

Research Paper

Capturing menstrual health and hygiene in national surveys: insights from performance monitoring and accountability 2020 resident enumerators in Niamey, Niger

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ABSTRACT

Menstrual health and hygiene (MHH) is an emerging public health priority. To support policy and practice, large-scale surveys monitoring water, sanitation, and hygiene and reproductive health have started to incorporate MHH. Insights gained from these surveys are contingent on the quality of the measures used. Performance Monitoring and Accountability 2020 (PMA2020) was one of the first survey programs to include MHH. We undertook four focus group discussions with resident enumerators and one with their female supervisors following the 2018 PMA2020 survey in Niamey, Niger and synthesized their insights on the performance of the MHH measures used. Enumerators reported that questions about menstruation were well tolerated and most were understood conceptually. Discussions identified missing response options for the places used for MHH and suggest that enumerator training should include common brands of menstrual materials to ensure data quality. Further, current questions seeking to capture the privacy and safety of locations used for MHH require modification or more intensive training efforts to consistently capture these concepts. Enumerator perspectives on menstrual needs in Niger highlight topics missing from MHH monitoring. Attending to enumerator expertise has the capacity to strengthen future surveys directed toward understudied health and development challenges such as MHH.

Key words | measurement, menstrual health, menstrual hygiene, national monitoring, outcome assessment, survey

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HIGHLIGHTS

- Resident enumerators are a source of expertise on the performance of survey questions.
- PMA2020 questions regarding menstrual health and hygiene (MHH) were acceptable to respondents.
- Asking respondents to report the 'privacy' and 'safety' of their menstrual management location was the most challenging question to administer.
- Resident enumerators described many MHH needs not captured by PMA2020 questions.

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INTRODUCTION

Menstrual health and hygiene (MHH) in low- and middle-income countries (LMICs) has emerged as a growing priority for public health. Limited knowledge of menstrual cycles, pervasive stigma, and poor access to effective materials and safe locations for menstrual management have been linked to gendered disparities in health and education (Sommer *et al.* 2014; Alam *et al.* 2017; Hennegan *et al.* 2019). As a result, governments and nonprofits have accelerated policy and programs to meet the needs of menstruating people. The research community has sought to test the effectiveness of these interventions and monitor progress (Hennegan & Montgomery 2016; Phillips-Howard *et al.* 2016; Alam *et al.* 2017). Beginning in 2015, Performance Monitoring and Accountability 2020 (PMA2020) was one of the first survey platforms to include questions on MHH across countries. In 2017, Khan *et al.* (2017) documented the acceptability of three MHH questions for inclusion in the Multiple Indicator Cluster Surveys (MICS), which were incorporated into the core questions for household surveys in 2018 (UNICEF 2018). Most recently, the Demographic and Health Surveys (DHS) included similar questions in their Phase 8 Questionnaire (DHS 2020).

Increased monitoring of MHH across countries drives investment on the issue and provides mechanisms to track progress. However, the usefulness of monitoring is limited by the quality of measures used. A paucity of funding has resulted in a lack of established indicators and comparative measures to monitor MHH (MacRae *et al.* 2019; Sommer *et al.* 2019; Hennegan *et al.* 2020a; Smith *et al.* 2020; UNICEF 2020). As such, the field has developed measures in parallel to implementation, presenting limited opportunity for review. To ensure measures meaningfully capture MHH, we must continue to reevaluate and refine.

The present study

PMA2020 launched to monitor reproductive health outcomes in LMICs (Zimmerman *et al.* 2017). The program relies on a cadre of female resident enumerators (REs) in 11 countries who administer household and health facility surveys. PMA2020 recruits REs from sampled communities.

Over time, enumerators become experts in their survey area, making them valuable contributors in the effort to understand how PMA2020 survey measures perform (Greenleaf *et al.* in press).

PMA2020 Niger has completed five rounds of surveys, two of which included MHH questions (Round 2 in 2016 and Round 5 in 2018). The present study draws on the expertise of REs and their female supervisors in Niamey, Niger.

METHODS

Study design and data collection

PMA2018-Niger

PMA2018-Niger used a two-stage cluster design with primary sampling units (PSUs) selected using probability proportional to size. Thirty-five households were selected randomly from each cluster, and all women aged 15–49 years in sampled households were eligible to participate in the female survey. Additional information about PMA2020 methods is available elsewhere (Zimmerman *et al.* 2017).

