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Menstrual hygiene management considerations during Ebola response: a qualitative exploration

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Abstract

There is increased recognition within humanitarian response practice about the importance of addressing the menstruation-related needs of women and girls in emergencies. To date, however, menstruation has been minimally considered during Ebola virus disease (EVD) response efforts. Reasons for integrating menstrual hygiene management (MHM) into EVD response include suspicions and alarm arising from associating menstrual blood as a symptom of EVD and the need to assure that menstruating patients have menstrual products materials and supplies. The aim of this qualitative study was to understand how menstruation is, or should be, addressed most appropriately during EVD outbreak response. Data collection was conducted from June to August 2020 and included a global document review and semi-structured key informant interviews with cross-sectoral humanitarian and EVD experts ($n = 21$). Data were analyzed using thematic analysis. Four themes were prominent across the data: (1) limited guidance for addressing menstruation in EVD outbreak response, (2) Inconsistent access to female-friendly toilets, (3) unmet need for menstrual materials, and (4) overlooked menstrual challenges of EVD response staff. Key gaps in current EVD response include an insufficiency of clear guidelines and standards, limited best practices for ensuring consistent access to female-friendly toilets and menstrual materials, and insufficient attention to the menstrual needs of EVD response staff. While there have been efforts to address the menstruation-related needs of patients, communities, and response staff within some EVD outbreak zones, the full range of MHM considerations has infrequently been incorporated. Important lessons from this exercise may be useful for the mainstreaming of menstruation into EVD response during future response efforts.

Keywords: Menstruation, Menstrual hygiene management, Ebola, Ebola response

Introduction

National government and expert response to Ebola virus disease (EVD) continues to evolve as new understanding emerges about the most effective ways to contain and manage an outbreak. Adapting intervention approaches to new outbreak contexts has shown to be essential given the sociocultural beliefs surrounding Ebola, ranging from burial practices to suspicion around medical practitioners (Fairhead 2016; Gillespie et al. 2016). One

important yet overlooked consideration during an EVD response has been attention to menstrual hygiene management (MHM), which refers to the components of managing menstruation hygienically and with dignity, including access to menstrual materials, soap, water, and safe spaces for bathing, laundering, and changing materials with disposal systems as needed. There are several reasons for addressing MHM during EVD responses at the level of the Ebola Treatment Center (ETC) and in communities experiencing or vulnerable to an outbreak. These include, for example, the potential suspicions that can arise over menstrual blood as a symptom of EVD (McKay et al. 2019) and the need to assure that

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menstruating patients with suspected or confirmed EVD — either those in transit to or already within an ETC, have access to menstrual materials and supplies and are able to manage their menstruation with dignity and comfort. Although addressing MHM has become more common within humanitarian practice overall (Giles-Hansen et al. 2019; Schmitt et al. 2021; Vanleeuwen and Torondel 2018), it has not yet been fully incorporated within situations of EVD outbreak and response. To begin addressing this gap, this paper discusses the findings from a global document review and qualitative assessment that sought to explore how MHM could be most appropriately integrated into an EVD outbreak response.

In recent years, there has been growing advocacy and attention to including assessments and interventions related to MHM within humanitarian response globally (Sommer et al. 2017; IAWG 2021; Parker et al. 2014; Ruparel et al. 2017). Supporting these efforts are a range of publications, illustratively including a dedicated chapter within menstrual hygiene matters (House et al. 2012), the MHM in emergencies toolkit (Sommer et al. 2017), UNICEF's guidance on a female-friendly toilet design (UNICEF, WaterAid 2018), and the compendium on menstrual product disposal, waste management, and laundering (Schmitt et al. 2020). These guidance documents highlight the key components of addressing MHM: menstruation-related information and guidance, menstrual materials and supplies, and supportive water, sanitation, and hygiene (WASH) facilities that include attention to product disposal and laundering (House et al. 2012; Sommer et al. 2017; UNICEF, WaterAid 2018; Schmitt et al. 2020). This includes the provision of female-friendly toilets, which represent small modifications to existing WASH infrastructure, such as locks on doors, water within stalls, and menstrual disposal options. Together, these approaches seek to enable women and girls to manage their menstruation safely, comfortably, and with dignity, with benefits to their overall health and well-being, and ability to conduct their daily activities of living. Identifying the unique MHM needs, challenges, and solutions that arise during an EVD outbreak, and how MHM can be most appropriately integrated into existing response activities, is overdue. This includes exploring the role of national governments, along with the development and emergency communities, in delivering an effective MHM in EVD outbreak response.

