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Intravaginal Practices in Female Sex Workers in Cambodia: A Qualitative Study

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Abstract

Intravaginal practices (IVPs) are associated with several adverse health outcomes, including HIV infection. However, few studies have examined this topic in Asian cultures, particularly in female sex workers (FSWs). This theory-based qualitative study aimed to describe the IVPs and to identify salient determinants of these practices in FSWs in Phnom Penh, Cambodia. We conducted in-depth interviews using open-ended questions with 30 FSWs in July–August 2014. We analyzed data using thematic content analysis, with thematic codes based on the constructs of the theory of planned behavior. The results showed that the most common IVP was a combination of intravaginal washing and wiping, to which we refer as intravaginal cleansing. There was a clear and close connection between IVP and sex work. Perceived benefits of intravaginal cleansing were numerous, while the perceived risks were few. As a result, the attitude toward intravaginal cleansing was favorable. A common misperception of benefit was that intravaginal cleansing could prevent sexually transmitted infections. Local physicians considerably influenced the subjective norm related to IVP. Intention to quit IVPs was suboptimal. In conclusion, the psychological factors associated with IVPs in FSWs were somewhat different from those in the general population of Cambodian women and women in other countries. Behavioral beliefs, attitude, and subjective norms appeared salient and important factors in IVPs. Interventions aimed at reducing

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IVPs should target these constructs as well as the sex-work-associated economic motives. Local physicians may be an agent to change IVP and an effective channel to deliver interventions.

Keywords

intravaginal practices; female sex workers; theory of planned behavior; Cambodia

INTRODUCTION

According to classification and definitions developed by the World Health Organization's Gender, Sexuality and Vaginal Practices Study Group, intravaginal practices (IVPs) consist of (1) intravaginal washing or douching with liquids (e.g., water, water with soap, household cleaning products), (2) wiping inside the vagina (e.g., with cloth or tissue), and/or (3) applying or inserting substances with the intent to warm, dry, or tighten the vagina to increase sexual pleasure (excluding use of medication or tampons for removal of menstrual blood) (Hilber, Chersich, van de Wijgert, Rees, & Temmerman, 2007; Low et al., 2011). Several studies indicate that vaginal douching, the most commonly investigated IVP, is associated with adverse health outcomes after controlling for demographics and sexual behavior (Cottrell, 2010). These outcomes include increased risk of bacterial vaginosis (Hawes et al., 1996; Holzman, Leventhal, Qiu, Jones, & Wang, 2001; Ness et al., 2002; Ness et al., 2001; Rajamanoharan, Low, Jones, & Pozniak, 1999), pelvic inflammatory disease (Zhang, Thomas, & Leybovich, 1997), bacterial sexually transmitted infections (STIs) (La Ruche et al., 1999; Scholes et al., 1998; Tsai, Shepherd, & Vermund, 2009), non-regression of low-grade squamous intraepithelial lesions (Chu et al., 2010), and cervical cancer (Zhang et al., 1997). A systematic review and a meta-analysis also showed that IVPs increased the risk of HIV infection (Hilber, Francis, et al., 2010; Low et al., 2011). These adverse health outcomes have been hypothesized to result from IVP-associated physical abrasions of the vaginal epithelium or disruption of the normal protective vaginal microenvironment.

The motivating reasons for performing IVPs include overlapping expectancies related to hygiene, sexuality, reproductive health, partners' expectations, and socio-cultural expectations (Hilber, Hull, et al., 2010; Hilber et al., 2012; Hull et al., 2011; Lees et al., 2014; Markham et al., 2007). For example, a woman may engage in an IVP to increase her sexual pleasure or the sexual pleasure of her partner. IVPs intended for hygiene and health purposes (e.g., to be clean or to reduce itching) are influenced by or implicitly connected to sexuality, femininity, womanhood, and gender norms in some cultures (Hilber, Hull, et al., 2010; Hilber et al., 2012). Among female sex workers (FSWs) in some African countries, IVPs are additionally motivated by economic security associated with pleasing the clients (Hilber, Hull, et al., 2010; Lees et al., 2014). FSWs were also more likely to perform IVPs after sex without a condom, possibly due to their concerns about hygiene, risk of sexually transmitted infections (STI) or becoming pregnant (Francis et al., 2013).

