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“The state of mind tells me it’s dirty”: Menstrual shame amongst women using a vaginal ring in Sub Saharan Africa

Zoe Duby¹, Ariana Katz², Petina Musara³, Josephine Nabukeera⁴, Chifundo Colleta Zimba⁵, Kubashni Woeber⁶, Thesla Palanee-Phillips⁷, Ariane van der Straten², MTN-020/ASPIRE Study Team

¹Division of Social and Behavioural Sciences, School of Public Health and Family Medicine, University of Cape Town, South Africa ²Women’s Global Health Imperative, RTI International, San Francisco, California ³UZCHS-CTU, Harare, Zimbabwe ⁴MUJHU, Kampala, Uganda ⁵UNC Lilongwe, Malawi ⁶South African Medical Research Council, Kwa-Zulu Natal, South Africa ⁷Wits Reproductive Health and HIV Institute, Johannesburg, South Africa

Abstract

Socio-cultural beliefs and practices surrounding menses influence women’s sexual and reproductive health behaviors and decision-making. We analyzed menstrual experiences within the context of the MTN-020/ASPIRE clinical trial during which women were asked to use a monthly vaginal ring for HIV prevention. The qualitative component of the trial was conducted during February 2013-June 2015, included interviews and focus group discussions with 214 women aged 18–42, in Malawi, Zimbabwe, Uganda, and South Africa. Emotions of shame, embarrassment and disgust relating to menses emerged. Menstruation was referred to using euphemistic terms or language about dirtiness. Women were uncomfortable touching their own menstrual blood when removing vaginal rings and felt embarrassed about study staff seeing blood on returned rings. Despite reassurances, women felt ashamed performing study procedures while menstruating, leading to missed study visits. Women’s aversion to menstrual blood was linked to narratives about avoiding sex during menses and beliefs about its potential harms. Women associated men’s disgust pertaining to menstrual blood with men’s willingness to use condoms for sex only during menses, highlighting another way through which socio-cultural beliefs and practices around menstruation affect HIV protective behaviours. These findings provide novel insight into menstrual shame among women in these four countries.

Keywords

Menstruation; menstrual blood; microbicide; shame; Africa; HIV prevention trial

Introduction

Menses is a normal physiologic process in healthy premenopausal adolescents and adults who were assigned female at birth. Nevertheless, in addition to the accompanying physical discomfort and sanitation issues, menses is surrounded by socio-cultural beliefs and practices which affect women, physically, emotionally and socially, and influence their

sexual and reproductive health behaviors and decision-making (Chang, Hayter, and Wu 2010; Johnston-Robledo et al. 2007). Socio-cultural norms and communication rules of 'menstrual etiquette', embedded in a 'culture of concealment', shape notions that women's reproductive events, particularly menstruation, should be sanitary and kept private, concealed verbally and physically, even in female-only environments (Costos, Ackerman, and Paradis 2002; Uskul 2004; Ramathuba 2015; Johnston-Robledo and Chrisler 2011; Scorgie et al. 2015; Curtis and Biran 2001; Roberts 2004; Rodgers 2001; Dolan et al. 2013). Combined with the topic of menstruation being shrouded in silence, cultural constructs of menstruation as shameful, dangerous and polluting are widespread, contributing to 'menstrual stigma' (Johnston-Robledo and Chrisler 2011; Costos, Ackerman, and Paradis 2002; Padmanabhanunni, Jaffer, and Steenkamp 2017). Feminist discourse is increasing that poses challenges to menstrual taboos by sparking open conversations about menses with the aim of shifting social perceptions of menstruation away from being embarrassing and shameful (Lamborn 2017).

Literature from sub-Saharan Africa suggests that many young women lack knowledge relating to the physiological aspects of menstruation, due to communication restrictions surrounding the topic (Ramathuba 2015; Padmanabhanunni, Jaffer, and Steenkamp 2017). Perceptions of menstruation as something shameful and dirty are widespread throughout the African continent; menstruation and menstrual blood often spark feelings of shame, embarrassment, guilt, fear, and powerlessness amongst women of all ages (Danielsson 2017; Jaffer 2015; Tamiru et al. 2015; Crichton et al. 2013; Hennegan et al. 2016; McMahon et al. 2011; Padmanabhanunni, Jaffer, and Steenkamp 2017). Despite the existence of coming of age rituals and celebrations marking the transition into adulthood in many communities in sub-Saharan Africa and elsewhere, experiences of menstruation are generally negative; instead of menarche's positive aspects being celebrated as an affirmation of womanhood and reproductive capacity, it is silenced and hidden (Uskul 2004; Masuku 2015; Chang, Hayter, and Wu 2010; Bramwell 2001; Roberts 2004; Danielsson 2017; Padmanabhanunni, Jaffer, and Steenkamp 2017). Much of the literature from Africa on menstruation focuses on the shame and stigma related to lacking access to, and options for menstrual blood management among women living in resource-poor settings, especially for school girls (Lahme, Stern, and Cooper 2016).

