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Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda.

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Abstract

Objectives. To describe Ugandan schoolgirls menstrual hygiene management (MHM) practices and estimate the prevalence of inadequate MHM. To assess the relative contribution of aspects of MHM to health, education, and psychosocial outcomes.

Design. Follow-up survey data from a controlled trial of reusable-sanitary pad and puberty education provision was used to provide cross-sectional description of girls' MHM practices and assess relationships with outcomes.

Setting. Rural primary schools in the Kamuli district, Uganda.

Participants. Participants were 205 menstruating schoolgirls (10-19 years) from the eight study sites.

Primary and secondary outcome measures. The prevalence of MHM, consistent with the concept definition, was estimated using dimensions of; absorbent used, frequency of absorbent change, washing and drying procedures, and privacy. Self-reported health, education (school attendance and engagement), and psychosocial (shame, insecurity, embarrassment) outcomes hypothesised to result from poor MHM were assessed as primary outcomes. Outcomes were measured through English surveys loaded on iPads and administered verbally in the local language.

Results. 91% of girls failed to meet available criteria for adequate MHM, with no significant difference between those using provided reusable sanitary pads (89%), and those using existing methods, predominantly cloth (92%). Aspects of MHM predicted some consequences including shame, not standing in class to answer questions, and concerns about odour. Many null results were also observed.

Conclusions. This study was the first to assess the prevalence of MHM consistent with the concept definition. It found that the provision of reusable sanitary pads to a proportion of the sample did not affect pooled MHM. The work demonstrates an urgent need for improved assessment and reporting of MHM, and for primary research testing the links between menstrual management and health, education, and psychosocial consequences.

Strengths and limitations of this study

- Provides the first prevalence estimate of menstrual hygiene management consistent with its definition
- Offers a working example of the quantitative assessment of MHM, using best available evidence to assess each aspect
- Multivariable comparisons demonstrate the importance of multiple aspects of menstrual hygiene in predicting hypothesised health, education and psychosocial consequences
- Self-reported menstrual hygiene behaviours, health, education, and psychosocial outcomes are vulnerable to biases, particularly social-desirability
- The cross-sectional nature of the study limits causal inference, and associations with consequences are limited by a lack of adjustment for potential socio-demographic confounds

Background

Menstrual hygiene management (MHM) has received increasing attention as a public health issue. After a history of silence, stakeholders from governments to local charities have started to speak about the barrier that the management of menstruation presents to gender equality, and the potential for programs to address the problem. Qualitative research has documented challenges girls face in managing their menses and indicated health, education and psychosocial wellbeing consequences of poor management.[1-4] However, rigorous quantitative studies of the associations between MHM and health, education and psychosocial outcomes are scarce.[5] With regard to health, few studies have assessed associations between infection and MHM. In the most comprehensive work to date, a case-control study concluded that there was evidence for an association between reusable pad use and lab-confirmed urogenital infection compared to disposable pads, but noted the complex range of MHM practices, and the need for more research.[6] Other physical and health outcomes including irritation, discomfort and urogenital symptoms, even if not confirmed infections, are also important potential consequences of poor MHM which impose on women’s ability to participate in society with dignity.[7,8]

School absenteeism and disengagement have been emphasised as important consequences of poor MHM. Quantitative evidence for links between MHM and attendance have been mixed, although studies have almost exclusively looked at absorbent type, rather than all MHM practices discussed below.[9-12] Studies have focused on attendance,[5] and additional work is needed to capture the impact of menstruation on concentration and engagement, even if girls are at school.[2 13] Psychosocial consequences including shame, insecurity, anxiety, and fear of stigma are well-documented correlates of menstruation in qualitative studies (e.g.,[2,4]). Such negative psychosocial outcomes have been hypothesised to arise from poor MHM such as inadequate absorbent use.[3] They may also result from a lack of knowledge and information about menstruation,[14], cultural stigma and taboos,[4] and as a result of transactional or coercive sex undertaken to meet MHM needs.[15] More quantitative evidence is needed to unpack the roles of these different contributors to wellbeing, and associations between MHM and wellbeing outcomes. As argued below, it may be inaccurate to label all of these predictors as MHM.

Menstrual hygiene management: definition, use, and measurement

A unified, working definition of MHM was developed by the Joint Monitoring Program of the World Health Organisation and UNICEF in 2012, defining MHM as: *“Women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for*

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3 *washing the body as required, and having access to facilities to dispose of used menstrual*
4 *management materials.”*[16] This captures aspects of the physical requirements for hygienic,
5 effective management of menstrual bleeding. Use of the term has proliferated; however,
6 operationalisation has been inconsistent. As per the above definition, adequate MHM would
7 require:
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- 10 • Clean absorbents
- 11 • Adequate frequency of absorbent change
- 12 • Washing the body with soap and water
- 13 • Adequate disposal
- 14 • Privacy for managing menstruation