IVPs and motivations for use vary across cultures. A household survey of women conducted in four countries showed that IVP types, prevalence, products, frequency, and motivation varied markedly across countries (Hull et al., 2011). For example, the prevalence of

intravaginal cleansing was 92% and 63%, respectively, in Tete, Mozambique, and KwaZulu-Natal, South Africa, and 6% and 2%, respectively, in Chonburi, Thailand, and Yogyakarta, Indonesia. Insertion of substances into the vagina was about 40% in Tete and Yogyakarta and only about 10% in KwaZulu-Natal and Chonburi. Motivation for IVPs in KwaZulu-Natal and Tete was explicitly related to increasing partners' sexual pleasure and thus maintaining partner commitment to the relationship, while IVPs in Yogyakarta and Chonburi were largely motivated by femininity (e.g., to remove "dirty" fluids in women's bodies) and health (e.g., to relieve genital symptoms). In Cambodia, douching in women has been reported to be prevalent, with 77% of women in the general population douching at least once a week (Heng, Yatsuya, Morita, & Sakamoto, 2010). Although these studies provided information regarding IVPs in the general population in some Southeast Asian countries, they did not specifically address IVPs among FSWs. The investigation of IVPs in FSWs is important because they are at higher risk of exposure to sources of STIs which would be likely to become an actual infection due to IVPs. Moreover, IVPs in FSWs are presumably more frequent, more diverse in types and methods, and more complicated; and the motivations for IVPs may be different as explained above. A preliminary study among Cambodian FSWs reported that 91% of FSWs had ever douched (Bui, Tran, Ross, & Markham, 2015). About half of the FSWs who douched thought that douching could help prevent STIs, including HIV, and 24% were unsure about this (Bui et al., 2015). However, use of IVPs besides douching and motivation for their use were not examined.

Given the adverse health outcomes associated with IVPs, and the variability in the types, methods of, and motivation for IVPs in different cultures and populations, there is a need for more detailed information on IVPs in specific populations to inform the development of culturally relevant risk reduction interventions. Understanding the range of IVPs employed in a population and the primary motivations for use is important for informing the development of relevant risk reduction messages and culturally sensitive measures to assess intervention effectiveness. This theory-based qualitative study aimed to describe the range of IVPs and to explore the *salient* determinants of IVPs in FSWs in Phnom Penh, Cambodia. The findings from this study contribute knowledge to the growing literature on IVPs worldwide and may help guide interventions aimed at reducing IVPs and the associated adverse health outcomes. The IVPs and salient determinants found in this study may also serve as measures or help to refine measures in future quantitative studies on this topic.

METHODS

Framework

This qualitative study was based on the theory of planned behavior, which has been widely used to develop effective interventions for hygiene practices and health behaviors related to HIV/STD prevention (Ajzen, 1991; Montano & Kasprzyk, 2008). Briefly, the main constructs used to explain a behavior are attitude toward the behavior, subjective norms, perceived control, and intention. The theory also postulates that the prevailing determinants of individuals' intentions and actions depend on *salient* information or beliefs related to the behavior. Thus, behavioral beliefs, normative beliefs, and perceived control beliefs are the underlying determinants of attitude, subjective norms, and perceived control, respectively.

Attitude involves negative or positive evaluation of behavioral beliefs, which are perceptions of a behavior's outcomes. Subjective norms are the individual's motivations to comply to satisfy the perceived normative influence of significant others (e.g., parents, spouse, or peers). Perceived control is the perception of one's power and ability to perform the behavior, given personal beliefs about resources, supports, or barriers associated with a behavior. These three psychological factors lead to an individual's intention which indicates the willingness and readiness to perform a behavior. We used this theory to guide our qualitative analysis and to inform the development of future behavioral interventions on this matter. The qualitative approach to elicit salient culturally-specific constructs of theory of planned behavior has been used in previous health behavior studies, such as in hand hygiene practice (White et al., 2015), in HIV risk behaviors (Hutchinson et al., 2007), or in adherence to highly active antiretroviral therapy (Vissman et al., 2011).