MHH in PMA2020

The PMA2020 survey collects data on reproductive health indicators; water, sanitation, and hygiene; and MHH. There were no established indicators for monitoring MHH during survey development. Questions focused on capturing behavioral information linked to the 2012 Joint Monitoring Program definition of menstrual hygiene management (WHO/UNICEF 2012), including the types of menstrual material used and access to sanitation infrastructure for MHH. PMA included the same questions in all 11 PMA geographies. An open-ended question asking about women's unmet need for period management was replaced in 2018 by questions on self-reported work and school absenteeism due to menstruation. PMA2018-Niger questions are displayed in Table 1.

Table 1 | MHH questions in PMA2018-Niger

PMA2020 question [among women who menstruated in the last 3 months]	
001a	Where do you most often change your used pads, cloths, or other sanitary materials?
001b	While managing your menstrual hygiene, was this place: Clean; Private; Safe; Able to be locked; Supplied with water; Supplied with soap; None of the above <i>Read each option aloud and select if yes</i>
002	During your last menstrual period, what did you use to collect or absorb your menstrual blood? PROBE: Anything else?
003a	<i>[among women who responded potentially reusable materials to 002]</i> Did you wash and reuse pads, cloths, or other sanitary materials during your last menstrual period?
003b	<i>[among women who responded yes to 003a]</i> During your last menstrual period, were the sanitary materials that you washed and reused completely dried before each reuse?
004	<i>[among women who responded disposable materials to 002 or 'No' to 003a]</i> You mentioned that you used <i>[material]</i> during your last menstrual period. Where did you dispose of these materials after use? PROBE: Anywhere else?
005a	Aside from your own housework, have you done any work in the last month?
005b	<i>[among women who responded yes to 005a]</i> Due to your last menstrual period, were there any work days in the last month that you did not attend?
006a	<i>[among women 15–25]</i> Did you attend school at any time in the past 12 months?
006b	<i>[among women who responded yes to 006a]</i> Due to your menstrual period, were there any school days in the past 12 months that you did not attend?

Full female questionnaire, including response options, is available at: <https://www.pma2020.org/sites/default/files/FQ-English-2017-11-15.pdf>

Focus group discussions

Thirty-three REs collected data for the PMA2018-Niger survey. Each conducted at least 25 female interviews. All REs were invited to participate in the focus group discussions (FGDs) following data collection. A total of 20 REs (60.6%) and 2 female supervisors participated in the qualitative study. REs were split across four FGDs by age (20–30 years; 31–49 years) and marital status (married;

unmarried). A fifth FGD was conducted with the two supervisors. Six REs were never married and under 30 years old, five were over age 30 and single or divorced, and nine were over age 30 and married.

FGDs were undertaken immediately following the conclusion of data collection in September 2018. They began with a discussion of RE's impression of women's experiences managing menstruation in Niamey and their perceptions of women's concerns. FGDs then progressed to feedback on PMA2020 survey questions, discussed in survey order (Table 1). We sought feedback on women's typical responses to each question, RE's perceptions of women's ease in answering each question, and responses that were difficult for REs to code into the survey. For 001b (cleanliness, privacy, and safety of menstrual management locations), we first asked REs to provide their own definition of a clean, private, and safe location, followed by a discussion of RE's belief of how respondents perceived these terms. Finally, FGDs explored whether there were questions REs felt were missing from the survey and asked REs to provide feedback on draft items developed for the Menstrual Practice Needs Scale, reported elsewhere (Hennegan et al. 2020b).

An independent female consultant from Niamey conducted the FGDs in French. PMA2020 central team members were not present, enabling a safe space for participation without fear of how it would reflect on work performance. RE transport costs and lunch were provided. FGDs lasted an average of 1 h and 22 min. They were audio-recorded, and transcribed and translated into English by a paid transcription service. The consultant shared their impressions with the study team during a debrief session at the end of each of the 3 days of FGDs.

Analysis

To contextualize RE and supervisor feedback, we provide a descriptive summary of the PMA2018-Niger MHH data. Presented descriptives are adjusted for sample design. RE and supervisor feedback are presented for each PMA2020 question as a thematic summary. We thematically analyzed field team reflections on women's experiences of menstruation and recommendations for topics not covered in the PMA2020 survey.

