91$)	9.0 (1.6; 3–10)	
How interested are you in providing guidance…		
…on how to conceive safely to a couple where the woman is HIV+ and the man is not?	9.0 (1.6; 3–10)	
…on how to conceive safely to a couple where the man is HIV+ and the woman is not?	9.0 (1.7; 3–10)	
Interest in Providing SCC Regarding Specific SCM Scale ($\propto = 0.68$; $\propto$ for first three items = 0.61)	7.5 (1.6; 3.5–9.7)	
How interested are you in providing guidance to mixed status couples…		
…about the use of unprotected or ''live'' sex only during the few days a month when the woman is most fertile?	7.5 (2.7; 1–10)	
…(where the woman is HIV+) about how to collect the man's semen and inject it into the woman's vagina?	7.5 (3.1; 1–10)	
If ARVs were approved for such use in Uganda, how interested would you be in providing guidance to uninfected partners of your HIV+ patients about taking ARVs daily during the months they attempt conception via unprotected sex?	9.3 (1.6; 1–10)	
Most clients will not follow the advice we give regarding how to increase the safety of conception.	2.0 (0.8; 1–4)	27%
Most uninfected partners will not take HIV medications daily during the conception period.	2.3 (0.9; 1–4)	39%
It is not a good use of resources to recommend that uninfected partners take HIV medications daily during the conception period.	1.8 (0.8; 1–4)	18%
Interest in Providing SCC in the Context of Relational Factors Scale ($\propto = 0.83$)	8.0 (2.3; 1.8–10)	
How interested are you in providing guidance…		
…to an HIV-infected woman who wants to conceive, but does not have a committed partner?	7.9 (2.8; 1–10)	
…to an HIV-infected man who wants to conceive, but does not have a committed partner?	7.7 (2.9; 1–10)	
…about HIV disclosure to HIV-infected client who wants a child with an HIV-negative partner, to whom they have not disclosed their HIV status?	8.6 (2.7; 1–10)	
…to HIV-affected couples who want to conceive if they already have children?	7.9 (2.9; 1–10)	
Self-Efficacy for Providing SCC Scale (1 = not at all to 10 = extremely; $\propto = 0.87$)	7.6 (1.6; 4–9.9)	
How confident do you feel in your ability to		
…ask clients about their future childbearing goals?	8.3 (2.1; 4–10)	
…provide safer conception guidance to a couple in which the woman is HIV-infected and the man is not?	7.3 (2.3; 3–10)	
…provide safer conception guidance to a couple in which the man is HIV-infected and the woman is not?	7.0 (2.2; 3–10)	
…provide guidance to an HIV-infected woman who wants to conceive, but does not have a committed partner?	6.9 (2.4; 1–10)	
…provide guidance to an HIV-infected man who wants to have a child, but does not have a committed partner?	6.9 (2.3; 1–10)	
…provide guidance about disclosure to HIV+ client who wants a child with HIV-negative partner, to whom they have not disclosed?	7.5 (2.2; 1–10)	

(*continued*)

TABLE 1 (CONTINUED)

Survey items	*M (SD; range)*	*% Yes or agree*
If ART initiation was not restricted by CD4 count, how confident are you that you could provide guidance for early initiation of ART among HIV+ patients with uninfected partners who want to conceive?	8.4 (2.0; 2–10)	
If pre-exposure prophylaxis was readily available in Uganda, how confident are you that you could provide guidance to uninfected partners of your HIV+ patients on taking ARVs daily during the months they attempted conception via unprotected sex?	8.2 (1.9; 4–10)	
Intentions to Provide SCC (1 = low intention to 10 = high intention)		
How much do you intend to discuss/talk with…		
…male clients any desires or plans they may have regarding having children?	8.3 (1.5; 5–10)	
…female clients any desires or plans they may have regarding having children?	8.8 (1.5; 5–10)	
…patients who have a desire to have children, the availability and use of methods to increase the safety of conception?	9.5 (1.2; 4–10)	
…mixed status couples who want to have a child about the use of timed unprotected intercourse- i.e., having ''live'' sex only during the few days a month when the woman is most fertile?	7.4 (2.4; 1–10)	
…mixed status [woman is HIV+] who want to have a child about how to collect the man's semen and inject it into the woman's vagina?	7.5 (3.0; 1–10)	