To be consistent with established definitions of IVPs, we also based our analysis on a classification system suggested by the World Health Organization's Gender, Sexuality and Vaginal Practices Study Group (Hilber et al., 2007; Low et al., 2011). This system classifies IVPs in three main groups: intravaginal washing (cleaning inside the vagina with water or other household or commercial products), intravaginal wiping (with cloth, cotton, tissue, etc.), and inserting non-liquid products (e.g., powders, creams, herbs, or tablets) with the intent to dry or tighten the vagina. This definition excludes sex toys, female and male condoms, other barrier contraceptives, and tampons or products used to absorb menstrual blood.

Participants

Participants were recruited through a mixed sampling method of convenience and referral. We contacted all FSWs who attended educational activities at a local facility for FSWs and all FSWs who visited a voluntary confidential counseling and testing site in Phnom Penh. Peer educators and recruited participants were also asked to refer other FSWs for us to contact. The inclusion criteria were age ≥ 18 years, the ability to communicate in Khmer (the primary language in Cambodia), and having ever engaged in paid sex. All contacted FSWs were screened for having ever performed each type of IVP. In order to have a diverse sample, we purposely selected participants representing a range of ages, different types of IVPs, and different areas in Phnom Penh. All eligible FSWs were enrolled until our expected sample size of 30 was met. After screening 76 FSWs, 30 were eligible, and all 30 agreed to participate. Recruitment and data collection took place in July-August 2014. The study was approved by the institutional review boards of the Cambodian National AIDS Authority (study 132, 17/06/2013) and The University of Texas Health Science Center at Houston (Houston, Texas) (study HSC-SPH-13-0481).

Procedure

We conducted qualitative in-depth interviews using semi-structured open-ended questions with the participants. Prior to the interviews, we fully explained to the participants the purpose of the study, the process of participation, the risks and benefits of participation, the need for voice recording, confidentiality, and the option to withdraw at any time. All participants provided written informed consent. The interviews took place in a quiet, private

location at an organization which provided support to FSWs (name omitted for confidentiality). The interviewers were experienced research coordinators and social workers on staff at the Cambodian Women's Development Agency. We educated these interviewers about IVPs and about ethical considerations, and trained them to conduct in-depth interviews. The principal investigator was on site during the first 13 interviews to address any issues after each interview. The interviews lasted between 30 and 60 minutes. All interviews were conducted in Khmer and were recorded using digital voice recorders. After the interviews, participants received 8 US dollars in compensation.

During the interviews, the participants were first asked about their demographic characteristics (e.g., age, education level, and marital status) and their sex work (e.g., the venues of contacting clients, the average number of clients per week, average income from sex work, ever having a HIV test, and the result of the most recent HIV test). Next, the participants were asked to list all non-sexual activities that they ever performed inside the vagina. If the participants did not list any, the interviewers specifically asked whether they had ever performed each type of IVP. For each type of activity (e.g., washing), the participants were asked to describe the method, frequency and timing, the products or substances used, the motivating reason(s), and the source(s) from which they learned about the activity. All questions were open-ended. The interviewers were extensively trained on the goals of the interviews and the use of open-ended questions to obtain these types of information.

Data Analysis

Voice recordings were transcribed verbatim in Khmer. The transcripts were then translated into English by two translators. A bilingual senior research coordinator independently reviewed and edited all translations to ensure accuracy.

We analyzed the data by using thematic content analysis with the aid of the R-based Qualitative Data Analysis software package (Huang, 2014). One investigator (LTT) first performed data coding and generated a list of codes. Thematic codes were based on the constructs of the theory of planned behavior and on the World Health Organization's classification of IVPs. Then, another investigator (TCB) independently coded the data using the code list generated by the first investigator and adding new codes if necessary. The coding data from the two investigators were compared to determine inter-coder reliability. About one-fifth of the coding data varied between the two coders. To resolve these discrepancies, the coders discussed them and agreed on the most appropriate coding or code. Because we aimed to identify salient determinants of IVPs, we additionally used frequency counts of respondents or quotes for particular variables of interest. Texts in square brackets indicate our additions to quotes to clarify meaning. After analyzing the data, we presented the results to a group of nine local individuals, including interviewers, peer educators who were former FSWs, health educators, and health-research collaborators. This step (a.k.a. member checking) was for further interpretive validation of our findings (Holloway & Wheeler, 2010). The group agreed with the majority of our findings; a few misinterpretations were corrected. Throughout our report of findings in the result section

below, responses or codes with the highest frequencies are listed first and so on, even when frequencies are not reported in details.