It is important to distinguish between stigma and shame: stigma is usually defined as an attribute which sets an individual apart from others, associating that person with negative and undesirable characteristics (Fortenberry et al. 2002). Another implicit characteristic of stigma is the aspect of 'socially shared knowledge', understood by the targets and the perpetrators of the stigmatizing attitudes and behaviors (Fortenberry et al. 2002). It has been argued that the emotions of shame and embarrassment are similar but distinguishable; embarrassment emanates from 'unwanted exposure', the revelation of something hidden that one prefers to remain hidden that disrupts a social script (Robbins and Parlavacchio 2006). Shame arises when a person feels that she has failed according to some personal or social standard, feels responsible for this failure, and believes that the failure reflects their own inadequacy (Fortenberry et al. 2002). The emotions of shame and embarrassment tend to co-occur as they both involve the unwanted exposure of the self to others (Robbins and Parlavacchio 2006). Shame can be understood as an internalized reaction to stigma; thus

‘self-stigmatization’ and shame can be seen as a reflection of an individual’s acceptance of the negative aspects of a stigmatized state or characteristic (Fortenberry et al. 2002).

Social theory suggests that bodily fluids are the most common elicitors of the disgust and embarrassment emotions (Curtis and Biran 2001). Some body fluids are viewed as more ‘disgusting’ than others; menstrual blood is positioned with waste products, rather than with secretions, such as saliva and mucus, or with blood from other parts of the body (Bramwell 2001; Curtis and Biran 2001). Menstrual rituals and hygiene practices described in the anthropologic literature from across the world imply that menstrual blood is viewed as a dirty and polluting substance and is more disgusting than other bodily fluids, such as semen (Crichton et al. 2013; Stevens 2006; Johnston-Robledo and Chrisler 2011).

Associated with the concept of menstrual blood as a dirty, polluting, malodorous substance, is the induction of feelings of shame, embarrassment and social discomfort surrounding menstruation (Costos, Ackerman, and Paradis 2002; Lahme, Stern, and Cooper 2016; McMahon et al. 2011; Jaffer 2015). The term ‘reproductive shame’ has been used to refer to the sense of shame, embarrassment, and self-consciousness concerning women’s reproductive events, including menstruation (Hawkey et al. 2017; Consedine, Yu, and Windsor 2013; Johnston-Robledo et al. 2007). These emotions occur at the individual level, but have complex social dimensions, arising when a person perceives herself negatively in the eyes of others (Scheff 2003). Social theory on shame and embarrassment posits that these emotions are elicited by the violation of social rules based on an individual’s failure to manage their own privacy, the humiliation of ‘unseemly exposure’ (Crozier 2014; Velleman 2001; Stevens 2006).

Menstrual stigma refers to the way in which some menstruating women adopt and internalize the stigmatization of menstrual blood as a substance, and menstruation as a stigmatized state (Danielsson 2017; Grose and Grabe 2014; Johnston-Robledo and Chrisler 2011; Masuku 2015). The extent to which visibility of menstrual blood causes reactions of shame is likely to be dependent on context; however, even within the context of health care provision, with female health care providers, some women experience shame about their menstrual blood, with the exposure of their menstrual blood considered deeply embarrassing (Sanabria 2011). The socio-cultural positioning of the vagina, menstruation, and women’s reproductive events in general, as private, unspeakable, and not openly talked about affects some women’s willingness to seek gynaecologic health care (Braun and Wilkinson 2001). Women can be unwilling to have gynaecologic procedures, such as cervical smears, performed due to their embarrassment at ‘exposing themselves’ to medical professionals, which has negative implications for their sexual and reproductive health (Abotchie and Shokar 2009).

Women’s perceptions and experiences of menses may affect their decisions relating to contraceptives (Tolley et al. 2005). However, little literature has addressed the relation of socio-cultural perspectives about the vagina and whether menstrual blood may affect use of novel HIV prevention methods or on their manifestation in clinical trials involving gynaecologic procedures and/or vaginal products. This paper presents qualitative data relating to menses from the ASPIRE clinical trial, in which the monthly dapivirine vaginal

ring was tested for HIV prevention among women in Malawi, South Africa, Uganda and Zimbabwe. The purpose of this research is to build a better understanding of the socio-cultural context and lived experience of menses in sub-Saharan Africa in the context of a clinical trial in which women were asked to use a vaginal ring for HIV prevention.