Reported percent is the combined percent of ''Agree/Strongly Agree'' or ''somewhat/definitely'' responses. Interest in Providing SCC Regarding Specific SCM scale scores were computed by converting the three reverse-coded 4-point Likert items to a 10-point scale before averaging across the six items. The Interest in providing SCC for specific SCM scale included both 4- and 10-point Likert-type items; we converted responses on the 4-point items to a 10-point scale (1 = 1, 2 = 4, 3 = 7, 4 = 10) before averaging across the six items.

avoid having children.'' The majority (86%) also believed that there were feasible options to lower risk during conception, and 95% felt it was their role to assist couples in planning childbearing. However, providers' responses to the five items on the Provider Stigma of Childbearing scale were quite different (see Table 1) and revealed lingering negative attitudes.

When asked to list their top three concerns about PLHA having children, providers noted several (e.g., patient won't be able to raise the child, re-infecting an infected partner, patients already have too many children, lack of partner support), but the top concerns were infecting the infant (42%), infecting uninfected partners (25%), and having a negative impact on the mother's health (21%).

Provider Awareness of SCM. The majority of providers reported being aware of SCM for serodiscordant couples (86%) including timed unprotected intercourse and PrEP, but just over half knew about manual self-insemination and sperm washing strategies. Less than a third reported awareness of guidelines addressing the comprehensive reproductive needs of PLHA, and only 37% reported knowing where to refer patients for SCC. Nearly a third of providers reported having little familiarity with the topic of SCC, and 44% stated that they lacked adequate information to counsel their patients. All providers recognized that they need more training on SCM and all reported that they would like to receive such training.

Perceived Value of Providing SCC Scale. The majority of providers saw value in providing guidance on safer conception methods. However, about half worried that clients would struggle with resuming condom use after unprotected intercourse during the fertile period.

Perceived Acceptability of SCM to Clients. The majority of providers believed that patients would be willing to make a conception plan with a provider, limit unprotected sex to the most fertile days, and use sperm washing if available. Just over half felt that couples would be willing to use manual self-insemination. Nearly all believed that the HIV+ partner would be willing to start ART early to protect their uninfected partner, and the majority felt that uninfected partners would be willing to use PrEP.

Barriers to Providing SCC. Providers perceived numerous barriers to providing SCC, with poor access to male partners, as well as lack of HIV disclosure to partner, SCC guidelines, and tools for counseling at the top of the list. Only about a third (35%) reported that the lack of a private counseling area in the clinic was a barrier (not displayed).

Peer Support for Providing SCC. Providers reported perceiving a high degree of support for providing SCC from people that they know and respect.

Interest in Providing SCC Scales. Mean response to each item on the *Interest in Providing SCC to Serodiscordant Couples* scale evidenced a high degree of interest among providers (see Table 1). Providers' average ratings evidenced more of a range on the *Interest in Providing SCC Regarding Specific SCM* scale but still indicated relatively high provider interest. This newly developed scale included three items that did not directly ask about providers' interest, but rather seemed to tap providers' concerns about clients' ability to adhere to specific aspect of SCM that had a bearing on their interest in providing SCC.

Results indicate that most providers did not endorse (disagreed or strongly disagreed) these negatively framed items about clients' ability to follow their advice (74%), uninfected partners taking PrEP (61%), or PrEP not being a good use of resources in this context (83%). We considered dropping these three items, but the internal consistency of the scale went down ($\propto = 0.61$), so we decided to stay with the six

items scale. Mean response to items on the *Interest in Providing SCC in the Context of Relational Factors* scale indicated a high degree of interest among providers. Providers were most interested in assisting clients with disclosure.

Self-Efficacy for Providing SCC Scale. Providers reported a moderately high level of self-efficacy for providing SCC with a mean item score of 7.6 (SD = 1.6) on the eight-item scale. Only three providers produced a mean item score that was below 5, the midpoint of the 10-point response option provided. On average, providers indicated a high degree of confidence in their ability to inquire about childbearing goals, to assist HIV+ clients in starting ART early, and to counsel uninfected partners on the use of PrEP. Providers were least confident about advising HIV+ clients who do not have committed partners and serodiscordant couples where the male partner is HIV infected.

Intentions to Provide SCC. Providers reported strong intentions to ask clients (especially female clients) about their childbearing desires or plans. They had even stronger intentions to discus SCM with clients who had childbearing desires. Providers' average intentions to talk with clients about TUI or MSI were lower than averages for the other items, but still strong.