RESULTS

Participant Characteristics

Due to our purposive sampling, participants' age ranged from 19 to 35 years. Eight of the 30 participants had not attended school, 13 had had some elementary school education, and seven had completed grade six or higher (two missing responses for education). Two participants were Vietnamese Khmer, one was Chinese Khmer, and the others were of Khmer ethnicity. About two-thirds of the participants started sex work at 20 years of age or earlier. About half of the participants were married or had a live-in partner.

The primary means of finding clients were street based (12 participants), establishment based (e.g., karaoke shops, restaurants, and/or massage parlors) (nine participants), bar freelancing (eight participants), and Internet and/or phone based (one participant). Most participants had three to seven clients on average per week; six participants had 10 clients per week on average. "Sweethearts" were defined to participants as men who provided long-term or periodical financial/material support to participants in exchange for sexual services (Bui, Markham, Tran, Beasley, & Ross, 2013). Participants were asked about the highest number of sweethearts they had had *concurrently* at any time. Six participants had never had a sweetheart. Seven participants had had one sweetheart, 10 participants had had two to five concurrent sweethearts, and seven participants had had 7 or more sweethearts. Eight participants had a monthly income of <200 US dollars from sex work, 18 earned 200–400 US dollars/month, and four earned >400 US dollars/month. Five participants were HIV positive, 24 participants were HIV negative, and one participant had never been tested for HIV.

Description of IVPs

After initial screening, the number of participants who were purposively recruited by each type of IVPs was as follows: seven reported washing, 12 reported wiping, and 11 participants reported inserting something into the vagina (per the definition above). The interviews, however, revealed that all 11 participants who reported insertion had also engaged in wiping or washing. Except for two participants who engaged in washing only, all remaining 28 participants reported a mixture of washing and wiping, or combining washing and wiping sequentially. For this reason, we report intravaginal washing and wiping together, and we use the term "intravaginal cleansing" (IC) to refer to either or both.

Most participants began IC when or after they entered sex work for 1–2 years. Of those participants, nine clearly stated that they started IC at the time they entered sex work. Participants often performed IC before having sex with clients, after having sex with clients, when having vaginal discharge or menstrual bleeding, and when feeling itchy or unclean. The frequencies of IC averaged one to five times per week and ranged from one to 28 times/week. Because the most common timing of IC was related to sex episodes, the frequencies of IC mirrored the average numbers of clients that participants had per week.

The most common IC method was a combination of washing and wiping, consisting of rolling cotton around a finger, dipping the finger into or wetting it with a cleaning solution, and wiping inside the vagina a couple of times. The most common cleaning solutions were commercial hygienic products (e.g., pH Care, which is advertised as a pH-5 formulated genital cleansing solution for women that maintains the natural pH of the genitalia), clean or boiled water (salt, soap, and/or lemon were often added), toothpaste, and commercial antiseptic liquids (e.g., Betadine). Most participants had tried or used more than one type of solution for IC. Some participants performed wiping and washing sequentially: either wiping with a solution and then washing with clean water or washing with a solution and then dry wiping with clean cotton or a clean towel.

Two other IC practices were reported: sitting in a large tub of water and water hose squirting. Participants reported mixing some salt or lemon with warm water in a large plastic tub, sitting in the tub so that the whole genital area was under water, and using a finger with or without cotton to clean inside the vagina. Some participants did this a second time for rinsing with cool water without salt or lemon. For water squirting, participants squeezed or partially covered the end of a plastic water hose to direct a stream of water into the vagina and used a finger to clean inside. One participant reported using a commercial douching device.