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18 Studies to date have only reported a few of these aspects (see [17]). Prevalence studies, and
19 quantitative assessments of predictors and consequences of poor MHM have focused on the type of
20 absorbent used, the first aspect of MHM (e.g.,[18]). Some include one or two additional
21 components, such as washing the body, or disposal of absorbents (e.g.,[19,20]). None have included
22 all aspects of MHM or considered a pooled, comprehensive prevalence estimate requiring all
23 conditions to be met. Overextension of the term has also occurred with studies reporting a lack of
24 knowledge about menstruation, or cultural taboos as aspects of MHM, rather than contributors to
25 MHM (e.g.,[12]).
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32 One barrier to the full assessment of MHM is the lack of evidence and consensus of what
33 constitutes adequacy in each aspect. In a systematic review of MHM practices and infections,
34 Sumpter and Torondel [21] found no consistent standard in the application of ‘good’ and ‘bad’
35 MHM. They found that most studies used only absorbent type to predict consequences, and even
36 with this simplified criterion, did not agree on the adequacy of absorbents such as cloth. Single use
37 absorbents such as sanitary pads are easily classified as clean, however reusable absorbents such as
38 cloth or reusable pads (homemade or commercially produced) could be considered hygienic if
39 cleaned appropriately.[21] MHM literature is yet to provide evidenced guidance for washing and
40 drying absorbents. Washing with soap may be one important criterion, and drying is also important.
41 Exposure to UV through sunlight is known to have a microbiocidal effect.[22] Leaving fabrics damp
42 has been found to encourage microbial survival, and wearing absorbents wet has frequently been
43 considered unhygienic, with some evidence for greater infection risk and discomfort.[1,6,22]
44 Similarly, there is little rigorous evidence to guide absorbent change frequency. The *Menstrual*
45 *Hygiene Matters* report [1] suggested changing absorbents every 2-6hrs dependent on blood flow.
46 However, there is a lack of evidence on the irritation and infection risk associated with prolonged
47 wear, and women’s perceptions of the adequate frequency for changing for comfort and risk of
48 soiling. There is no clear guidance on optimal washing frequency, or correct use of soap and water
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on the body and genitals. Similarly, disposal method adequacy is likely to be contextually dependent and rely on reports of latrine capacity, cultural appropriateness of burning absorbents, and other waste disposal methods. Finally, whilst the concept definition stresses the need to change absorbents in privacy, women and girls need privacy for all aspects of MHM such as washing the body and absorbents.[7] Each of these aspects must be considered in trying to estimate the prevalence of MHM, establish relationships between predictors and consequences of poor MHM, and evaluate interventions aimed at improving MHM.

Recent calls for action, such as the *MHM in Ten* report,[23] state the need for a strong quantitative evidence base. This is difficult to achieve without consistent, transparent reports of MHM as defined. Prevalence estimates are needed to assess the distribution of the issue, and to advocate effectively for MHM to be addressed by governments, non-government organisations, and other interest groups. Assessment of all aspects of MHM is needed to identify the relevant contributors to the problem, and establish quantitative links between MHM and consequences. For example, a recent systematic review of MHM studies in India reported that in multivariable models, the use of sanitary pads did not predict school attendance.[12] It is inaccurate to conclude from this finding that MHM does not predict attendance, but only that the type of absorbent used may not. Similarly, trials to date have focused on education and sanitary product provision.[5] No studies have reported if addressing these contributors to MHM, that is, education informing girls how to manage menstruation hygienically, and the provision of clean absorbents as a resource to improve one aspect of MHM (clean absorbents), actually improves MHM overall. Given the many components of MHM detailed above, it is likely that the provision of menstrual products without attention to other factors is insufficient to improve MHM. This has implications for our expectations and interpretations of intervention outcomes. Trials to date assume that improvements in school attendance or psychosocial outcomes observed are the result of improved MHM, but none have tested this. It may be that other factors such as reductions in menstrual stigma, improved pain management strategies, or improved social support amongst classmates contribute to these improvements. While important aspects of managing menstruation, these factors do not fall under the MHM definition. They risk being minimised if studies focus only on MHM, or being mishandled if inaccurately labelled as MHM, which may further complicate its definition and make measurement more difficult. Thus there is a need to understand how proposed interventions affect MHM and to establish the role of MHM, in contrast to other aspects of managing menstruation, in hypothesised consequences.

The present study

The present study follows-up the *Menstruation and the Cycle of Poverty* study undertaken in rural Uganda from January 2012 to December 2014. The trial methods and primary outcomes of school attendance and psychosocial wellbeing are described elsewhere (see[24]). Briefly, eight primary schools (P3-7) located in Kamuli district, Uganda, an area characterised by poor performance on education and health indicators, were quasi-randomised to one of four conditions, the provision of: puberty education alone, AFRIpads alone, puberty education and AFRIpads, or a no-intervention control.

Girls in the AFRIpad conditions were provided with one pack of AFRIpads and small quantity of Omo soap. AFRIpads are a washable, reusable cloth sanitary pad produced in Uganda (<http://www.afripads.com/>). Girls in the puberty education conditions received an education session lasting approximately 1.25 hrs (see [24]). Attendance registers were taken at education sessions and girls who received AFRIpads were recorded.

The present study employs follow-up survey data from the trial to provide the first estimate of MHM consistent with the concept definition. This is used to estimate the association between poor MHM and health, education, and psychosocial outcomes, alongside an assessment of the relative contribution of aspects of MHM to outcomes. MHM prevalence was compared between those who received AFRIpads and those who did not.

Research Questions

1. What are the self-reported MHM practices of girls in rural Uganda?
2. What is the prevalence of MHM consistent with the concept definition?
3. Is adequate MHM greater amongst those provided with reusable sanitary pads?
4. How do aspects of MHM, and pooled MHM, comparatively predict health, education, and psychosocial wellbeing?

Methods

This study was conducted and reported according to best practice guidelines in the Strengthening the Reporting of Observational studies in Epidemiology.[25] Checklist for cross-sectional studies is reported in Supplementary Materials 1.

Participants

435 schoolgirls across the 8 study schools completed follow-up surveys. This included girls who had been involved in the trial, and girls in the same classes who had joined the school after the

trial commenced. All girls were surveyed to avoid selectively identifying those menstruating or involved in the trial, potentially stigmatising these girls. 205 girls who had reached menarche are included in this study.