Correlates of self-efficacy for the provision of SCC

Providers with greater self-efficacy to provide SCC reported discussing childbearing with more patients in the last 30 days ($r_s = 0.61$, $p < 0.001$), had greater SCM awareness ($r_s = 0.52$, $p < 0.001$), perceived fewer barriers to providing SCC ($r_s = -0.48$, $p < 0.001$), had greater intentions to counsel on TUI ($r_s = 0.43$, $p < 0.001$), but lower intentions to counsel on MSI ($r_s = -0.32$, $p < 0.02$) (Table 2).

Discussion

This study may be the first to offer quantitative data on providers' knowledge of and attitudes towards SCC, with in-depth attention to providers' attitudes about childbearing among PLHA. To our knowledge, it is also the first exploration of correlates of self-efficacy for the provision of SCC. Findings reveal a general awareness of most SCM, especially TUI; however despite being familiar with the concept of SCM, just over half felt they had enough information to counsel their patients effectively about these methods in the future, and all wanted more training.

Table 2. Spearman Correlations with Self-Efficacy to Provide SCC

	r_s (p Value)
Sex (female)	0.04 (0.786)
Age	0.06 (0.668)
Years worked as provider	0.18 (0.181)
Years worked with HIV clients	0.15 (0.265)
Proportion of patients communicated with about childbearing in last 30 days	0.61 (<0.001)
Provider stigma of childbearing scale	–0.25 (0.056)
Awareness of SCM	0.52 (<0.001)
Perceived value of providing SCC scale	–0.21 (0.123)
Perceived acceptability of TUI	–0.22 (0.108)
Perceived acceptability of MSI	–0.17 (0.217)
Barriers to providing SCC	–0.48 (<0.001)
Peer support for providing SCC	–0.21 (0.129)
Interest in Providing SCC…	
to Serodiscordant Couples scale	0.23 (0.084)
regarding Specific SCM scale	–0.07 (0.626)
in Context of Relational Factors scale	0.12 (0.359)
Intentions to counsel on TUI	0.43 (<0.001)
Intentions to counsel on MSI	–0.32 (0.017)

While nearly all providers reported some experience discussing childbearing with at least one patient, this did not translate into routine discussions with most patients. In fact, childbearing was discussed with less than a third of reproductive aged patients who were seen in the past month. Most importantly, the majority of these discussions were initiated by patients, with providers reporting that they took the lead in raising the topic only about a third of the time. Most often it was female patients who initiated these conversations, despite the fact that both partners should be involved in decision making and planning.[36,37]

Findings from our prior qualitative research highlight the need for providers to send the message that they are open to discussing clients' fertility desires by repeatedly raising the issue and offering assistance.[4,14] The results of this study and others[14,25,27,38] indicate that providers have taken a step towards that recommendation in that most have shifted away from strong prohibition of childbearing and now endorse more positive attitudes which likely translates into more supportive messages. However, findings here also indicate that they still are not raising the issue often enough.

Clear signals from providers about their willingness to help patients to make informed family planning decisions will likely increase patients' self-efficacy for using SCM which ultimately reduces overall risk.

Self-efficacy to provide SCC among providers was moderately high overall (average of 7.6 on 10-point scale). This is consistent with our findings that most providers acknowledge the availability of feasible options to lower risk and recognize their role in assisting couples to plan safer childbearing. Self-efficacy was greater among those who had already engaged in more childbearing discussions, had more awareness of SCM, perceived fewer barriers, greater intentions to counsel on TUI. Higher self-efficacy among providers who know more about SCM and are already having discussions about childbearing is not surprising, as they have likely had more practice talking about these sensitive matters. It also makes sense that they perceive fewer barriers and have greater intentions to counsel on TUI.

The finding that those with higher self-efficacy have lower intentions to counsel on MSI may be related to providers' perception that clients will be resistant to some of the required steps (i.e., ejaculating into a condom/container and using a syringe to insert into the woman's vagina) which was demonstrated in their low ratings of the perceived acceptability of MSI to clients in this study and noted in prior qualitative studies.[4,14] Taken together, these findings point to the need for high quality training that increases providers' awareness, comfort, and skill for providing SCC, which will lead to greater self-efficacy.