For wiping, besides cotton, participants used commercial pre-wetted tissues, handkerchiefs, or small towels. Three participants reported rolling cotton or tissues around one end of a chopstick or a similarly hard stick, instead of a finger, so that they could reach deeper inside the vagina and avoid scratches caused by fingernails.

Eleven participants reported applying or inserting different objects into their vaginas. The most common object inserted was a Chinese herb, which was produced and sold in a form resembling a large white piece of chalk. It was referred to as “Sachu” and cost 20 US dollars. [Although the participants said that this was a Chinese herb, we examined the product and believed that it was the *Tongkat Madura*, as reported in Hilber, Hull, et al. (2010) study]. The label of this product indicated that it was intended to dry, tighten, and refresh the vagina and thereby increase sexual pleasure. Participants often used this product by soaking it in a glass of water for a few seconds, inserting it into the vagina, rotating it in a stirring motion for about five minutes, removing it, cleaning it with water, and wrapping it in a piece of paper to store it for future use. Two participants reported using pulverized alum to tighten the vagina. Two other participants reported that procurers mixed the participants’ blood with an [unidentifiable] white powder on a piece of cotton for 5–10 minutes and then inserted this mixture into the vagina to fake virginity. One participant said that she once used an unknown lubricant that was brought by a foreign client, and she was told that the lubricant was used to prevent “infectious diseases” (IDI-313, 30 years old, completed grade 12, bar freelancer, HIV-negative).

Behavioral Beliefs and Attitude toward IVPs

Participants were asked, “Why do you douche/wipe?” or were further probed “What are benefits (risks) of douching/wiping?” The perceived benefits of IC were numerous. Most participants named at least three perceived benefits of IC. These benefits included preventing

STIs (42 quotes), being clean and/or avoiding odor (31 quotes), relieving or treating symptoms of illness (e.g., itch, pain, or fever) (25 quotes), promoting general health and well-being (e.g., avoiding cancers, maintaining healthy sexual organs, or having beautiful babies if pregnant) (14 quotes), making the vagina fresh and tight to please partners (four quotes), and preventing unwanted pregnancies (one quote). “This [intravaginal] cleansing has many advantages such as making me clean, preventing STIs or having a baby from sex, etc... Actually, the clean effect is not only for myself but also for clients, so I have to do this hygienic practice to please them” (IDI-310, 31 years old, never attended school, street-based, having 10 clients/week and 3–5 sweethearts, HIV-negative). Although most participants performed IC to prevent STI acquisition, one participant stated, “Douching can help me avoid transmitting diseases to my sweethearts, because sometimes my sweethearts don’t want to use a condom; I’m living with HIV/AIDS, so I wish to protect them from HIV/AIDS” (IDI-303, 35 years old, never attended school, street-based, having 10 clients/week and 2 sweethearts, HIV-positive). Two other participants mentioned IC as an alternative to prevent STIs when clients did not use a condom. When participants were highly concerned about the risk of STI (e.g., after a sexual encounter during which a condom broke or no condom was used), salt and/or lemon were often used in IC. “Sometime I mix warm water with salt in a tub, and I sit in it for 5–10 minutes. Then I clean the vagina again with cool boiled water and with my finger. I apply this method only in the cases of broken condom, or when I feel itchy after having sex with partners and I am concerned about infections” (IDI-310, 31 years old, never attended school, street-based, HIV-negative).

Regarding perceived risks of IC, more than two-thirds of the participants believed that IC had no risks at all. The potential risks that were listed by the remaining participants were scratches, skin peeling causing dryness and pain in the vagina, and harmful effects of counterfeit commercial solutions. Two participants said that when such effects occurred, they stopped IC for a few days and resumed it thereafter. One participant reported performing IC “only sometimes, because doing it more often may kill the useful bacteria in the vagina” (IDI-315, 31 years old, completed grade 4, street-based, HIV-negative).

The perceived benefits of intravaginal insertion were pleasing the clients, increasing the likelihood that a client would come back, and increasing the payment amount for each sex episode. FSWs reported that they could earn 2–7 times more by tightening the vagina and as much as 20 times more by counterfeiting virginity. The perceived risks of intravaginal insertion included pain, dryness, and irritation during sex, and some participants treated these effects by performing IC shortly after sex.