Methods

Background to the ASPIRE study:

Primary findings of the ASPIRE study, a phase III trial of a monthly silicone vaginal ring releasing dapivirine for HIV prevention in women, have been previously published (Baeten et al. 2016). Eligibility criteria for participation in ASPIRE required that women be: aged 18–45 years, able and willing to provide written informed consent, HIV-uninfected based on testing performed at screening and enrollment, sexually active (≥ 1 act of vaginal intercourse in the 3 months prior to screening (by self-report)), using an effective method of contraception at enrollment and intending to use an effective method for the duration of study participation, willing not to participate in other research studies involving drugs, medical devices, vaginal products, or vaccines for the duration of study participation. Between August 2012 and June 2014, 5516 women were screened and 2629 HIV-1 seronegative women 18–45 years of age were enrolled at 15 research sites in Malawi, South Africa, Uganda, and Zimbabwe (Palanee-Phillips et al. 2015).

At baseline, women were randomized to either the active ring, containing 25mg of the antiretroviral dapivirine, or a placebo ring and followed for 12 months from August 2012 to June 2015. Vaginal rings were intended to be worn for 28–35 consecutive days before being replaced at each monthly study visit. During monthly visits, previously inserted rings were to be removed by participants, and collected by study staff in transparent plastic bags or specimen jars, and new monthly rings were inserted. Routine counselling was provided to participants, and included advice that study staff did not want to receive cleaned vaginal rings from participants, but rather rings as they were when removed from the vagina.

Data Collection

The qualitative study design included the use of multiple modes of data collection to explore in-depth behavioral and contextual data on experiences using the ring, its acceptability, and adherence. The qualitative component of ASPIRE was conducted from February 2013 to June 2015 with 214 ASPIRE trial participants recruited into one of three interview modalities: single in-depth interviews (IDIs) were conducted with 34 participants who had permanently discontinued use of the ring, most of whom were seroconverters; 80 randomly-selected women and “special cases” chosen by site staff for their unique adherence experiences were recruited for serial IDIs (SIDIs); and 100 randomly selected participants were recruited into focus group discussions (FGDs). In-depth interviews (IDI) elicited participants’ personal experiences of using the vaginal ring and study participation. The serial IDIs modality explored topics in greater depth for personal experiences, and the longitudinal methodology aimed to foster greater rapport and trust between participant and interviewer to generate richer data, and assess change in experience with the ring and the trial over time. Focus group discussions (FGD) explored group-level norms concerning

vaginal ring use, and the broader community context and social dynamics relevant to the study. The partial random selection allowed for exploration of a representative group of participants at each site. The special case cross-sectional IDIs and serial IDIs allowed the team to enrich the qualitative sample in topics of interest for the investigative team, such as use of the ring in the context of explicit adherence challenge, or for participants who seroconverted.

IDIs lasted approximately 1 hour and FGDs around 2 hours; all were conducted at study sites in a private room, and followed semi-structured guides administered by trained social scientists in English or local languages (isiZulu, isiXhosa, Shona, Chichewa and Luganda). The guides included questions on experiences with the trial and the vaginal ring, including perceptions of hygiene and use of the ring during menses.

Study Participants

To be eligible for enrolment into the qualitative component, women needed to be able and willing to provide informed consent, as well as meet the criteria within their assigned group. For serial IDIs, participants needed to be enrolled in ASPIRE, HIV-negative, and have ever used study product in the past three months at the time of her first interview. For the single IDIs, participants needed to be enrolled in ASPIRE, seroconvert and/or *permanently* discontinue product use prematurely and/or *withdraw* from trial participation (not including temporary product holds). For the FGD, participants needed to be HIV-negative, enrolled in ASPIRE, have completed their product-use-end-visit, and have ever used study products in the three months prior to the FGD. The qualitative sample, described in detail elsewhere (Montgomery et al. 2017), came from six study sites: N=38 from Lilongwe, Malawi; N=39 from Harare, Zimbabwe; N=39 from Kampala, Uganda; N=35 from Cape Town, N= 25 from Durban and N=38 from Johannesburg, South Africa.

Data Analyses

Audio recordings were translated verbatim into English transcripts; these were subsequently reviewed by social scientists fluent in both local and English languages for accuracy and by the qualitative data management center for quality control. Transcripts were uploaded into NVivo11 qualitative software and coded using a codebook developed iteratively through a deductive and inductive process. A total of eight coders were employed over the course of the coding period, and each transcript was coded by at least one coder. To establish inter-coder reliability, 26 transcripts were coded by two or more coders; inter-coder agreement of >90% for key codes was verified and maintained in 10% of transcripts. The coding team met weekly for ~14 months to discuss emerging themes and issues, and consensus on the final interpretation of findings was achieved through in-person and telephonic discussions with all analysts and co-authors (Montgomery et al. 2017). This paper explores data relating to the MENSES code from all six qualitative ASPIRE study sites. All names are pseudonyms, and quotations are followed by brackets providing details of the participant's age, the interview modality, and site.