While the results of this study indicate that stigmatizing attitudes are on a general decline among providers, they are still very relevant because providers who endorsed

more stigmatizing attitudes evidenced a trend for reporting lower levels of self-efficacy for providing SCC. Findings from previous qualitative studies identified many of these stigmatizing attitudes,[23,39–42] but this is the first study to provide quantitative data that reveals which are most prevalent among a relatively small but diverse sample of providers.

SCC training for providers will need to go beyond simply increasing their knowledge and skills to reduce the acceptance of these stigmatizing attitudes. Effective training will need to employ strategies to assist these providers in developing empathy for PLHA who want to have children and a more realistic appraisal of the risks of assisting couples to employ SCM versus doing nothing.[14,43] Taking care to ground SCC in a harm reduction framework that focuses on reducing both horizontal and vertical transmission risk will likely enhance providers' ability to embrace a stance that is supportive of PLHA self-determination rights with regard to childbearing.

Strategies that assist providers in shifting their focus from feeling responsible for potentially negative outcomes to their role in assisting their patients in making informed decisions will be key. Identifying providers with SCC expertise who can serve as models and peer mentors will likely facilitate buy-in from less knowledgeable and skilled colleagues. Routinely sharing stories of successful SCC will further reduce stigma and reinforce the importance of providers' role.

In contrast to observations from our prior qualitative research with providers in this study setting,[4,14] the majority of providers in this sample believed that patients will be able to comply with most aspects of SCM, including limiting unprotected sex to only the most fertile days in a woman's cycle. Changes in the attitudes of these providers over time may be partly explained by their participation in or exposure to the prior qualitative phase of our research in these study settings, but such changes may also represent a gradual shift in the culture towards seeing HIV as a more controllable chronic disease and a greater recognition of the self-determination rights of PLHA with regard to childbearing.

Consistent with prior reports,[14] providers confirmed that the lack of SCC guidelines from the Ministry of Health and access to ART for use in SCM are significant barriers to the routine provision of SCC. Integrating the provision of SCC into routine HIV care services is critical to empowering providers to meet the needs of their patients. In fact, the Uganda National Strategic Plan and National Priority Action Plan for HIV/AIDS calls for the integration of reproductive health into HIV care programs as a key strategy for reducing HIV transmission,[44] but guidance on supporting PLHA childbearing desires is minimal. Uganda currently has no policy to guide the provision of SCC, but the Society of HIV Clinicians in South Africa has published comprehensive guidelines[45] that could serve as a model for Ugandan policy development.

Most providers also cited lack of institutional support and sufficient time as barriers, as well as lack of high quality training and patient education tools. These barriers have been identified in earlier qualitative studies,[4,14] but this may be the first quantitative study to document the prevalence of these barriers.

Limitations

This study is not without its limitations, including a relatively small sample of providers and reliance on self-report data. Providers were drawn from two different sites within the same non-governmental organization (TASO), and TASO has already embraced a progressive view of PLHA fertility rights and inculcated that into their internal policies and service provision models, so our findings may not be generalizable to all HIV providers in Uganda. Nevertheless, providers in this study still reported stigmatizing attitudes, low rates of childbearing discussion, moderate self-efficacy and the desire for more training that would likely be echoed if not amplified by non-TASO providers.

Our reliance on newly developed measures for some constructs is also a limitation. However, these are the first quantitative measures of these important constructs and their development was informed by extensive qualitative research, their psychometrics and preliminary validity have been explored elsewhere,[34] and these measures can facilitate further research. Our items on childbearing discussions might have been challenging for some providers and could have been simplified by asking first for the number of clients seen and then the proportion with which childbearing was discussed.

Providers are generally familiar with SCM, but few feel fully prepared to provide SCC, and nearly all desire more training in this regard. Childbearing conversations are too infrequent and mostly initiated by patients rather than providers. Stigmatizing attitudes persist among a minority of providers and were negatively associated with self-efficacy. Training will need to simultaneously focus on increasing provider knowledge and skills regarding SCM and SCC, as well as gaining a more realistic appraisal of the risks of assisting couples to employ SCM versus doing nothing.

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Address correspondence to:
Kathy Goggin, PhD
Children's Mercy Hospitals and Clinics
2401 Gillham Road
Kansas City, MO 64108

E-mail: kgoggin@cmh.edu