Survey design

The survey was administered in November 2014. Trained local research assistants from the partner NGO (Plan International) used an English version of the survey loaded on iPads in the app *SurveyGizmo*. iPads were used in the field offline and data was uploaded to the online service *SurveyGizmo* at the end of each day once an internet connection could be established. Research assistants verbally administered surveys in Lusoga (the local language) and inputted answers in English into the instrument.

Survey items were designed following a pilot trial and qualitative research in Ghana (see [3,11]), where a number of similar items were also used. Additional questions were developed following feasibility and acceptability work leading to the selection of AFRipads for the intervention study,[26] and in consultation with stakeholders and partner NGO staff. To support best practice and transparency in reporting, a full list of survey items used is reported in Supplementary Materials 2.

Survey measures

Participant characteristics. Girls self-reported their age, grade in school, and how long it took them to walk to school. Data were also collected concerning access to water and soap at home and schools as yes/no responses to items asking “Do you have regular access to (water/soap) at (school/home)?”.

MHM practices. Girls self-reported MHM practices through structured questions. To assess absorbent use girls were asked: “What do you usually use to catch/absorb your MP (menstrual period)?”, and their free responses were recorded by research assistants as AFRipad, cloth, toilet roll, sanitary pad, or other. Few girls reported use of toilet roll so this was recoded to other, along with reports of use of underwear alone and mattress or sponge. In a follow-up question girls were asked where they (or the person who gives them the absorbent) obtains it. This item was used to determine if girls were using old or new cloth. Girls were also asked: “How frequently do you change your sanitary protection?” with guidance from research assistants that per-day meant in 24hrs.

For girls who reported using AFRipads or cloths, follow-up questions captured washing and drying procedures. Girls responded yes/no to items: “Did you ever wash the AFRipad/cloth?”, and to the follow-up: “Did you use soap?”. To assess drying girls were asked: “Where did you hang the cloth to dry?” with responses including under the bed, outdoors, in the school dorm rooms, and in a

secret place. Free text responses to the question included: in the bathroom, behind the toilet, in the grass, and behind the house. Responses were back-coded into three categories: outside, hung inside, or hidden inside. Girls were then asked: *"How often did you wear the cloth/AFRIPad damp?"* with response options *never, sometimes, and usually*.

Girls were asked: *"What do you usually do with your used sanitary protection when you have to change at home/school?"* with response options *throw in latrine, throw in bush, dispose at community rubbish heap, bury, and burn*. When asked about disposal at school, listed responses also included *go home to change*. *Wash and reuse* was a listed option for home disposal. For both questions girls volunteered information and research assistants selected the appropriate category. No girls reported disposing at community rubbish heaps, burning, or burying pads.

Those using reusable absorbents were asked: *"Do you worry about being observed when washing the cloth/AFRIPad?"* with yes/no response options.

Health. Girls were asked to report if during their *last* period they experienced: skin irritation or rashes in the pelvic area with a yes/no response. They were also asked if since the beginning of the school year they had experienced *"any itching or burning in the pelvic area"*, or *"any white or grey discharge from their [your] vagina"* and could report if this was while on their period, at only other times, or both during their period and at other times. All girls reported that this was experienced either only during their period, or during their period and at other times, so only a dichotomous *experienced* response was used. Girls were asked: *"Do you worry that other people can smell your menstrual period?"* with yes/no responses.

Education. Girls reported if they felt their menstruation ever caused them to miss school or not to do their homework as part of a longer list of activities (including other items such as participating in sports or being around males). Girls were asked: *"Do you avoid standing in class to answer questions while on your menstrual period?"* and *"Do you find it difficult to concentrate at school when you have your menstrual period?"* with yes/no options. The latter was followed with a multiple response item capturing the reasons for difficulties concentrating, listed in results tables.

Psychosocial wellbeing. Girls reported if during their *last* period they experienced embarrassment. They also reported if during their menstruation they felt ashamed or insecure or if this was the same as when they were not menstruating. The total score from the Strengths and Difficulties Questionnaire (SDQ:[27]) was used to assess psychosocial wellbeing. The SDQ consists of 25, 3-point Likert scale items from 0 '*not true*' to 2 '*true*', with a midpoint of 1 '*somewhat true*'. The

total score uses items from the four problem subscales of; hyperactivity, conduct problems, peer problems, and emotional problems.

School attendance

Attendance data was recorded for girls participating in the *menstruation and the cycle of poverty* trial. For the present study, follow-up attendance data was used. Local research assistants from the partner NGO collected attendance for a single week during the fourth week of each of the three terms in 2014. This was collapsed to create a continuous variable: the percent attendance out of the 15 days recorded. Week 4 of the school term was selected to avoid very-low attendance periods coinciding with school fee collection at the start of term or agricultural practices, based on advice from site visits and local agents.

MHM measure

Self-reported MHM behaviours were used to generate a pooled estimate of MHM. Criteria for each step were derived from background literature, although as noted existing evidence is sparse. Absorbents were considered clean if they were AFRipads, new cloth or sanitary pads, with old cloth and other items such as toilet paper, mattress, sponge, or underwear alone considered inadequate. Changing absorbents 3 or more times per 24hrs was required to be considered adequate MHM, consistent with recent work,[6] and guidance.[1] For reusable absorbents, MHM was considered inadequate if not washed with soap. Absorbents were considered to be hygienically dried if dried outside, rather than hung up or hidden inside. Never wearing absorbents damp was also required for adequate MHM. Finally, girls needed to report they were not worried about privacy for washing their absorbents. There were no appropriate items in the survey capturing washing the body or genitals, or items on the ability to change absorbents in privacy, which would have improved the MHM estimate. Whilst disposal methods were reported, there was no consistent guidance on what could be considered an adequate method, so this item was not included in the overall estimate. These aspects were considered the *minimal* requirements for MHM, using best available evidence.