The ASPIRE study protocol, including its qualitative component, was approved by the Institutional Review Boards at each of the corresponding study sites and was overseen by the

regulatory infrastructure of the US National Institute of Health and the Microbicide Trials Network (MTN). All participants provided written informed consent to take part in the research.

RESULTS

The ASPIRE qualitative sample comprised 214 women from four countries, aged between 18 and 42 years, and representing at least twelve sub-Saharan African ethno-linguistic groups.

One of the most salient themes to emerge from the analysis of the menses code related to the concept of ‘dirt’. Various body fluids, such as semen and vaginal secretions, including discharge and menstrual blood were referred to with English words such as ‘dirt’, or words in other languages that translate as dirt/dirty, filth/filthy, waste, soiled, or unsightly:

obukyafu (Luganda), **kuda / nyansi** (Chichewa), **tsvina** (Shona), and **udoti** (Zulu). The conceptualization of menstrual blood as a dirty substance was articulated by Busi: “*the state of the mind tells me that it’s dirty... (menstrual blood) is dirty*” (aged 31 years, first SIDI, Johannesburg, South Africa).

Many women from Uganda and South Africa expressed reactions of distaste relating to anything to do with the vagina (*underneath there / down there / private parts*), and its secretions using euphemistic language. Menstrual blood, vaginal secretions, and anything associated with the vagina or the ano-genital region, referred to as ‘a dirty place’, was categorized as ‘dirt’. In Luganda, any fluid coming from the reproductive organs is described as dirty (**kikyafu**) and disgusting (**kyenyinyaza**). Afiya said: “*the dirt (obukyafu) is caused by the fact that the place where it sits (vagina) is always dirty (wakyafu)... it can never be clean*” (aged 27, first SIDI, Kampala, Uganda). In addition to vaginas being described as ‘dirty’ places, several women also associated vaginas with smelling unpleasant; Thola stated that “*a smell that comes from a vagina has never been nice*” (aged 22 years, IDI, Durban, South Africa). The concept that menstruation was a state of being unclean and bad smelling, and that women feel ‘dirty’ during menses was articulated by Namazzi in her comment that women “*have a bad smell during that period*” (FGD, Kampala, Uganda).

Negative views of menstrual blood were particularly evident among women from Zimbabwe and South Africa. One theme that emerged in women’s narratives about menstruation related to their aversion to having to touch their own menstrual blood. Aphiwe, an isiXhosa speaking woman admitted that “*it (menstrual blood) does disgust me (iyonyanyayo)... I don’t want to lie*” (aged 31 years, first SIDI, Cape Town, South Africa). Several Zimbabwean Shona-speaking women expressed their aversion to having to see and handle their menstrual blood while removing and reinserting vaginal study rings during menses, using Shona terms such as **ndinosema** (*it disgusts me*), **zvinongosemesa / kusemesa / inosemesa** (*disgusting*). Bongile, speaking English, said that “*taking it (ring) out when I am on my menses... it’s too dirty... taking it out with blood and putting it in (a bag)... it’s nasty*” (aged 21 years, IDI, Johannesburg, South Africa).

In contrast to the dominant narratives around menstrual blood being disgusting, two South African participants countered these views. Dumi's comfort with her own menstrual blood meant that she did not mind using the vaginal ring during menses: "*I didn't have a problem with it. It was my own blood*" (aged 21 years, second SIDI, Durban, South Africa). Likewise, Funeka felt that women should not be disgusted by their own bodies: "*Come on! ... It's your own body right?!... when you are in your menstruation, are you disgusted with yourself? It's your body!*" (FGD, Cape Town, South Africa). Apart from these two South African women, all other South African and Zimbabwean women's narratives centered on menses as a cause of shame and embarrassment.