Ethical approvals

Secondary data analysis of publicly available PMA2020 data, and expert feedback from PMA2020 resident interviewers were deemed exempt for review by Johns Hopkins Bloomberg School of Public Health Institutional Review Board and the Comité Consultatif National d'éthique. For PMA2020 survey, approval for human subjects research was granted by the Comité Consultatif National d'éthique. All participating REs verbally consented to participate.

RESULTS

PMA2020 survey data from Niamey, Niger

A total of 1,281 women aged 15–49 years old responded to the female questionnaire (93.2% response rate). Of these, 76.3% of women had menstruated in the 3 months prior to survey administration and were asked questions relating to MHH ($n = 978$). Table 2 summarizes MHH data.

Feedback on the performance of MHH questions

Below we present enumerator feedback on MHH questions following the order outlined in Table 1.

Table 2 | MHH practices captured in the PMA2018-Niger survey, among female respondents who menstruated in the past 3 months ($n = 978$)

	N (weighted)	%
<i>Main location for changing menstrual materials</i>		
Sanitation facility		
Pour/Flush toilet	151	15.5
Improved latrine (includes pit latrine with slab, VIP, and composting toilet)	436	44.5
Unimproved sanitation facility (pit without slab, bucket, hanging)	52	5.3
Sleeping area	296	30.2
Field/outside/no facility	42	4.3
No response	3	0.3
<i>Changing location characteristics (% yes)</i>		

(continued)

Table 2 | continued

	N (weighted)	%
Clean	809	82.8
Private	496	50.8
Safe	484	49.6
Soap	133	13.6
Water	150	15.4
<i>Type of menstrual material used (multiple response)</i>		
Reusable or disposable sanitary pads	418	42.8
Cloth	251	25.7
Cotton	190	19.4
Tampon	11	1.1
Foam	0	0
Toilet paper	2	0.2
Diapers	125	12.7
Underwear	35	3.6
Bucket	0	0
Other	9	0.9
<i>Washed and reused menstrual materials (n = 291)</i>		
Yes	255	87.5
No	37	12.5
<i>Materials dry before reuse (n = 257)</i>		
Yes	257	100
No	0	0
<i>Disposal location (n = 826)</i>		
Flush toilet	85	10.3
Latrine	528	63.9
Waste bin/trash bag	174	21.1
Burning	20	2.5
Bush/field	21	2.5
Other	55	6.7
<i>Missed work during last month due to menstruation (among 214 women who worked in the past month)</i>		
Yes	23	10.6
No	189	88.2
No response	2	1.1
<i>Missed school due to menstruation in the last year (among 216 women who attended school in the past year)</i>		
Yes	31	14.5
No	181	83.9
No response	4	1.6

Acceptability

While acknowledging that menstruation was a sensitive ‘women’s issue’, REs reported that overall, MHH questions were acceptable and women readily answered. REs noted MHH questions were less challenging than those related to sexual practices which were the most challenging for gaining trust and responses.

Location for MHH (001a)

Field staff generally agreed that the question capturing the place used for changing menstrual materials was easy for respondents to understand. Some did describe, however, needing more time to clarify when women reported separate locations for cleaning and changing:

‘... They try and tell me they use an outside toilet to clean themselves. But that they need to go into their room to get a new sanitary napkin. But to remove and throw away the old one, that is usually done in the toilet, and then the new one is put on in the bedroom.’ (FG4)

REs noted the most common responses were sanitation facilities, bedrooms, or bathrooms. Notably, a bathroom/shower room does not appear as a response option in the PMA2020 surveys, which had been raised as an issue during data collection.

In past PMA surveys, response options included the general household sanitation facility or another sanitation facility. In 2018, the survey asked respondents to specify the type of facility. REs reported that this did not cause difficulties because they had ascertained the facility type during household surveys.

Characteristics of MHH location (001b)

When describing the primary location for managing menstruation, field staff shared many definitions for ‘clean’, ‘private’, and ‘safe’ based on their understanding of the terms. A clean space was a location free from dirt or urine, a place that ‘[is] not dirty, simply’, and ‘where you have your own toilet. It is well disinfected, and it is a place with available water [and] soap’ (FG1). Some REs

also noted that a clean place has a low risk of contracting infections when changing menstrual materials.