As criteria for MHM could be debated given the lack of evidence, an additional measure of MHM was used for comparison. For this pooled total more *relaxed* criteria were used. Both new and old cloth were considered to be adequate absorbents at step one, with the concession that if washed appropriately old cloth could be considered an adequate absorbent. Girls were only required to change their sanitary protection twice per day, although were still required to wash absorbents with soap and water. To meet criteria as having adequate MHM in the relaxed model

girls needed to dry absorbents outside or hung up inside; only those who dried their absorbent hidden away were considered to have poor MHM. The criteria that girls never wear absorbents damp remained unchanged, as did the requirement they felt they had adequate privacy to wash reusable absorbents. Girls were required to meet all relaxed criteria to be considered to have adequate MHM in this model.

Analyses

Analyses were conducted using Stata 14.0.[28] Participant characteristics were detailed using descriptive statistics, as were the prevalence of MHM practices and consequences.

Combined measures of MHM were reported using descriptive statistics. The chi-square statistic was used to compare the pooled MHM between those who received AFRIpads and those who did not. Bivariate correlations were used to test the overlap of MHM aspects prior to use in multivariable models.

Univariate and multivariable logistic regressions assessed the relationships between MHM practices and health, education, and psychosocial outcomes. Washing absorbents (with or without soap) was not used as a predictor in these comparisons as almost all girls reported doing so. All of the girls who reported never wearing their absorbent damp had also dried their absorbent outside, so only the location of drying was used as a predictor in the models. Univariate logistic regressions assessed the relationship between the combined measures of MHM and outcomes. For continuous outcomes of school attendance and total SDQ score, independent samples t-tests were used.

Ethics

Ethical approval for the study was received from the Social Science & Humanities Inter-Divisional Research Ethics Committee at the University of Oxford (Ref: SSD/CUREC1/11-056), the AIDS Support Organisation (TASO) Institutional Review Committee Uganda (TASOIRC/022/14-UG-IRC-009), and the University of Illinois (#12236). To participate in the trial, girls and their parent/caregiver provided written consent. At the start of the survey girls provided verbal consent to participate. No girls declined participation. They were informed that they were free not to answer any question in the survey.

Results

Participant characteristics

Of the 205 menstruating girls included in this paper, 145 (70.7%) had been attending the schools in the trial at baseline. A total of 124 were listed as having received one of the tested interventions (education alone: 37; pads alone: 60; and education and pads: 27). 81 girls had received no intervention.

Girls ranged from a self-reported age of 10-19 years ($M=14.20, SD=1.12$). The average age at menarche was 12.82 years ($SD=1.28$). Table 1 describes the participant characteristics.

Table 1. Participant characteristics (n=205)

	%	N
Grade		
P3	0.5	1
P4	8.3	17
P5	21.5	44
P6	44.9	92
P7	24.9	51
Did you go to the same school last year?		
Yes	94.6	194
No	5.4	11
How long does it take you to get to school?		
10 minutes or less	19.8	33
11-30 minutes	37.7	63
31-60 minutes	37.7	63
>1hr	4.8	8
No answer		38
Do you have regular access to:		
Soap at home (n=200)	94.0	188
Water at home (n=200)	99.0	198
Soap at school? (n=199)	27.1	54
Water at school? (n=199)	44.2	88

Menstrual hygiene management (MHM) practices

Table 2 describes the girls' MHM practices. Four did not report the type of absorbent used, therefore were not asked follow-up questions. Thus the table reports on 201 girls, unless otherwise indicated. Almost 36% of the sample were using AFRipads received as part of the intervention study. Most girls who had not received pads used cloth as absorbent. Of those using reusable absorbents, almost all reported washing them and using soap for every wash. Half of those who washed absorbents hid them to dry, most commonly under the bed. 23% reported wearing absorbents wet at least once.

Table 2. Self-reported menstrual hygiene management practices (n=201)

	%	N
Absorbent		
What do you usually use as menstrual absorbent?		
AFRIPad	35.8	72
New cloth	14.9	30
Old cloth	30.9	62
Sanitary pad	9.0	18
Other (incl. toilet paper, underwear, mattress, sponge)	9.5	19
How frequently do you change your sanitary protection?		
1x per day	6.1	12
2x per day	33.2	65
3x per day	49.0	96
4x per day	9.7	19
5+ times per day	2.0	4
Missing		5
Washing reusable absorbents		
Did you wash the absorbent? (n=158)¹		
Yes	95.7	154
No	1.9	3
No answer/don't know	2.5	4
Did you use soap? (n=154)²		
Never	0	0
Sometimes	1.9	3
Every time	98.1	151
Drying reusable absorbents		
Where did you dry the absorbent? (n=154)²		
Hidden inside (e.g., under bed)	47.4	73
Hung up inside (e.g., girls dorm, bathroom)	11.0	17
Outside	41.6	64
How often did you wear the absorbent damp? (n=154)²		
Never	77.3	119
Sometimes	6.5	10
Usually	16.2	25
Absorbent disposal		
What do you usually do with your used sanitary protection when you have to change at school? (n=158)³		
Throw in latrine	12.3	19
Take home to wash or dispose	85.7	132
NA (never change at school/board at school)	12.0	3
What do you usually do with your used sanitary protection when you change at home? (n=199)		
Throw in latrine	11.6	23
Put in trash	0.5	1
Wash and reuse	87.9	175
Privacy		
Do you worry about being observed when washing the absorbent? (n=154)²		
Yes	73.4	113
No	26.6	41