Narratives about disgust toward menstrual blood were linked to women's reluctance to have sex during menses, as Thandi explained: "*you can have sex with condoms when you are in periods, but the blood disgusts me*" (aged 33 years, second SIDI, Johannesburg, South Africa). Aneni described men's disgust toward menstrual blood: "*men wouldn't have sex with a woman during her period... they feel disgusted by the blood*" (FGD, Harare, Zimbabwe). Some women said that despite this aversion, male partners – too impatient to wait for menses to end before having sex – would use condoms instead, as Tamanda explained: "*I use condoms during menses, when my partner is not patient... to protect against the bad blood (menstrual blood)*" (aged 28 years, second SIDI, Lilongwe, Malawi). Miriro's partner, insisting on sex during menses, would agree to wearing a condom: "*he says he wants sex – you refuse because you are on your menses – then he would say 'don't you have your condoms, give me some so that I can use'. That is the only time he would accept to use condoms, otherwise he refuses*" (FGD, Harare, Zimbabwe). Likewise, demonstrating the concept of menstrual blood as a polluting substance which with men avoid contact, Tonderayi explained that the risk of getting dirtied with her blood was enough to incentivize her partner to wear condoms: "*I say to him 'blood will be coming out... maybe you will be messed up with the blood' and then he will wear a condom... apart from that he does not*" (aged 30 years, second SIDI, Harare, Zimbabwe). Several other women from Uganda and Zimbabwe shared similar narratives relating to their male partner's willingness to use condoms during menses, but not at any other time.

Women in all four countries related local beliefs around menstrual blood being a polluting and potentially harmful substance. In Malawi, Tamanda explained men's belief that contact with menstrual blood could be fatal: "*from what men say, menstrual blood can kill/hurt them... because menstrual blood is dirty/bad (nanga si amakhala magazi)*" (aged 28 years, first SIDI). In Zimbabwe, similar beliefs were described by Tonderayi: "*it can make the man ill... because when you have sex while there is still some blood, he (his penis) will absorb that blood... become swollen... as well as those ones... testicles... they become swollen from sucking blood*" (aged 30 years, third SIDI). Also in Zimbabwe, Fadziso described her partner's fear: "*he is scared because it is said that if a man has sex with you during your menses he will have stomach pains that do not resolve... chronic stomach aches*" (FGD).

In addition to the belief that sex during menses could be harmful to men, some participants suggested that it could also harm women themselves. Nozipho believed that having sex during menses would push the menstrual blood back inside her, as she explained to her partner: "*I would say 'no, it's not okay (to have sex during menses) you will push my blood*

back'... as he penetrates me... he pushes the blood back... it comes out as clots, not flowing... hurting my womb" (aged 42 years, second SIDI, Johannesburg, South Africa). Apio suggested that sex while menstruating can lead to infections: "*(sex during menses) is not good... because the blood has an effect if it goes to the fallopian tubes, you may get an infection*" (aged 25 years, third SIDI, Kampala, Uganda).

Several women expressed discomfort at having clinical procedures performed on them at study visits when menstruating, especially gynaecologic procedures, such as Pap smears. This was partly due to feeling physically uncomfortable, or as Thembi articulated, "*not in the mood to be touched*" (aged 20 years, first SIDI, Cape Town, South Africa) and because of the presence of blood. Women explained that they would postpone study visits until after menses. Several women, most notably from Zimbabwe, described their preference for having study visits on days when they were not menstruating, due to feeling embarrassed and uncomfortable.

Shame and embarrassment (**kunzwa kunyara**) emerged prominently amongst Shona speaking women's narratives, with the use of terms including "*shameful*" (**zvinonyadzisa**), "*we are ashamed*" (**tainyara**), and "*unbecoming*" (**zvanga zvisingaite**) to describe feelings toward removing vaginal rings in front of study staff, particularly during menses. Illustrating the internalization of shame, Anesu explained her discomfort at having "*to remove the ring during the menstrual period (nguva yekutevera)... in the presence of aunt (study staff)... you feel uncomfortable... in front of someone... you feel troubled*" (aged 39 years, IDI, Harare, Zimbabwe). Anxiety and embarrassment were linked to the visibility of menstrual blood. Women from Zimbabwe and South Africa spoke of the shame they felt handing a bloody ring to the study nurses; as Jaya explained: "*during your period, when you take it (ring) out, it will come out dirty. You will be ashamed (kunyara) to hand it over*" (aged 28 years, third SIDI, Harare, Zimbabwe).

Narratives of shame connected to the visibility of menstrual blood were particularly evident amongst Zimbabwean women, as Farai explained: "*I felt ashamed (tainyara) having to remove the ring... blood will drop on the floor... ashamed of having that blood seen*" (aged 23 years, third SIDI, Harare, Zimbabwe). Farai projected her embarrassment onto the study staff at having to see her menstrual blood as she removed her ring: "*I would feel embarrassed (kunzwa kunyara), it (blood) will go like whuuu (gushing out) dropping... I would be embarrassed myself, plus I will be feeling embarrassed for the people (study staff) who will see me like that*" (aged 23 years, first SIDI, Harare, Zimbabwe).