Of importance to consider in examining the integration of MHM into an Ebola response is the nature and understanding of the disease and its characteristics. EVD is a highly pathogenic viral hemorrhagic fever that is often deadly (Feldmann et al. 2020). Certain aspects

of the case definition as defined by the World Health Organization are of relevance to MHM: "Any person, alive or dead, suffering or having suffered from a sudden onset of high fever and having had contact with a suspected, probable or confirmed Ebola...OR any person with sudden onset of high fever and at least three of the following symptoms: Headaches, vomiting, anorexia/loss of appetite, diarrhea, lethargy, stomach pain, aching muscles or joints, difficulty swallowing, breathing difficulties, hiccup OR any person with inexplicable bleeding OR any sudden, inexplicable death" (Case definition recommendations for Ebola or Marburg virus diseases. 2014). While the exact wording of this case definition varies slightly by country, the general elements remain the same.

From 1976 to 2019, there were 34 known EVD outbreaks across Africa, with a reported 35,000 cases, and approximately 15,000 fatalities (Rugarabamu et al. 2020). The West Africa outbreak (2013–2018) was the largest, most geographically dispersed, and deadliest outbreak on record, with more than 28,600 cases and 11,325 deaths across Guinea, Liberia, and Sierra Leone (Boisen et al. 2016). The recent 2018–2020 outbreak in the Democratic Republic of the Congo (DRC) was the second largest outbreak to date.

The goals of EVD response are to stop the transmission of EVD in the affected countries and prevent the spread of EVD to neighboring at-risk areas (World Health Organization, Governments of Guinea, Liberia, and Sierra Leone 2014). During large outbreaks in particular, this requires the involvement and coordination of a range of public health and humanitarian actors, including host governments and national health providers and authorities, UN agencies, bilateral donors and agencies, and nongovernmental organizations (NGOs). These stakeholders work together to coordinate response activities across the health system and at community levels. EVD outbreak management requires the identification and isolation of suspected cases to prevent transmission and to provide specialized care (Feldmann et al. 2020). To accomplish this, ETCs are set up throughout the outbreak area, with suspect wards for those awaiting tests to confirm their diagnosis and confirmed wards for those who have been definitively diagnosed. These ETCs are staffed by healthcare workers wearing significant personal protective equipment to prevent them from contracting EVD (Feldmann et al. 2020). At the community level, response efforts focus on preventing the spread of disease by promoting good hygiene practices, educating community members about the signs and symptoms of EVD, and conducting contact tracing (Rugarabamu et al. 2020).

Setting

This study applied a regional perspective to the document review and outreach to experts who have worked in EVD response, with the qualitative assessments primarily drawing on those who had responded to the West Africa (Sierra Leone, Liberia, Guinea) and DRC outbreaks. Existing sociocultural beliefs around menstruation, MHM-related practices, and ongoing menstrual stigma are documented to some degree in both contexts. For example, in Sierra Leone, many girls have poor knowledge related to menarche and menstruation, and some women and girls report restrictions during menstruation including seclusion or being restricted from housework or praying (Osborne et al. 2020). In addition, the existing but limited evidence documents that in Sierra Leone, DRC, Liberia, and Guinea, menstruation is considered a highly taboo topic and should be concealed from those around you (Groen et al. 2013; Liberia 2021; Amaya et al. 2020). Despite this, menstruation is an important sign of health within the traditions of a range of ethnic groups in the West Africa region, with menstrual irregularities oftentimes perceived as a symptom of a physiological problem (Renne et al. 2021). The common thread of shame, stigma, and taboos associated with menstruation across these contexts is important to mention given the ways in which pervasive secrecy and shame around menstruation may intersect with how an EVD response can incorporate MHM.

Methods

The primary aim of this qualitative study was to understand how menstruation is, or should be, addressed most usefully during an EVD outbreak response. The methods included the following: (1) a global document review and (2) global key informant interviews with a range of EVD and humanitarian experts from relevant sectors and organizations. Data collection occurred from June to August 2020. The study received internal review board (IRB) approval from the Columbia University Irving Medical Center (CUIMC) Internal Review Board.

Global document review

The review was two-pronged, including the following: one, a systematic search of the peer reviewed and gray literature, and two, outreach to EVD and humanitarian experts around the world via e-communications. The combined effort sought to identify the range of existing documentation that might incorporate relevant EVD response aspects for MHM. For the online search, key databases included PubMed, Google Scholar, and ReliefWeb. Search terms included the following: menstruation, menstrual blood, menstrual bleeding,

menstrual hygiene management, menstrual waste, waste management, infectivity, Ebola, and Ebola response. The aim was to identify examples of implementation, relevant guidance, reports, and training materials related to menstruation and MHM in the context of an EVD outbreak. We included material that was written in English, and we did not have any restriction on the time period, although most documents focused on the last two decades of response. As many organizations may include relevant guidance and response studies within internal reports, the e-communications sought to identify documentation not available through the online search. In addition, a flyer describing the project was shared online via the Sustainable Sanitation Alliance (SuSanA) forum, with feedback requested over the 3-month study period.