While there was alignment in impressions of ‘clean’ places, there was considerable disagreement on definitions of ‘private’ and ‘safe’. This reflected the confusion they noted from respondents. Regarding privacy, some field staff described private locations as where a woman cannot be disturbed, while others indicated a space shared with few or no people. One RE stated,

‘As for private, that they are not sharing with anyone, not sharing the toilet with anyone.’ (FG4)

To add confusion, many used the terms ‘private’ and ‘safe’ synonymously rather than distinct concepts. For example,

‘If, for example, I go to the bathroom, I’m in private. I go home and close [the door]. I am in a private place, I am in a safe place. Where nobody can disturb me.’ (FG1)

Consequently, most REs said this question remained one of the most difficult to ask:

‘They [respondents] do not have the same understanding as us, but we try to make them understand.’ (FG3)

MHH materials (002)

REs noted that Niamey women’s use of menstrual materials was driven by their economic status. Generally, REs and supervisors thought women responded easily to this question. REs stated that women using commercial products would often respond with the brand name. One RE noted that some participants experienced embarrassment around the use of atypical materials:

‘There was one woman who ... wanted to know why I was asking that question. It wasn’t easy for her to answer. It was only then that she told me she uses [another material] because she doesn’t trust sanitary pads. So, she didn’t answer me directly, because she wasn’t comfortable giving me her answer, but told me by way of explanation that that was what she used.’ (FG4)

Reusing materials (003a and 003b)

REs and supervisors reported that respondents found the questions on washing, drying, and reusing materials straightforward. Several suspected, however, that some women responded dishonestly about materials being ‘completely dry’ before reuse (003b), especially among foam users.

‘They cut their mattress ... they wash the pieces of material [foam] ... they only squeeze out the water, and then, they put it on and leave the toilet. As for those who use [foam], they say that they wait until they are completely dried.’ (FG2)

Work and school absenteeism (005 and 006)

Aligning with the survey results, field staff reported that most respondents did not miss work or school during menstruation. REs felt these questions were easy to answer.

‘It’s easy because once you put the question to the person, the person gives you the reasons why they did not go to school or work.’ (FG1)

There was disagreement on the most appropriate recall period, with the majority agreeing 12 months recall for school absences was too long and recommending a period closer to 3 or 6 months.

‘Because when you ask the question, the last twelve months, it’s been a year already. You cannot [remember] all things in a year.’ (FG1)

REs believed most menstruation-related absences were caused by menstrual pain or heavy bleeding. For some, REs felt not having supportive toilets in workplaces and difficulties affording materials also contributed to missed work or school.

‘... There are some girls who say the pain stops them from going to school, and some women say it stops them from working.’ (FG4)

‘... There are girls who don’t go to school not because of menstrual pain, but merely because she has heavy flow.’

‘She is scared of getting stained in front of her school-mates, so she misses school.’ (FG2)

Field team perspectives on MHH needs

REs did not express strong views regarding questions that should be added to capture women’s menstrual experiences. However, at the start of the FGD when discussing women’s experiences and worries, they articulated MHH needs not captured in surveys. Field staff noted the financial burden of accessing menstrual materials and raised issues related to menstrual pain, both in terms of pain-related challenges and the need for improved access to pain relief options.

REs noted concerns about irregular cycles, with irregular periods causing stress if menstruation starts without warning. Many REs discussed challenges women faced managing menstruation when traveling outside the home, such as in markets and on public transport, and challenges finding private spaces to change materials and self-cleaning. Particularly, this was challenging in the context of concealing menstruation. All FGDs emphasized the stigma associated with menstruation. Groups discussed that this led to discomfort and anxiety among women.

‘When you are menstruating you think that even if you have not said [anything], you’ll think that everyone knows what you’re doing.’ (FG1)

In listing women’s concerns, one group prioritized the mental preparation that was required to ready oneself for menstruation.

‘Mental preparation is only required for young girls that are starting their menstruation. No, everyone, all women! Everyone, even old women! Mental preparation, we need preparation!’ (FG2)

Issues around knowledge were raised, particularly for adolescent girls. REs felt adolescents needed information so that they were prepared and not distressed and confused at menarche, as well as education on effective management. Some REs also noted knowledge gaps among adults, suggesting information could be offered at key times such as in pre- or post-natal care visits.