Normative Beliefs and Subjective Norms

Participants were asked, “How did you know about IC (or insertion) and how to do it?” The participants had learned about IC from health care professionals at health centers or nonprofit organizations that provide support services to FSWs (30 quotes), friends or peers (16 quotes), self-experimentation (14 quotes), mothers or sisters (seven quotes), commercial advertisements in the media or in shops (five quotes), and clients (three quotes). The most commonly mentioned health care professionals were doctors at health centers, including clinics for HIV/AIDS testing and care. Several participants reported that these doctors

instructed them how to wipe or clean inside the vagina. “This cleaning provides better health of sexual organs, prevents infectious diseases such as STDs or cancer infections, and eliminates the [negative] consequence of oil remaining from condom use. I was advised to do this by my elder sister and especially by healthcare workers when I went to a clinic for reproductive health checkup” (IDI-309, 26 years old, never attended school, establishment-based, HIV-negative). Three participants (two HIV-negative and one HIV-positive) said that when they had vaginal irritation, they could go to a clinic and request that a doctor perform IC for them. “I did not dare to touch [inside the vagina]; I washed outside of my vagina only. One time I went to a hospital, a doctor told me how to wash inside using [commercial] hygienic solution or salt water... When I do not want to touch it inside but I want to clean my vagina, I will go to the C. health clinic and they will douche it for me... I think that this is better because they use special things [solutions]; for me, I just use salt water and lemon” (IDI-318, 31 years old, completed grade 5, street-based, HIV-negative). One participant associated IC with gender : “We must know how to douche by ourselves; we are women” (IDI-313, 30 years old, completed grade 12, bar freelancer, HIV-negative). Another participant associated IC with her occupation identity: “Because I often feel unclean, unpleasant smell, or itchy when I often sleep with clients, I need to douche and wash myself. Because we are sex workers, we need to douche it” (IDI-327, 25 years old, completed grade 3, bar freelancer, HIV-negative).

Participants were asked, “Do you do this [IC] because somebody wants or expects you to do so? If yes, who are they?” Answering “no” to this question were mostly participants who perceived an STI prevention benefit of IC and often performed IC after sex. For those who performed IC for hygiene purposes, hygiene was perceived to be closely associated with pleasing clients or satisfying clients’ expectations. For example, one participant said that “Normally, before having sex we need to clean up our vagina. If our vagina has an unpleasant smell, clients are unhappy. The very important thing is our vagina, so we need to clean it” (IDI-328, 25 years old, completed grade 5, bar freelancer, HIV-negative). Thus, although these participants did not explicitly state that clients expected them to perform IC, most of them believed that IC would make them clean, fresh, and attractive to clients and as a result, make clients happy and be willing to pay more and to return. One participant stated, “No one told me to do this, but we should be aware by ourselves. If it has a bad smell, clients may not directly tell us [about the smell] but they can speak badly about us [to other potential clients] behind our backs; if we are clean, they will intend to meet us again and our intimacy will become stronger” (IDI-316, 31 years old, completed grade 5, bar freelancer, having about six clients/week and five concurrent sweethearts, HIV-positive).

When asked “For what types of sexual partners do you often do IC?” most participants responded that they performed IC regardless of the type of partners. Two participants said that they performed IC after sex with non-regular clients but not after sex with sweethearts, because non-regular clients were filthier. Three other participants performed IC before sex with sweethearts or the primary partner but not before sex with non-regular clients, because they wanted to treat sweethearts better and because they did not have time to do it for all clients.

Participants reported learning about vaginal insertion from procurers and peers. This practice was often done on request from clients or procurers and was mostly performed before sex with regular clients or sweethearts, who were willing to pay more or who were viewed as deserving a special treat for being a regular client. Some FSWs practiced vaginal drying or insertion to satisfy the clients even when they did not receive extra payments, “Its [vaginal insertion] purpose is to tighten the vagina size to please clients, otherwise we may lose clients with their negative expressions such as ‘like needle in the sea’ or ‘old lady since 1970’s’” (IDI-301, 33 years old, never attended school, establishment-based, HIV-negative).