Sample and recruitment

Snowball sampling was utilized to identify global experts for key informant interviews (Parker et al. 2019). First, targeted e-communications were sent to global experts who had published reports or articles on the EVD response globally, along with the humanitarian response cluster leads of relevant sectors for MHM (e.g., water, sanitation, and hygiene [WASH], protection, health). The outreach invited the person either to participate an interview or to provide recommendations of appropriate experts. In addition, a request for information and for key informants was circulated through key information platforms including the SuSanA, the Interagency Working Group on Reproductive Health in Crisis, and the Menstrual Hygiene Management in Emergencies Working Group. Key informants were then sampled purposively to include a range of participants who represented the key agencies and organizations expected to be most knowledgeable about the issue, based on their involvement and leadership in EVD outbreak response. In addition, key informants were selected to represent several sectors (WASH, health, community engagement, etc.) and experience with EVD across a range of recent outbreaks including those in the West Africa (Sierra Leone, Liberia, Guinea) and DRC. To ensure a diversity of opinions and insights, key informants were sampled to ensure at least two people from a given sector from each response region (e.g., West Africa, DRC).

Data collection

A semi-structured key informant guide was developed for use over Skype or Zoom. Topics include the respondents' history related to engaging in EVD outbreak response, the key needs they have encountered related to menstruation and MHM during an EVD outbreak, and successes or challenges in meeting those needs. KIIs

were also asked to provide recommendations for how to improve the integration of MHM into EVD response at either the ETC or community level.

The research team conducted the interviews in two-person teams, consisting of combinations of the principal investigator (PI) (MS), a member of the PI's staff research team (CG), and a graduate research assistant (DU). Informed consent was obtained from all the participants. Interviews ranged from 30 to 60 min and were audio-recorded with the consent of the participants. The research team concluded that there were a sufficient number of key informant interviews when they detected a saturation of findings across interviews and participant group types.

Data analysis

Data were analyzed using thematic analysis by the staff member (CG) and research assistant (DU). Documents from the document review and transcripts from the qualitative assessment were reviewed, and key themes were identified by using deductive content analysis methodology. The PI (MS) reviewed and helped to revise the final codebook, and the analysis team (CG & DU) used Dedoose analytic software to code the data. The themes identified from the data were shared with full research team for discussion, refinement, and validation. The full research team reviewed provisional identified themes, along with excerpts from the transcripts. The section below presents the key analytical themes that were identified during analysis as well as the recurrent descriptive codes under each theme.

Results

Key informant interviews (KIIs) ($n=21$) were conducted with a cross-sectoral range of humanitarian and EVD experts. Our sample included key informants from international nongovernmental organizations ($n=13$), UN agencies ($n=6$), donors ($n=1$), and national government ($n=1$). As described below (see Table 1), this included 13 female KIIs and 8 male KIIs, the majority of whom ($n=17$) were international experts and expatriate humanitarian response workers. The key informants

were primarily sampled from the WASH ($n=6$) and health sectors ($n=14$). Within those from the health sector, a range of sub-specialties were represented including sexual and reproductive health, health communications, and infection prevention and control. The sample also included individuals whose EVD-related work was primarily focused in the clinical setting ($n=7$), the community setting ($n=4$), or a combination ($n=10$).

Throughout our analysis, the following four themes were prominent across the data and emerged in relation to community members, patients, and/or response staff: (1) limited guidance for addressing menstruation in EVD outbreak response, (2) inconsistent access to female-friendly toilets, (3) unmet need for menstrual materials, and (4) overlooked menstrual challenges of EVD response staff.

Limited guidance for addressing menstruation in EVD outbreak response

Both the global document review and the key informant interviews indicated a lack of existing information and guidance on specifically addressing MHM within EVD outbreak response in varying contexts. At the time of the document review, only one guidance document was found that referenced MHM, the Interagency Working Group on Reproductive Health in Crisis (IAWG) EVD guidelines (IAWG 2021). Despite this gap, a few instances of MHM programming were reported from the West Africa and DRC responses. These were primarily focused on the provision of menstrual materials in dignity kits at the community level or within ETCs. Such efforts were generally described as more ad hoc than systematic in their delivery. As one health sector actor described their experience in Sierra Leone:

I never heard the word menstrual hygiene management mentioned... when we had our ETC, I did push to get sanitary towels available for staff and patients, but... it was one of the... probably the last things on my list, like I was like "oh we should probably have that" and I just handed over to the logistics to figure it out, but it wasn't kind of part of our, like, policies or anything, it was just something that we kind of came to at one point of think-