¹ Of girls using reusable menstrual absorbents (AFRIPads, cloth)² Of girls using reusable menstrual absorbents (AFRIPads, cloth) who reported washing their absorbent³ Only asked of girls who reported they 'couldn't go whole day at school without changing absorbent'

Prevalence estimate: menstrual hygiene management

By adding each available aspect of MHM assessed, the overall prevalence of MHM was estimated. Table 3 displays the proportion of girls who met criteria at each step. That is, the proportion of girls remaining after the introduction of that requirement for MHM. Each additional aspect of MHM resulted in fewer girls qualifying. There were particularly large drops following the introduction of changing frequency, drying, and privacy. After the inclusion of available aspects, only 9.5% of the sample qualified as having adequate MHM using minimal criteria. The prevalence of inadequate MHM did not differ between those who used AFRIpads (88.6%) and those using existing methods (91.5%), $\chi^2(1)=0.12, p=.729$.

As noted previously, there is a lack of evidence for MHM criteria. Thus, more relaxed criteria were applied for comparison (Table 3, right columns). Despite these changes, the overall prevalence of poor MHM remained high and there was no significant difference between those using AFRIpads (80.6%) and those using existing methods (76.7%), $\chi^2(1)=0.20, p=.655$.

Table 3. Estimated prevalence of menstrual hygiene management, using minimal and relaxed criteria

	MHM criteria (minimal)		MHM criteria (relaxed)	
	AFRIpad users N=72	Usual practice N=129	AFRIpad users N=72	Usual practice N=129
	application of criteria % (n) retained		application of criteria % (n) retained	
Clean absorbent	(= AFRIpad, new cloth, or sanitary pad) 100 (72) 37.2 (48)		(= AFRIpad, old or new cloth, sanitary pad) 100 (72) 85.3 (110)	
Changed frequently	(= 3 times or more) 66.7 (48) 19.4 (25)		(= 2 times or more) 93.1 (67) 80.6 (104)	
Washed with soap ¹	(= washed absorbent with soap) 65.3 (47) 18.6 (24)		(= washed absorbent with soap) 90.3 (65) 79.1 (102)	
Dried adequately ¹	(= absorbent dried outside) 29.2 (21) 10.1 (13)		(= absorbent dried outside or hung inside) 56.9 (41) 45.7 (59)	
	(= absorbent never worn damp) 29.2 (21) 10.1 (13)		(= absorbent never worn damp) 56.9 (41) 41.1 (53)	
Privacy ¹	(= not worried about being observed washing absorbent) 11.1 (8) 8.5 (11)		(= not worried about being observed washing absorbent) 19.4 (14) 23.3 (30)	
Meet available criteria:	11.1 (8)	8.5 (11)	19.4 (14)	23.3 (30)
Prevalence of poor MHM:	88.9 (64)	91.5 (118)	80.6 (58)	76.7 (99)
	Total %(n)		Total %(n)	
Met available criteria:	9.5 (19)		21.9 (44)	
Prevalence of poor MHM:	90.6 (182)		78.1 (157)	

¹If reusable absorbent (AFRIpad, new/old cloth)

While the study aimed to use each aspect of MHM to predict outcomes, almost all girls reported washing absorbents with soap. Thus groups were not large enough for reliable comparison in chi-square or logistic regression so this criterion was dropped from analysis of association with outcomes. As noted in the analysis section, drying criteria were collapsed. The minimal MHM criteria from Table 3 (i.e., new cloth, AFRipad or sanitary pads considered clean absorbent, and outside alone considered adequate drying), were used for comparison with health, education and psychosocial outcomes.

To check for multicollinearity and associations between the different aspects of MHM, bivariate correlations were compared between the clean absorbents (AFRipad, new cloth, sanitary pad), frequency of absorbent change (3+ times), drying adequately (outside), and having adequate privacy. There was only one significant correlation between girls feeling they had adequate privacy to wash absorbents and drying absorbents adequately (outside), $r=0.42$, $p<.001$. All other associations were very low ($r<.08$).

Consequences of poor MHM

Table 4 presents the proportion of girls reporting negative health, education and psychosocial outcomes. Approximately half of the sample reported discomfort, possibly indicating health consequences. Less than 20% of girls stated that menstruation caused them to miss school, although over half reported not standing in class to answer questions, and finding it difficult to concentrate when menstruating. Discomfort, fear of soiling, and menstrual pain were the most common reasons for difficulty concentrating. Many girls reported embarrassment, shame, and insecurity associated with menstruation.