The sense of internalized and projected shame was evident in narratives such as Jaya's: "*you think (to yourself) 'Ah maybe I am disgusting (kusemesa) the aunties (nurses) by having to take out this bloody ring'*" (aged 28 years, third SIDI, Harare, Zimbabwe). The idea of nurses having to handle used vaginal rings troubled some women like Sandiswa: "*just imagine another person's blood, putting it (ring) in the plastic bag with blood... it is disgusting for that person, can you imagine?*" (FGD, Johannesburg, South Africa). Gugu showed self-consciousness in projecting her own shame at visible menstrual blood onto the study staff: "*when I remove it (ring) in front of the nurse... there will be still blood, so I wouldn't feel comfortable... or am I imagining that everyone would be disgusted like me?*"

...I would have thought that they would be disgusted... because even that plastic (bag) is transparent, the one we use to put the ring, you can see through” (aged 31 years, IDI, Johannesburg, South Africa). The internalisation of menstrual stigma, and the stigmatisation of menstrual blood as a substance, were illustrated by Langa’s comment: *“during menses I had stress coming to clinic because I had to remove the ring that is covered with blood. Here is the nurse, even if she is female, I felt that it was disgusting”* (FGD, Johannesburg, South Africa).

Women were instructed to return their rings unwashed, as Una described: *“when I removed it (ring), it was too dirty. I felt like washing it, but they told me that it’s exactly what they want (bringing the ring unwashed)”* (FGD, Johannesburg, South Africa). A few women from the Johannesburg, Harare and Kampala sites described efforts staff made to reassure them that they should not feel embarrassed about study staff seeing their menstrual blood on the rings, as Lerato explained: *“she (nurse) said, ‘don’t worry, we want it just like that (bloody) so that we can test it. It doesn’t matter how it looks, don’t worry about that’”* (FGD, Johannesburg, South Africa). Farai described the reassurance that women received from study staff in the routine counselling: *“it was explained to me by this nurse that menses are their job, they do not spurn it... we saw that they do not despise it... I felt ashamed (ndainyara) for myself... but she said ‘do not be ashamed (usanyare) we just like it (ring) as it is’”* (aged 23 years, second SIDI, Harare, Zimbabwe). Nyasha spoke of the reassurance provided, through counselling and participant engagement meetings, and the study staff’s professional manner, that they did not mind seeing or dealing with participants’ menstrual blood: *“it bothered me to have to take out the ring when aunt (nurse) was there looking at me... it really bothered me... but then it was explained to us that it doesn’t matter to take out the ring during a period while aunt is there... (this) enabled me to take out the ring when I am having a period and to use it when I have a period”* (aged 23 years, third SIDI, Harare, Zimbabwe).

DISCUSSION

These findings provide novel insight into socio-cultural aspects and experiences of menses within the context of a clinical trial and among women using a vaginal product for HIV prevention. A key theme that emerged in the ASPIRE qualitative data, particularly from Zimbabwe, and South Africa to a lesser extent, related to the shame and disgust that women feel relating to menses. Women narrated an internalised stigma about menstruation that expressed itself in awkward interactions with study staff and embarrassment about visible blood on returned rings. Internalized stigma manifested in women’s reluctance to participate in or comply with some study procedures during menses, to the extent of missing study visits.

Examining language and terminology provides insight into socio-cultural conceptions. Norms around restricted communication relating to menses emerged in the data. Women in all the ASPIRE language groups used euphemisms to refer to the vagina and vaginal secretions, and words relating to ‘dirt’ in reference to their menstrual blood, demonstrating the socially proscribed nature of menses as a shameful and embarrassing topic in these communities. This data corroborates ethnographies conducted in sub-Saharan Africa which

have described cultural taboos relating to communication about menstruation, and many languages referring to menstrual blood to with words implying ‘dirt’ (Crichton et al. 2013; McMahon et al. 2011; Jaffer 2015; Masuku 2015; Tamiru et al. 2015; Scorgie et al. 2015; Danielsson 2017; Lees et al. 2014).

The majority of women in the ASPIRE qualitative sample described menstrual blood as a dirty substance and expressed distaste at having to touch their own menstrual blood when removing the vaginal ring. Only two women from South Africa shared views that women should not be disgusted by a natural process and their own blood. Among ASPIRE participants at all study sites, disgust toward menstrual blood was partly due to the fact that it exits the body from the vagina, a part of the body considered inherently shameful, unclean, smelly and disgusting. Women expressed emotions of shame and disgust about their vaginas and any secretions coming from the vagina. These conceptions are evident in the language used to communicate about the vagina and its secretions. Other research from South Africa supports the notion that menstrual blood is regarded as unlike blood from other parts of body, its disgusting nature comes from the fact that it comes out of the vagina (Masuku 2015), and also because it is believed to consist of many different kinds of ‘dirt’ accumulated throughout the body, which collects in the womb and exits the body via menstruation (Leclerc Madlala 2002). Similar notions of the vagina being a dirty, shameful area of the body are apparent in many socio-cultural settings (Braun and Wilkinson 2001; Zielinski 2009; Leclerc Madlala 2002; Hawkey et al. 2017; Gafos et al. 2013; Schooler et al. 2005). Evidence from South Africa and further afield supports the notion that many women react with discomfort, reluctance and disgust at the idea of having to touch their own vaginas, let alone their own menstrual blood (Braun and Wilkinson 2001; Epstein et al. 2008; Scorgie et al. 2015; Masuku 2015).