Control Beliefs and Perceived Control

Participants were asked, “What are barriers or difficulties for you to do [each type of IVP]?”. In general, participants felt that IVPs were easy to perform and under their control. “I always douche after having sex as a habit” (IDI-301, 33 years old, never attended school, establishment-based, HIV-negative). “Normally, I douche before and after having sex with each partner... There is no difficulty in doing it” (IDI-304, 27 years old, completed grade 9, street-based, having 6–7 clients/week, HIV-negative). When asked about barriers to IC or intravaginal insertion, most participants did not identify any. A few participants mentioned the cost of a *Sachu* as a barrier for vaginal insertion of this product. Some street-based FSWs said that they sometimes did not have access to a restroom or water; and thus they could only perform IC while taking a bath at home before going to work.

Intention to Quit

After asking open-ended questions above for each type of IVP, we asked participants that “If it [each IVP] actually does more harm than good, would you stop doing it? Why or why not?” Fourteen participants said that they would not or could not stop, five said that they might stop, and 11 said that they would stop. The reasons given for not stopping were because IC had benefits to them, and because it became a habit. “I will not stop it [IC] because it is good for me...I have known that it is bad, but it helps us be clean and avoid bad smell for clients” (IDI-327, 25 years old, completed grade 3, bar freelancer, HIV-negative). Three participants clearly stated that they would continue IC even if it would be harmful because it had become a habit. “I believe that it [IC] does not cause any harms; it only has benefits as it provides better health and cleanliness, and I still continue it anyway as it has become my habit” (IDI-307, 23 years old, completed grade 2, street-based, HIV-negative).

The willingness to discontinue IC appeared to be related to the purposes of IC. The participants who used IC mainly for maintaining health or preventing STI were willing to stop. The participants who used IC mainly for hygienic purposes did not think that they would stop, because “I have menstrual blood every month anyway” (IDI-303, 35 years old, never attended school, street-based, HIV-negative), or “As long as I provide [sexual] services to clients, I need to practice intravaginal cleansing” (IDI-323, 20 years old, completed grade 4, street-based, having 15 clients/week, HIV-negative). The participants who said that they “might stop” were those who doubted the harmfulness of IC. These participants said that they might discontinue IC temporarily to re-evaluate the risks versus the benefits or to ask their doctors for further advice. One participant said that if IC was harmful, she would not engage in it when she had no clients [i.e., she would resume it when she had clients].

DISCUSSION

Our results showed that the most commonly reported forms of IVPs in Cambodian FSWs was a mix of intravaginal washing and wiping, or combining washing and wiping sequentially. Common methods of IC identified in this study were similar to those found in the general Cambodian population (Heng et al., 2010). However, while most (88%) women in the general Cambodian population used only water in IC (Heng et al., 2010), FSWs often added salt or lemon, which they believed would make IC more effective in preventing STI. No participants reported the use of detergents or household cleansers (e.g., bleach), in contrast to what has been reported for other Asian countries (Hilber, Hull, et al., 2010; Hull et al., 2011). Intravaginal insertion or application was limited to specific chemicals that tighten the vagina; no use of traditional herbs, leaves, bark, fruit, stone, or foodstuffs was reported. Similarly to what has been reported for women at risk for HIV in African countries (i.e., women who were very likely to engage in transactional sex) (Francis et al., 2013), intravaginal insertion seemed less common than IC in our study. Based on these findings, future quantitative research on IVPs in Cambodian FSWs may need to refine the IVP questions to better measure what FSWs actually do or use.

The main theme that emerged in this study was the clear and close connection between IVPs and sex work. Participants began IVPs when or after they started sex work. The timing of IVPs was mostly related to sexual encounters with clients (i.e., shortly before or after sex). The perceived benefits of IVPs were meeting clients' expectations (e.g., being clean), satisfying the clients, and avoiding adverse health consequences of commercial sex (e.g., STIs). The IVP performed by types of sexual partners was related to participants' perception of a client's cleanliness or a client's willingness to pay extra. The willingness to discontinue IVPs was expressed by linking it to the time when having no clients. The strong link between IVPs and sex was similar to the findings in FSWs in Tanzania and Uganda (Francis et al., 2013). Interventions aimed at reducing IVPs in FSWs should therefore not only address individual beliefs related to health or hygiene but also take into account factors related to sex work.