Table 1 Number and description of key informants

Sector	Gender		Type of organization			Region ^a		
	Female	Male	International NGO	Local NGO	Government	West Africa	DRC	Other
Health: 14	9	5	11	2	1	10	8	1
WASH: 6	3	3	5	1	0	4	5	0
Community engagement: 1	1	0	1	0	0	0	0	1

^a Note: Many KIIs had experience in multiple regions, and these numbers might be double counted to reflect that experience

ing we should have that. –KII005

Along with a lack of specific MHM response guidance, there was a reported confusion among some healthcare workers around menstrual bleeding in relation to the case definition for EVD. For example, in the DRC, situations had arisen where the usually late-stage symptom of “inexplicable bleeding” was conflated with menstrual bleeding. As a reproductive health actor explained, this resulted in unnecessary isolation of women and girls within the healthcare system:

Yeah, I think that the problem that we have in Ebola outbreaks, is that people had quite a black and white vision, they get a very tunnel vision, and they just go “Oh it’s bleeding, it must be Ebola,” until proven otherwise, and... that results in people coming to harm for something that has nothing to do with Ebola” –KII 13

A few response workers recommended the provision of additional training for healthcare workers in future EVD outbreak response which would focus on distinguishing inexplicable from “explained” types of bleeding, such as menstruation or contraceptive-induced menstrual bleeding changes.

Confusion between EVD-related bleeding and menstruation was also reported to have occurred at the community level. In the DRC in particular, a few girls experiencing the onset of menstruation (or menarche) were reported to conflate the onset of their menstrual bleeding with fear of Ebola. A girl’s presentation to an Ebola outreach team member however then occasionally tapped into the outreach worker’s own confusion about bleeding. As one reproductive health sector actor described:

We were also seeing that cases of young girls who were having their period for the first time, didn’t know what was going on...the staff at triage might be not sure, you know, is it caused by Ebola or not?... and therefore they would often err on caution, and place that young girl in isolation... and isolate pretty much anybody who bled” –KII 002

Such confusion could contribute to spreading infection as girls awaiting test results in a suspected cases ward might be unnecessarily exposed to Ebola. It likely also increases the menstrual stigma, anxiety, or stress experienced. This dynamic underscores the importance of managing the rumors and fears that may arise in an EVD outbreak and its particular intersection with menstruation.

A number of key informants from both the West Africa and DRC EVD outbreaks described how the combination

of ongoing stigma and insufficient community understanding about whether bleeding is a sign of EVD led some girls and women to feel an increased need to hide their menstruating status. This in turn augmented their stress in conducting their daily activities of living, lest they be “outed” as menstruating. A few reports were shared of girls and women whose menstruating status was recognized within their households and were subsequently temporarily ostracized from their families. In some cases, fears around this possibility were described as a potential reason for decreased care-seeking behavior for other health conditions as menstruating women and girls feared being labeled as a suspect EVD case.

There was also reported to be limited understanding among global and local response staff about the potential infectiousness of menstrual blood among current or previously infected persons. However, response workers emphasized the need to address this issue carefully so as not to further stigmatize those who menstruate. The workers also highlighted that because all bodily fluids of a suspected Ebola patient must be treated with caution, menstrual blood does not need to be singled out as unique or treated differently. One reproductive health key informant explained the following:

Let’s say she does have Ebola and she’s in bed and she can’t get out, and she’s menstruating. The fact that she’s menstruating, really there is no significance of the infectivity of those bedsheets because you’ve already got a woman who’s got Ebola, who’s probably vomiting, probably got diarrhea, probably sweating, you know those bedsheets are contaminated, like it or not, you know. And so the...information we give the community about how to provide home care for someone who is not well during an Ebola epidemic, is not going to change [whether the patient is menstruating or not]. –KII13

Key community messaging during an EVD outbreak already includes the potential infectiousness of the bodily fluids of a suspected EVD patient. Thus, the strong recommendation emerged that the message should be that all bodily fluids are dangerous and should be treated as such, without singling out menstrual blood and inadvertently contributing to the menstrual stigma experienced. Instead, any messaging focused on menstrual blood could focus on differentiating between menstruation and the types of bleeding that can occur as a symptom of Ebola.

Inconsistent access to female-friendly toilets

The issue of access to female-friendly toilets, meaning facilities that enable the management of menstruation

safely, comfortably, and with dignity, was described as a challenge both at the level of the ETC, and to a lesser degree for communities that had been under quarantine, such as in West Africa.

At the ETC level, the provision of female-friendly toilets (e.g., those with water inside the stall, disposal mechanisms for used menstrual materials, locks on the door) was explained as in fact not always necessary. The rationale provided was that patients may have their own private latrines, as ETC design evolves with each outbreak. The latter has more commonly been the case in recent EVD outbreaks, such as the DRC. However, a number of key informants described response settings where the communal toilets in suspected cases wards were rarely adapted to accommodate the needs of female patients, particularly in relation to menstruation. Such communal facilities were also not always gender segregated, with women reportedly uncomfortable using the same toilet blocks as men.