Table 4. Prevalence of proposed consequences of poor MHM (n=201)

	%	N
Health/comfort		
Skin irritation/rashes in pelvic area during last MP (n=153) ¹	54.3	83
Itching or burning in the pelvic area (since start of the school year) (n=199)	60.3	120
White or green discharge (since start of the school year) (n=199)	47.2	94
Do you worry people can smell your MP? (yes)	70.2	141
Education		
Does your MP ever cause you to: (n=185) ¹		
Miss school	18.4	34
Not do your homework	7.6	14
School attendance at intervention follow-up (n=144) <i>M (SD)</i>	81.06	(18.58)
Do you avoid standing in class to answer questions on your MP (n=198)	64.7	128
Do you find it difficult to concentrate at school when you have your MP? (n=198)	51.0	101
Reasons it is difficult to concentrate during MP (n=101)		
Actual soiling	24.8	25

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Fear of soiling	72.3	73
Scent	15.8	16
Discomfort	49.5	50
Actual teasing	4.0	4
Fear of teasing	21.8	22
Cramps	54.5	55
Psychosocial wellbeing		
Strengths & Difficulties Questionnaire (SDQ) total score <i>M (SD)</i>	19.11	(5.31)
Did you experience embarrassment during your last MP (n=153) ¹	45.8	70
During your MP do you feel ashamed?	69.2	139
During your MP do you feel insecure?	69.2	139

¹ n's lower than 201 resulted in part from iPad issues where, in about 40 cases, the appropriate page froze or failed to load, additional missing resulted from girls not providing an answer to the question

Relationships between MHM aspects and proposed consequences

Table 5 displays the univariate and multivariable relationships between MHM aspects, pooled MHM estimates (minimal and relaxed), and health, education, and psychosocial wellbeing.

There were no significant associations with itching or burning, despite a consistently higher rate of report among those with poorer MHM. Drying outside had the reverse relationship to discharge than expected, with less white or green discharge reported amongst those drying inside or hidden. This unexpected direction of effect was also found for girls' fears that others could smell their menses. Unclean absorbents and inadequate privacy were associated with increased concerns about odour in multivariable comparison.

Only one aspect of MHM was associated with school attendance, with those changing less than 3 times a day having a higher rate of attendance. Unclean absorbents and privacy were associated with higher odds of avoiding standing in class to answer questions, as were pooled MHM estimates. Only adequate privacy for washing absorbents was associated with difficulties concentrating, although having a clean menstrual absorbent trended towards significance with an almost 10% difference in reports. Drying practices were associated with shame in the opposite direction to that expected. Adequate privacy for washing was associated with shame and insecurity.

Despite very large percentage differences in the reports of consequences between those categorised as having adequate and inadequate MHM, the small number of girls with adequate MHM meant there was insufficient power to demonstrate statistically significant effects. Percent differences should be noted, however, with the potential for large effect sizes to be identified in larger samples.

Table 5. Univariate and multivariable comparisons of aspects of MHM, combined measures of MHM, and hypothesised consequences.

	Absorbent type		Absorbent change		Absorbent drying		Privacy		MHM (minimal)		MHM (relaxed)	
	Clean	Unclean	3+ times	<3 times	Outside	Inside/hid	No concern	Concern	Adequate	Inadequate	Adequate	Inadequate
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
	OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)	
Health/comfort												
Itching or burning in the pelvic area (since start of the school year)	59.7 (71)	61.3 (49)	60.2 (71)	60.5 (49)	58.6 (58)	62.0 (62)	54.4 (43)	64.2 (77)	52.6 (10)	61.1 (110)	54.6 (24)	61.9 (96)
OR _{adj} (95%CI)		1.07 (0.60-1.91)		1.01 (0.57-1.81)		1.15 (0.65-2.04)		1.50 (0.84-2.67)		1.41 (0.55-3.65)		1.36 (0.69-2.67)
White or green discharge (since start of the school year)	44.5 (53)	51.3 (41)	48.3 (57)	45.7 (37)	53.5 (53)	41.0 (41)	44.3 (35)	49.2 (59)	31.6 (6)	48.9 (88)	47.7 (21)	47.1 (73)
OR _{adj} (95%CI)		1.31 (0.74-2.31)		0.90 (0.51-1.59)		0.60 (0.34-1.06)		1.22 (0.69-2.15)		2.07 (0.75-5.69)		0.98 (0.50-1.91)
Worry people can smell your MP?	65.8 (79)	76.5 (62)	68.9 (82)	73.0 (59)	74.3 (75)	66.0 (66)	58.2 (46)	77.9 (95)	63.2 (12)	70.9 (129)	59.1 (26)	73.3 (115)
OR _{adj} (95%CI)		1.69 [†] (0.90-3.20)		1.16 (0.62-2.15)		0.68 (0.37-1.24)		2.52** (1.36-4.69)		1.42 (0.53-3.80)		1.90 [†] (0.94-3.81)
		1.88 [†] (0.96-3.68)		0.94 (0.49-1.81)		0.34** (0.16-0.73)		4.51*** (2.09-9.77)				
Education												
School attendance <i>M</i> (<i>SD</i>) (<i>n</i> =144)	82.10 (18.33)	79.39 (19.04)	84.89 (14.28)	76.40** (22.23)	79.00 (21.54)	83.19 (14.82)	80.12 (21.14)	81.67 (16.86)	86.19 (13.95)	80.51 (18.98)	81.96 (20.07)	80.79 (18.19)
Do you avoid standing in class to answer questions on your MP?	59.3 (70)	72.5 (58)	63.6 (75)	66.3 (53)	59.6 (59)	69.7 (69)	53.2 (42)	72.3 (86)	26.3 (5)	68.7 (123)	45.5 (20)	70.1 (108)
OR _{adj} (95%CI)		1.81 (0.98-3.34)		1.13 (0.62-2.04)		1.56 (0.87-2.81)		2.30** (1.26-4.17)		6.15** (2.11-17.91)		2.82** (1.42-5.60)
Do you find it difficult to concentrate at school when you have your MP? (<i>n</i> =198)	46.6 (55)	57.5 (46)	49.2 (58)	53.8 (43)	52.5 (52)	49.5 (49)	39.2 (31)	58.8 (70)	42.1 (8)	52.0 (93)	31.8 (14)	56.5 (87)
OR _{adj} (95%CI)		1.55 (0.87-2.75)		1.20 (0.68-2.12)		0.89 (0.51-1.55)		2.21** (1.24-3.95)		1.49 (0.57-3.87)		2.78** (1.37-5.66)
		1.69 [†] (0.93-3.05)		1.05 (0.58-1.91)		0.55 (0.29-1.07)		3.03** (1.54-5.99)				