Regarding theoretical constructs which potentially explained IVPs, behavioral beliefs, attitude, and subjective norms appeared salient and important. The perceived benefits of IC far outweighed the perceived risks, making FSWs' attitude toward IC highly favorable. Similar to qualitative findings in other developing countries, the motivations for IVP resulting from these perceived benefits can be roughly grouped into the themes of hygiene, health and well-being, and sexuality (Hilber, Hull, et al., 2010). However, the difference in this population was that these benefits were predominantly related to sex work business considerations or clients' pleasure. For vaginal insertion, the perceived benefits and perceived risks seemed to be more balanced. This might explain why vaginal insertion was less common.

In general, FSWs' subjective norms for both IC and vaginal insertion, a.k.a. their motivations to comply, were strongly influenced by perceived clients' expectations. As argued by Lees et al. (2014), IVPs performed in preparation for transactional sex are driven by an economic motive, because these practices are an important means of securing income

for FSWs. As a consequence, the prevalence of IVPs in FSWs may not be easy to reduce, particularly if educational messages focus exclusively on health risks and do not address the economic motive.

In addition to being influenced by clients' expectations, FSWs' subjective norms regarding IC were notably influenced by local health care professionals and friends or peers. Several FSWs reported visiting STI/HIV clinics or local health centers where they were told about or taught how to perform IC. Future interventions aimed at reducing IVPs in Cambodia may therefore need to first target health care professionals in order to change the norms to have a broad impact. In contrast to what has been found in sub-Saharan Africa, where close relatives or community elders were major reinforcers of IC (Hilber et al., 2012), the subjective norm of the participants in this study did not seem to be influenced by such groups. Likewise, the influence of social and cultural norms on IC did not appear strong in our study. For example, studies in other countries found that cultural beliefs such as the ritual polluted or impure female body dictated IC to purify the body and to prevent diseases (Hilber et al., 2012; Hull et al., 2011). These beliefs were not reported by women in our study.

Because of perceived benefits and highly favorable attitudes toward IC, intention to quit IC seemed low. Half of the participants said that they would not or could not stop IC even if it could be shown that IC has more health risks than benefits. Again, interventions to reduce IVPs in FSWs should take into account economic motives. Also, aiming at harm reduction rather than elimination may be more productive and practical. For example, FSWs may be encouraged to perform IC but not intravaginal insertion or to perform IC with less harmful solutions (e.g., plain water). Given that some participants stated that they would consult their doctors about whether to continue performing IC, health care professionals may represent an effective channel for intervention delivery.

Future qualitative and quantitative research regarding IVPs among *HIV-positive* FSWs or women is also needed. Most previous studies examined IVP as a cause of HIV infection (Hilber, Francis, et al., 2010) and other important research questions have been underexplored. For example, HIV-positive women may have different motivators for IVPs such as to relieve symptoms caused by other common vaginal opportunistic co-infections. Further, these IVPs may disrupt the vaginal epithelium or natural environment and thus facilitate other co-infections.

This study had some limitations. The convenience and purposive sampling methods limited the representativeness and generalizability of the reported quasi-statistics (e.g., frequency counts) in our results. We provided the frequencies of some findings so that readers can have a sense of what factors were salient. This would be useful for some circumstances, such as designing answer options in future surveys on IVPs. However, these frequency counts did not imply the significance or magnitude of the determinants of IVPs. Given the qualitative nature of this study, no causal links should be inferred.

CONCLUSIONS

The psychological and behavioral factors that appear to be associated with IVPs in Cambodian FSWs were somewhat different from those in other Cambodian women and in women in other countries. Cambodian FSWs mainly connected their IVPs to the business of sex work. Behavioral beliefs, attitudes, and subjective norms appear salient and play important roles in IVPs. Interventions to reduce IVPs should target these constructs as well as the interweaving economic motives. Local physicians may be an agent to change IVPs and an effective channel for intervention delivery.

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