In addition, a key aspect of female-friendly toilets is ensuring that disposal mechanisms are linked to a waste management system; this is particularly important for the handling of used menstrual materials in an EVD outbreak. The taboo nature of menstrual blood, and hence menstrual product waste, requires thoughtful response when designing an appropriate solution. Most key informants described limited attention being given specifically to menstrual product waste management in their EVD programming. This may have been because ETCs have medical waste management systems in place for any soiled materials as a matter of standard operating procedures, and as one health actor explained, the infection control procedures (IPCs) provide relevant guidance that would cover menstruation-related waste:

...anything that is used by an Ebola patient, who is a confirmed case, has to be incinerated, and we had huge incinerators to manage. So it includes towels, toothbrushes, you know, diapers, anything. ... incineration is really the only option, there is no way you can bury this stuff, and we wouldn't want to be buried and be potentially dug up by animal or something later. –KII005

There were, however, a few examples of menstrual disposal mechanisms described as being specifically linked to waste management systems in female-friendly toilets in ETCs. Most descriptions suggested a waste bucket was provided for patients to dispose of their used menstrual materials along with other refuse. A more novel approach involved a discreet chute system for transferring menstrual waste from the inside of the toilet cubicle into a protected container outside the toilet stall (see

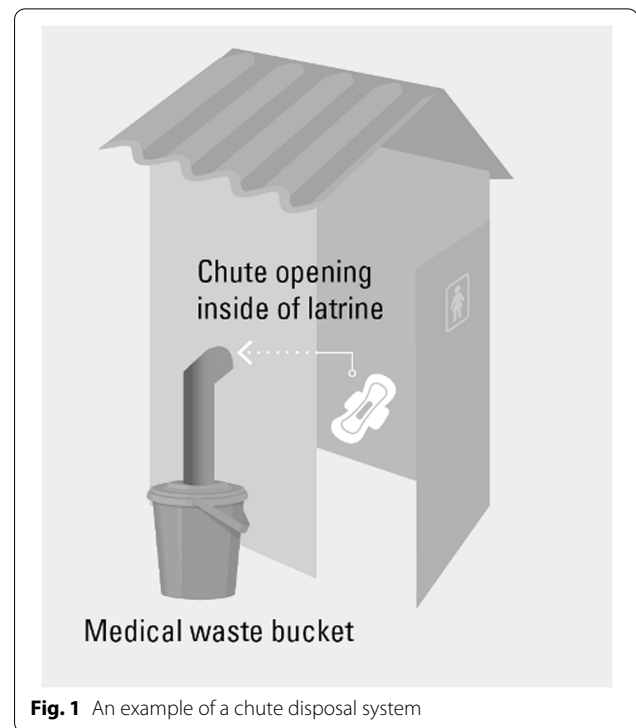


Fig. 1 An example of a chute disposal system

Fig. 1). This provided an additional sense of privacy by ensuring that the menstrual waste could not be viewed by other users, the latter being a key issue in relation to existing menstrual taboos around used materials. In both scenarios, chute, or waste bucket, the ETC staff would periodically remove the waste and dispose of it in the incinerator.

At the community level, the need for female-friendly toilets to enable MHM primarily arose as an issue during the household quarantines that were imposed during the West Africa EVD outbreak. Although quarantines are not used consistently across contexts, the insights from West Africa are important to note. As one WASH actor (KII-021) described, many households under quarantine did not have access to private or household latrines for urination, defecation, and menstrual management, as they typically relied on communal latrines or open defecation. To ensure that the households stayed isolated, and their bodily fluids contained, the WASH response is needed to identify a safe way for the households to relieve themselves and for girls and women to manage their menstrual changing, washing, and disposal. One idea that was implemented was to construct very rudimentary — and temporary — household latrines for those under quarantine. Households were directed to dispose of all sanitation wastes (e.g., menstrual pads, diapers) directly into the latrine. Although not specifically female friendly in design, this solution provided a simple way to manage the

bodily fluids of potentially infected individuals, including menstrual blood. The organization then returned to decommission the latrine once the household was out of quarantine.