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Psychosocial wellbeing												
Strengths & Difficulties Questionnaire <i>M(SD)</i>	18.65 (5.24)	19.80 (5.37)	18.75 (5.42)	19.65 (5.13)	18.91 (5.34)	19.32 (5.29)	18.84 (5.42)	19.30 (5.25)	17.11 (6.30)	19.32 (5.17)	18.25 (5.80)	19.36 (5.16)
Did you experience embarrassment during your last MP (n=153)	47.8 (43)	42.9 (27)	46.2 (42)	45.2 (28)	48.8 (39)	42.5 (31)	54.4 (31)	40.6 (39)	50.0 (6)	45.4 (64)	38.7 (12)	47.5 (58)
OR _{adj} (95%CI)		0.82 (0.43-1.57)		0.96 (0.50-1.84)		0.78 (0.41-1.47)		0.57 (0.30-1.11)		0.83 (0.26-2.70)		1.43 (0.64-3.21)
During your MP do you feel ashamed? (n=201)	66.7 (80)	72.8 (59)	69.8 (83)	68.3 (56)	72.3 (73)	66.0 (66)	59.5 (47)	75.4 (92)	52.6 (10)	70.9 (129)	56.8 (25)	72.6 (114)
OR _{adj} (95%CI)		1.34 (0.72-2.49)		0.93 (0.51-1.72)		0.74 (0.41-1.36)		2.09* (1.13-3.84)		2.19 (0.84-5.70)		2.01* (1.01-4.03)
During your MP do you feel insecure?	68.3 (82)	60.4 (57)	69.8 (83)	68.3 (56)	68.3 (69)	70.0 (70)	60.8 (48)	74.6 (91)	63.2 (12)	69.8 (127)	61.4 (27)	71.3 (112)
OR _{adj} (95%CI)		1.10 (0.60-2.03)		0.93 (0.51-1.72)		1.08 (0.59-1.97)		1.90* (1.03-3.48)		1.35 (0.50-3.60)		1.57 (0.78-3.15)
		1.16 (0.62-2.16)		0.86 (0.46-1.60)		0.78 (0.39-1.54)		2.16* (1.09-4.28)				

Adequate absorbent OR=1.00; Changed frequently OR=1.00; Drying outside OR=1.00; Don't worry about privacy OR=1.00; Adequate MHM strict OR=1.00; Adequate MHM relaxed OR=1.00
p*<.05, *p*<.01, ****p*<.001, †*p*<.10

Discussion

Prevalence of poor MHM

This study was the first to provide a prevalence estimate for MHM consistent with the concept definition; “*women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.*”. [16] 91% of the sample had inadequate MHM. This did not differ between those provided with AFRipads and those using existing methods. Even when more relaxed criteria were used (use of sanitary pad, AFRipad, old or new cloth, that was changed 2 or more times per day, with absorbents washed with soap and dried hung outside or inside, absorbents never worn damp, and girls reporting they were not worried about being observed washing their absorbent), the prevalence of poor MHM was 78%, and did not differ for those using AFRipads. By employing the current definition of the concept, this work has shown that reporting individual aspects of MHM alone underestimates the extent of deprivation. Furthermore, when MHM is considered as a whole, providing reusable sanitary pads was not effective in improving girls’ menstrual hygiene.

MHM behaviours reported by the sample are consistent with the rural context and poverty in the study area. The sample may be more disadvantaged, at least in terms of menstrual hygiene, than some past studies. A higher proportion of girls (who did not receive AFRipads) reported using cloth compared to studies of girls in rural India (pooled prevalence: 63% [12]), and single-study estimates from East Africa (24% in rural Kenya [19]; 56% in Ethiopia [9]). A similarly high rate of cloth use (87%) was recently reported in the Rukungiri district of Uganda.[29] There are far fewer studies with which to compare reports of washing or drying practices. Past studies have also failed to adequately report questions used to capture MHM practices, which limits comparison (see [17]). This study focused on the absorbent girls reported using *most frequently*.

Consequences of poor MHM

High rates of negative outcomes were observed. Many girls reported genital irritation, discharge, and concerns about odour. Whilst self-reported symptoms may not be the best predictor of laboratory-confirmed infections,[8] girls’ discomfort and symptoms which may cause distress, represent important health outcomes. Over half the sample reported not standing to answer questions and difficulties concentrating in school. 69% of girls reported shame and insecurity during menstruation. High SDQ scores have been discussed elsewhere (see [24]). Large percent differences were observed using the pooled MHM measures for all consequences assessed. Unfortunately, the

small proportion of girls with adequate hygiene meant there was insufficient power to detect many effects. Nevertheless, findings support the importance of considering all aspects of MHM together.

There were few associations between aspects of MHM and health symptoms. As noted above this may reflect the poor validity of girls self-reports.[8] Concerns about odour were associated with absorbent type, drying practices and privacy.