'Some women ask how to avoid infections during menstruation. A woman asked me whether the use of sanitary pads could help prevent infections. So I think maybe something that covers that.' (FG4)

DISCUSSION

As members of the surveyed communities, PMA2020's REs offer a unique perspective on the performance of MHH survey measures. FGDs identified strengths and limitations of MHH questions in PMA2020 surveys, with implications for other monitoring efforts.

REs reported that MHH questions were well tolerated by respondents. Conceptually, questions on materials and locations for menstrual management were well understood. REs noted that respondents using commercial materials often responded with the brand name. Thus, we recommend that training includes common brands to familiarize interviewers. This will be increasingly important as reusable pads achieve greater market penetration to avoid misinterpretation. Shame and embarrassment around perceived lower quality MHH products and practices may have pushed some respondents to provide untrue or less complete responses. This was noted for both the type of material and drying of reusables. Importantly all REs were female and male interviewers are very unlikely to be acceptable to administer questions related to menstruation.

Many women in Niamey changed their menstrual materials in a bathroom (shower/washing room), a response option that must be added to future surveys. Further, REs noted that some women used multiple locations to clean their body, wash materials, dispose of the used material, and replace the removed material. This required clarification to identify the location for changing, or generated difficulty selecting a single response. Since closed survey questions necessitate simplification, researchers may need to perform additional testing and consider which behaviors are best placed to monitor improvements in MHH.

Rating facilities used for menstrual management as 'private' and 'safe' was reported as the most challenging MHH question to administer. REs and respondents were confused by these abstract concepts, with mixed perspectives on what constitutes a private or safe location among REs and

respondents. Khan *et al.* (2017) reported similar challenges when testing the MICS MHH questions in Belize, further suggesting that this question may not be well-suited for a wide range of contexts. Future surveys would benefit from questions that examine visual and auditory privacy and vulnerability to violence while changing menstrual materials. Cognitive interviewing and pre-testing would help improve question phrasing to accurately portray concepts and inform question and interviewer training modifications.

The majority of REs felt that a 12-month recall period for reporting school absenteeism was too long and suggested a shorter period closer to 3 or 6 months. Consistent with other quantitative studies of menstrual-related school absenteeism (Alam *et al.* 2017; Miirio *et al.* 2018), REs shared that pain and insufficient pain relief were the most common reasons for missing school or work. REs also mentioned the material and water, sanitation, and hygiene-related challenges that have been implicated in absenteeism elsewhere (Crichton *et al.* 2013; Hennegan *et al.* 2019; UNICEF 2019). National and sub-national data using these questions must, therefore, be interpreted as reflecting a variety of unmet MHH needs. Researchers should also consider if more specific questions are needed.

Finally, REs provided insights into the range of unmet MHH needs for women in Niger. Many fell outside the current PMA2020 survey questions, including access to pain relief, menstruation-related worry and stigma, access to supportive environments for menstrual management outside the home, and knowledge needs throughout the life-course. These are consistent with the MHH needs identified in studies across a range of contexts (Hennegan *et al.* 2019; MacRae *et al.* 2019), and should be prioritized for inclusion in monitoring efforts.

Strengths and limitations

PMA2020's REs provided important insights to refine measures used to monitor MHH. This study would have benefited from in-depth interviews and cognitive interviewing with respondents.

CONCLUSIONS

MHH remains a nascent topic for public health research in LMICs. Our findings suggest that attention to question

formulation and continued refinement for large-scale surveys is needed. More explicit and detailed question wording will help ensure topics related to location privacy and MHH-related school and work absenteeism are more accurately measured. Further, new indicators and measures may be needed to capture the breadth of MHH needs.

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AUTHOR CONTRIBUTIONS

Conceived the study: J. H. Contributed to research design and survey materials: E. L., S. T., S. O., S. A., K. J. S., and J. H. Conducted FGDs: N. H. M. Qualitative analysis: E. L., S. T., and J. H. Quantitative analysis: A. R. Wrote the first draft of the manuscript: E. L. and S. T. Provided critical contributions and comments on the manuscript: J. H., A. R., S. O., S. A., K. J. S., and N. H. M. All authors have approved the final manuscript.

CONFLICTS OF INTEREST

All authors declare that there are no conflicts of interest.

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DATA AVAILABILITY STATEMENT

PMA2020 data is publicly available for request from the website: <https://www.pmadata.org/data>. Qualitative data cannot be made publicly available; readers should contact the corresponding author for details.

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