Unmet need for menstrual materials

The provision of menstrual materials — or the gap in addressing this need — arose primarily in relation to the ETCs, for both suspected and confirmed patients. First, for suspected cases in transit to an ETC, there did not appear to be consideration that they might need menstrual materials. Persons suspected of having Ebola were rarely allowed to take anything with them from home, yet some girls and women might need a menstrual product while being transferred to or, more commonly, during their mandated stay at the ETC. Although several key informants described the provision of menstrual materials to patients either upon their arrival or on request, this did not appear to be universal programming. In general, when pads were provided, key informants indicated that these were the disposable type given the increased simplicity of utilizing them in the context of EVD infection control procedures; they can be easily channeled into the waste management system, avoiding the need to wash potentially infectious materials. A WASH actor from the West Africa response described as follows:

... everything that goes inside, especially the high contagious area, which we have like the heavy zone, in that zone everything goes for further processing. And in the end it will be incinerated in a large bin.
—KII 001

Some respondents however mentioned that they were unaware of any menstrual materials being provided to patients, an important gap to note given how ongoing stigma and secrecy around periods might prevent a patient from feeling able to ask for pads. Although many patients were described as able to manage their menstruation independently, for those who could not, nurses would place the patient on large absorbent bed pads to collect menstrual blood and other bodily secretions and fluids.

Second, and related, a patients' relevant belongings are often destroyed as part of the infection prevention and control procedures required when there is a suspected or confirmed EVD case within a household. So, a female patient might return home upon discharge to no menstrual materials (pads, reusable cloths). A WASH actor from the West Africa response explained as follows:

...when we go into the community, there is a case reported, suspect or a person has died, we will go there with a full PPE, get dressed in front of the

house, go inside and...either burn or spray everything with the high concentration of chlorine solution. So even if there was any MHM items there, we will not treat them like something to be preserved, or even specifically observed, you know. So whatever is there, had to be destroyed. —KII 001

One recommendation that emerged was therefore to include menstrual materials in discharge kits to facilitate homebound survivor's ability to manage their periods until they are able to acquire pads (or cloths) on their own. In addition, given the menstrual irregularities that were reported as sometimes occurring in a recovered patient for a period of months — likely due to the severe illness, weight loss, or stress — some informants suggested including information in the discharge kits to diminish fears around irregular menstrual cycles.

There were some examples of menstrual materials being provided in discharge kits and in hygiene kits provided at the community level; however, the materials provided were not always utilized by the recipients. In one example, African fabric was distributed with the intention that women would use it as a menstrual material; however, in many cases, staff members distributing the kits did not explain the intended use of this cloth, instead telling households that it was a gift. Similarly, some women, especially younger women, later expressed a preference for pads over cloth and so repurposed the cloth for other household needs. This highlights the importance of consulting women and girls to understand their needs and preferences.

Third, although quarantine is not used consistently, women and girls in households placed under quarantine may need to be provided with menstrual materials for its entire duration. Although several key informants described the provision of menstrual materials to women and girls under quarantine, this did not appear to be standard.

Overlooked menstrual challenges of response staff

A key issue that arose from the key informant interviews were the unique needs of EVD response staff around their own menstruation, particularly when deployed for extended periods of time in more remote contexts. Although the challenges described did not emerge from all response staff, for those who did raise the issue, the problems identified are related to both access to female-friendly toilets and to maintaining adequate supplies of menstrual materials for their own usage while deployed.

A contributing factor appeared to be the limitations of remote postings, when response staff might be

staying in tents, guesthouses, or sometimes hotels for prolonged periods. One community engagement specialist described the following:

We are deployed in places where we don't have access to pads, to tools, to some concrete or available safe hygiene conditions....We don't have any specific place to...like toilets, specific toilets for women, and the you know, we lack of everything and our menstrual health is not really an issue that we talk about even among ourselves. –KII 4

As described, such contexts might include inadequate access to female-friendly toilets and limited availability of menstrual pads should a female response staff member get her period unexpectedly or run short during a posting. Also reflected in the quote is pervasive menstrual stigma which hinders the ability of staff to discuss these challenges among themselves.

Another key informant shared a story about how a colleague had run short of menstrual pads and struggled to manage her monthly blood flow with no nearby market. Her challenge was exacerbated by having a male logistics officer, as shyness, shame, and even differing cultural backgrounds prevented the woman from requesting menstrual materials. In solving for this challenge, the respondent also flagged how most women have preferences for certain types of menstrual materials. Thus, a mass order of one type of product might not meet the needs of a range of staff posted in a remote location. Yet providing details around preferences might be considered taboo in the culture of a given response worker. There was thus a strong recommendation for more open discussion or consideration of providing menstrual materials. Similarly, there was a recommendation for pads to be provided as one of the basic necessities procured for deployed staff, particularly those in remote locations. Some respondents mentioned that their organizations did in fact provide recommended lists for what to bring, with a few examples of institutions who had provided menstrual materials in response to staff having raised the issue.

Important to note as well was the indication from some response workers that given the relatively short length of deployment for many staff during EVD outbreak response, they could easily bring adequate supplies to meet their needs. However, the provision of toilet paper — another essential item — within guesthouses where staff are stationed, suggested that perhaps it was merely the normalization of expectations that women must bring their own essential materials that led some to not consider this as an expectation to place on institutional logistics response.