Aversion to menstrual blood was linked to narratives around avoiding sex during menses, and beliefs about menstrual blood being harmful. The perception of menstrual blood being a dangerous fluid, that can cause various ills for both men and women, is linked to the stigmatisation and shame related to menstruation. Women in ASPIRE had varying views on sex during menses, with some viewing it as inappropriate and harmful, and others describing that sex is not avoided altogether during menses, but that condom use is more likely. Women associated feelings of disgust relating to contact with menstrual blood with male partners’ willingness to use condoms for sex during menses but at no other time. Similar to the findings from ASPIRE, literature from some of the same countries, including Uganda, Zimbabwe and South Africa, also describes men’s disgust of menstrual blood, believing that contact with it could cause health issues, including erectile dysfunction and swollen testicles, to the extent that they were unwilling to have sexual intercourse with menstruating women (Averbach et al. 2009; Lees et al. 2014; Laher et al. 2010). The avoidance of penile-vaginal sex during menses has been documented across sub-Saharan Africa and elsewhere (Costos, Ackerman, and Paradis 2002; Johnston-Robledo and Chrisler 2011; Vallely et al. 2012; Allen and Goldberg 2009; Averbach et al. 2009). Despite sex during menses being viewed as potentially dangerous, some ASPIRE participants said that they did have sex while menstruating, usually with a condom to prevent their partner from coming into contact with their menstrual blood. Evidence from other research in South Africa supports this,

suggesting that although sex during menstruation was described as dirty, shameful and disgusting, it is practiced (Gafos et al. 2013).

The emotions of shame and embarrassment emerged in the majority of Zimbabwean and South African women's narratives of their experiences removing the ring during menses in the ASPIRE study. Notably these sentiments were not overtly expressed by women in Uganda and Malawi, although women in these countries also described menstrual blood as a dirty, socially stigmatized substance. Menstrual shame entails the anxiety, embarrassment and shame that arises when menstrual blood becomes publicly visible, indicating a failure in menstrual etiquette (Curtis and Biran 2001). With this perspective, it would make sense that emotions of shame and embarrassment arise when menstrual blood, a private substance, becomes public in the clinical or study setting.

The main qualitative findings from the ASPIRE trial stated that participants were embarrassed to return a blood stained ring to the clinic (Montgomery et al. 2017). Women in the ASPIRE qualitative sample expressed a deep sense of discomfort, embarrassment and shame at having to hand over their used vaginal rings with visible traces of menstrual blood, to be placed in transparent plastic bags or specimen jars either by themselves or by staff, a study-required procedure, but one that is not relevant for real-world use of the ring. ASPIRE participants also expressed their reluctance at having pelvic and gynaecologic study procedures completed while menstruating; this may be due in part to physical discomfort and cramping during menses, in addition to shame and embarrassment of exposing their menstrual blood to staff.

Women in ASPIRE internalized 'menstrual stigma', relating to menstrual blood and projected their discomfort onto study staff, fearing they would be disgusted seeing menstrual blood on participants' returned rings. The disquiet that women in ASPIRE, particularly those from Zimbabwe and South Africa, expressed at the thought that their menstrual blood may be exposed to staff, for example by dropping on the floor during ring removal, an event that would evoke embarrassment and shame, mirrors earlier research from South Africa (Scorgie et al. 2015). Due to the social stigma of menstruation, women experience heightened self-consciousness during menses, related to the idea that menstrual blood is distasteful to others as well as to oneself (Johnston-Robledo and Chrisler 2011).

Implications:

These findings provide a novel insight into the relation of socio-cultural perspectives of the vagina and menstrual blood to the use of novel HIV prevention methods, and its effect on women's participation in clinical trials involving gynaecologic procedures and/or vaginal products. The socio-cultural context of menses and norms relating to reproductive and menstrual shame need to be considered when designing products designed for vaginal use. ASPIRE participants from Zimbabwe, Johannesburg and Uganda described being reassured that study staff were not disgusted by their blood, and that it was a normal part of their professional role to deal with bodily fluids. These findings suggest that studies should include counselling for participants that addresses aspects of study procedures relating to shame, embarrassment and discomfort of menstrual blood. Continual efforts should be made

to emphasize to women that study staff are not disgusted by their blood, and that they should feel comfortable participating in all study procedures.