Discussion

The findings from this qualitative assessment conducted with EVD and humanitarian experts highlighted the ways in which menstruation is being considered and the continuing gaps in addressing MHM in EVD response. The latter includes the limited existing guidelines and standards on integrating MHM in the context of an Ebola outbreak (the latter gap now updated by the publication of a guidance note in 2020 specific to the addressing MHM in EVD response (Gruer et al. 2020)), limited best practices for ensuring consistent access to female-friendly toilets and menstrual materials, and insufficient attention to the menstrual needs of EVD response staff. While there have been efforts to address the menstruation-related needs of patients, communities, and response staff within some EVD outbreak zones, the full range of MHM considerations has infrequently been incorporated (McKay et al. 2019; Gruer et al. 2020). This is not surprising given the rapidity at which these responses must move and the extreme pressure to prevent loss of life; however, small adaptations or additions could be made to existing guidance and response practices to improve the lives of people who are menstruating during an EVD outbreak.

A key overarching challenge is the limited information and guidance about addressing MHM in the context of EVD; this in turn may create confusion or the unintentional overlooking of menstruation at the levels of both the ETC and community. In particular, this arose as an issue in relation to the case definition for EVD and the need to assure that “inexplicable bleeding” was not conflated with menstruation. This led to the suggestion of improved guidance within the health system of those interacting with suspect case, but also for community-level messaging, to assure there is clear messaging to affected or vulnerable communities. This was identified as also important so as not to inadvertently compound the experience of menstrual stigma. Prior EVD outbreak response has similarly emphasized the importance of increasing the knowledge of healthcare workers in a timely fashion (Coltart et al. 2017), but this understandably can prove challenging when moving rapidly to respond to an outbreak. Two recent publications “All that bleeds is not Ebola” and the new Interagency Working Group on Reproductive Health in Crisis (IAWG) EVD guidelines that reference MHM (McKay et al. 2019; IAWG 2021) may serve a valuable role in encouraging training on distinguishing menstruation from “inexplicable bleeding” for healthcare workers (HCWs) working in contexts with repeat EVD outbreaks.

Inadequate access to female-friendly toilets for those impacted by EVD also emerged in some circumstances and was described as being a challenge within some ETCs and less so at the community level. Similar challenges

have been reported by displaced girls and women living in a range of contexts, such as lack of privacy in communal latrines in a Ugandan refugee camp (Parker et al. 2014) and informal settlements in Lebanon (Majed and Touma 2020) and insufficient menstrual disposal options for displaced Rohingya living in camps in Myanmar (Schmitt et al. 2017). Increased recognition by humanitarian actors regarding women and girls unique WASH infrastructure needs, especially while menstruating, has led to some improved innovation in WASH facility design (Schmitt et al. 2021; Farrington 2019; Pearce 2019), much of which is applicable within EVD response. For example, the menstrual product disposal chute system trialed in ETCs during the 2020 DRC EVD outbreak was based on a model initially designed for use in a health clinic serving Rohingya refugees and host communities in Cox's Bazaar, Bangladesh (Schmitt et al. 2021). The provision of female-friendly WASH facilities may be facilitated in an EVD response as it becomes more standard for ETCs to have private latrines for each patient. Additionally, given the infection prevention and control procedures within an ETC, there are often effective waste management systems in place that can be used for the final disposal of used menstrual materials. Thus, this may be an easier design challenge to solve than in other emergency contexts, where solid waste management systems may be less developed and must serve a much larger population.

Also, important to note were the access issues to female-friendly toilets described by response staff. For example, some women described living and working in remote camps with toilets that were not gender segregated. Although infrequently mentioned in publications on humanitarian response, in a report by CARE International, female staff from across a variety of different humanitarian agencies and responses reported challenges related to inconsistent access to private, gender-segregated toilets while deployed, particularly during field visits (Ruparel et al. 2017). In other workplace settings, such as schools in low-income countries, inadequate toilets for female teachers have been highlighted as a challenge impacting their ability to engage in educational activities when menstruating (Boosey et al. 2014). Assuring those busy with response in an EVD outbreak have their own gendered needs met seems essential.

An additional MHM-related challenge articulated was inadequate and inconsistent access to menstrual materials, an issue found in humanitarian responses more broadly (Schmitt et al. 2021, 2017; Vanleeuwen and Torondel 2018; Sommer et al. 2017) but with unique aspects found within our findings in the context of an EVD response. This was particularly problematic for patients transiting to or staying in ETCs and for female survivors returning home after discharge, the latter

because their belongings were destroyed as part of infection control procedures. This is similar to other emergency contexts in which women and girls may arrive at borders or refugee and displacement camps with insufficient menstrual materials. In large-scale humanitarian response, varying combinations of disposable or reusable menstrual materials may be distributed, related to the funding, local cultural preferences, concerns about sustainability, and the types of WASH facilities present. For example, reusable menstrual materials are increasingly being distributed in emergency contexts, as they are perceived to be more cost-effective and sustainable (Giles-Hansen et al. 2019; Vanleeuwen and Torondel 2018; Kuncio 2018; Budhathoki et al. 2017). However, menstrual material preferences may vary, even within populations. This was found to be the case in a study conducted by the International Federation of the Red Cross and Red Crescent (IFRC) in displacement camps located in Burundi, Uganda, Somaliland, and Madagascar. Preferences for reusable versus disposable menstrual materials were shown to vary widely by age (Giles-Hansen et al. 2019). In the context of EVD, there was an expressed medical recommendation for the distribution of only disposable pads within ETCs and for those in isolation, given these materials simplify infection control efforts. The established system of waste management through incineration during an EVD outbreak is also well suited for disposable pads.

Lastly, the multiple MHM personal challenges described by EVD response workers beyond just access to female-friendly toilets are important to highlight. Contributing factors ranged from the unpredictability of deployment length to the remote locations of some outbreaks; for example, sites do not always have access to supplies of menstrual materials for staff and markets, and shops may not be easily accessible. Although infrequently documented, Ruparel et al. (2017) similarly described how menstruating humanitarian response workers may struggle with access to private places for changing their menstrual materials and maintaining an adequate stock of menstrual materials (Ruparel et al. 2017). The articulation of these challenges in this study suggests a gendered discrimination within response contexts. This is similar to what has been found in other workplace contexts that do not adapt facilities or provide materials to meet the needs of those who menstruate (Hennegan et al. 2019, 2020; Sommer et al. 2016). In addition, the commonly described provision of toilet paper and other essential items at guesthouses, with an overlooking of the menstruation management needs of deployed workers, suggests a normalization of the expectation that gendered needs do not matter. The inclusion of menstrual materials on some institutions' packing lists is useful, but not all

organizations may adequately inform those who respond, and for staff with heavy or unpredictable bleeding, packing sufficient supplies may be challenging. Although many respondents stated that EVD deployments are short enough that this is not a challenge, for response staff with longer deployments or deployments that are extended unexpectedly, it is an important consideration.

Limitations

There are some limitations to note. One, as many organizations' internal response guidance is not accessible publicly, it is possible that the global document review and outreach missed internal reports or other documents that reference menstruation or MHM. Similarly, given the role of national governments in EVD response, it is possible that documentation from national or sub-national agencies or organizations that incorporates attention to MHM in EVD outbreaks may have been missed. Two, our sample of global key informants did not include any local healthcare workers or members of national government; results may have been more nuanced if we had been able to include them in the data collection given the specific insights they would be expected to have around MHM-related challenges during an EVD outbreak.

Conclusion

This study exploring the MHM considerations during an EVD outbreak highlighted a range of menstruation-related concerns that may arise and the ways in which attention to menstruation can be mainstreamed into current EVD response. Four recommendations emerged: one, consider enhanced training to HCWs that serves to clarify the case definition of Ebola, including the difference between "explicable bleeding" (e.g., menstruation) and potentially "inexplicable bleeding"; two, ensure attention to the provision of menstrual materials to suspected and confirmed cases as needed in transit, in ETCs, and at discharge; three, improve the availability of female-friendly toilets in ETCs as appropriate; and four, consider the unique needs of menstruating staff deployed for outbreak response. A guidance note with practical recommendations for how to mainstream MHM into EVD response, which covers many of these topics, was published in 2020 (Gruer et al. 2020). Future research would serve to identify both the best practices for incorporating attention to MHM within EVD response and to understand the menstruation-related needs of response workers.

Abbreviations

DRC: Democratic Republic of Congo; ETC: Ebola Treatment Center; EVD: Ebola virus disease; HCWs: Healthcare workers; IAWG: Interagency Working Group on Reproductive Health in Crisis; IFRC: International Federation of the Red Cross

and Red Crescent; IRB: Internal review board; KI: Key informant interview; MHM: Menstrual hygiene management; PI: Principal investigator; SuSanA: Sustainable Sanitation Alliance; WASH: Water, sanitation, and hygiene.

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Authors' contributions

MS conducted the data collection, provided inputs to the data analysis process, and supported the writing of the manuscript. DU supported the data collection, analyzed the data, and supported the writing of the manuscript. CG conducted the data collection, analyzed the data, and supported the writing of the manuscript. The authors read and approved the final manuscript.

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Availability of data and materials

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Declarations

Competing interests

The authors declare that they have no competing interests.

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