A few limitations to this research should be noted. Menstrual shame was not initially the focus of this research, but emerged iteratively as prominent themes in women's narratives about menses. Thus, questions were not designed to probe this topic specifically, which may have hindered the depth of the responses and resulted in certain sites being less well represented than others. Social desirability bias may have affected women's responses; however the use of serial IDIs may have helped to encourage women to speak candidly, despite menses being a private and socially proscribed topic. The three types of interviewing methods used in this study complement one another and provide a fuller picture of the socio-contextual experiences of these participants, and strengthen the robustness of the findings.

The knowledge gained from this and similar studies will enable contextually appropriate design and implementation of clinical trials and health interventions, as well as inform the development of biomedical products designed for vaginal use in these settings. With an understanding of the socio-cultural dynamics of menses, healthcare providers and clinical trial teams can allay fears or myths, assisting women to develop healthier and more positive attitudes towards their menses and reproductive processes. In addition, within the context of clinical practice and research, women can be more effectively prepared for any medical procedures that have the potential of heightening feelings of shame, embarrassment, or self-consciousness (Johnston-Robledo et al. 2007). Future studies should also opt for the use of opaque bags rather than transparent plastic bags for vaginal ring returns, to avoid women's embarrassment.

Conclusions:

The event of menses encompasses the physical experience combined with psychological and socio-cultural manifestations, many of which negatively affect women's experiences of their bodies. This research describes socio-cultural aspects and experiences of menses within the context of the ASPIRE clinical trial and women using a vaginal ring for HIV prevention in Malawi, South Africa, Uganda and Zimbabwe. The findings demonstrate the complexity of socio-cultural conceptualizations of menses in the study communities, and the way in which menstrual shame can influence women's sexual and reproductive health behaviours and decision-making, and in turn their comfort using a vaginally administered biomedical HIV prevention technology like the antiretroviral dapivirine vaginal ring, especially during menses.

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Manager). Study sites and site Investigators of Record: Malawi, Blantyre site (Johns Hopkins University, Queen Elizabeth Hospital): Bonus Makanani. Malawi, Lilongwe site (University of North Carolina, Chapel Hill): Francis Martinson. South Africa, Cape Town site (University of Cape Town): Linda-Gail Bekker. South Africa, Durban – Botha’s Hill, Chatsworth, Isipingo, Tongaat, Umkomaas, Verulam sites (South African Medical Research Council): Vaneshree Govender, Samantha Siva, Zakir Gaffoor, Logashvari Naidoo, Arendevi Pather, and Nitesha Jeenarain. South Africa, Durban, eThekweni site (Center for the AIDS Programme for Research in South Africa): Gonasagrie Nair. South Africa, Johannesburg site (Wits RHI): Thesla Palanee-Phillips. Uganda, Kampala site (John Hopkins University, Makerere University): Flavia Matovu. Zimbabwe, Chitungwiza, Seke South and Zengeza sites (University of Zimbabwe College of Health Sciences Clinical Trials Unit): Nyaradzo Mgodzi. Zimbabwe, Harare, Spilhaus site (University of Zimbabwe College of Health Sciences Clinical Trials Unit): Felix Mhlanga. Data management was provided by The Statistical Center for HIV/AIDS Research & Prevention (Fred Hutchinson Cancer Research Center, Seattle, WA) and site laboratory oversight was provided by the Microbicide Trials Network Laboratory Center (Pittsburgh, PA). For qualitative data, management was provided by the Women’s Global Health Imperative Program (RTI International, San Francisco, CA).

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Table 1:

Ethno-linguistic categories of ASPIRE Qualitative Sample (N=214)

Ethnicity, tribe or language	Total	Zimbabwe	Malawi	Uganda	South Africa
Zulu	45 (21%)	-	-	-	45 (45.9%)
Luganda *	39 (18.2%)	-	-	39(100%)	-
Shona	34 (15.9%)	32 (82.1%)	-	-	2 (2%)
Xhosa	30 (14%)	-	-	-	30 (30.6%)
Chewa	16 (7.5%)	-	16 (42.1%)	-	-
Ndebele	10 (4.7%)	-	-	-	10 (10.2%)
Ngoni	11 (5.1%)	-	11 (29%)	-	-
Yao	4 (1.9%)	-	4 (10.5%)	-	-
Lomwe	3 (1.4%)	-	3 (7.9%)	-	-
Tonga	2 (0.9%)	-	2 (5.3%)	-	-
Other African tribe	16 (7.5%)	7 (17.9%)	-	-	9 (9.2%)
Other	4 (1.9%)	-	2 (5.3%)	-	2 (2%)

* ethnic or tribal group not collected; only language available.