Using unclean absorbents was associated with concerns about odour, difficulties in school concentration, and standing to answer questions. Actual soiling or fear of soiling and odour may mediate the identified relationship with school participation, and should be investigated in future work. Drying absorbents adequately was associated in an unanticipated direction with both odour concerns and reports of discharge. There may be multiple explanations for this finding. Firstly, girls drying absorbents outside may place them on unclean surfaces or on the ground, which may increase contamination. Drying outside may provoke concerns that absorbents will be seen, thus they may not be left to dry adequately. Consistency of reports between drying outside and never wearing absorbents damp, however, works against this interpretation. Whilst replication would be needed, findings have interesting implications for interventions which encourage outside drying. If conditions outside are unclean, this may cause unintended harm.

Concerns about privacy were associated with many consequences including shame, insecurity, and disengagement at school. The privacy item asked about worry so associations with these items may have been driven by girls' trait anxiety. However, it would be difficult to measure privacy more objectively, as adequacy is in many ways subjective.[7] Girls' feelings of safety are likely to reflect some individual differences. In interpreting the associations between privacy and outcomes, one explanation may be that girls who felt they were likely to be observed did not wash absorbents as well as those without this pressure. As noted above, high rates of reported washing with soap 'always' are likely to be misleading. This also did not capture the quality of washing. Those washing absorbents quickly may have been unable to get them clean and properly prepared for future use and minimal odour. More research is needed to investigate the validity and reliability of these measures, and provide recommendations on criteria for adequate washing for health and odour prevention.

Only the frequency of absorbent change was associated with school attendance, although the sample size was limited. This was in the opposite direction to guidelines for MHM. As past literature (e.g., [30]), and reports from local agents in field suggest, girls may go home to change absorbents. Thus it may be unsurprising that a higher frequency of changing predicted lower attendance. This has important implications for education interventions which advise girls to

increase their frequency of absorbent change. Results suggest these recommendations may have unintended negative consequences if girls do not have adequate facilities to change at school. It also suggests that girls who need to change more frequently, either due to the reliability of their absorbents or their individual menstrual flow, may face a greater barrier to attendance.

Strengths and limitations

The present study was undertaken in a difficult-to-reach population of adolescent girls in rural Uganda. The use of local research assistants and language improved access to the population and facilitated comfort with the interviewers. The prevalences of MHM behaviours are heavily dependent on the reliability of girls' reports and questions used, an issue that pervades MHM studies. The study found almost universal washing with soap. Whilst girls report that soap and water is available to them at home, qualitative interviews, site reports, and reports from the field suggest always washing absorbents with soap to be unlikely. Social desirability is likely to have influenced self-reported behaviours, urogenital symptoms, and the impact of menstruation on schooling. Interviewers were from the local NGO, well known in the area, with a recent campaign focused on girls' education (<https://plan-international.org/what-we-do/because-i-am-girl>). In addition, many had been involved in delivering the AFRIPads to the girls. It is unclear if written surveys would have reduced social-desirability in responses, and may have introduced other biases given the low levels of literacy in the area. Additionally, this would have required costly translation of surveys and girls' responses. The distribution of AFRIPads and education in the sample mean that the prevalences of MHM behaviours and consequences reported may not reflect practices prior to the interventions. The study used best available evidence to guide criteria for MHM estimates and predictive models; however, as noted, there is a dearth of literature to guide hygiene recommendations and research.

The cross-sectional and correlational nature of the research precludes causal inference. Further, relationships between MHM and health, education, and psychosocial wellbeing outcomes are limited by the inability to adjust for socio-demographic confounds. It is likely that greater access to resources is associated both with better MHM, and proposed consequences. Girls with greater access to resources are likely to have better health outcomes, family support for school attendance, fewer other challenges to psychosocial wellbeing. Thus, the study would have been greatly improved by the ability to adjust for socio-demographic factors such as parental education and poverty.[12]

Finally, the nature of, and need for a pooled estimate of MHM could be questioned. As argued in the background to this paper, this is useful for establishing the state of MHM in different populations and advocating for attention. It also promotes use of the MHM term consistent with its definition, and provides greater clarity around what should be considered predictors and

consequences of MHM, rather than aspects of it. This highlights the need for alternate terminology capturing other factors such as menstrual taboos that impact on girls’ menstrual management but are not MHM. Until evidenced-guidelines are developed, and comparable measures of MHM have been tested and used across studies, it is not advised to present only pooled estimates. The individual aspects that make up MHM will always be important individual factors, as indicated by the differential relationships with outcomes identified in this work. This paper presents a worked example of how the MHM concept could be operationalised. The aspects of the definition, placing equal value on each of these, and the cut off points used in this work could all be debated. More work is needed to guide research and practice.

Implications for research and practice

Recent calls for action on MHM state the need for a strong quantitative evidence base.[23] This cannot be achieved without consistent reporting of MHM as defined. Prevalence estimates are needed to advocate effectively for action, establish hypothesised consequences, and measure improvements in intervention trials. Slow movement to address MHM deficits to date may reflect the present absence of quantitative prevalence figures and links to consequences. Confusion between what represents a predictor or aspect of poor MHM will continue without guidance and tools for measuring MHM as defined. This delays the development of a detailed, and quantitatively supported, problem theory of MHM. There is an urgent need for guidelines detailing the MHM concept, and criteria for adequacy in each aspect, as well as research guidance to establish a rigorous primary evidence base in this field.

Minimal correlations between aspects of MHM, and differential associations between aspects and consequences in multivariable models demonstrate unique impact of each facet. Findings suggest all MHM aspects must be considered in testing links with hypothesised consequences. Null results, particularly for psychosocial consequences, suggest more predictors may need to be considered. Hygiene management is not the only menstruation related challenge facing girls in low income contexts. Fear around menstruation due to lack of understanding, taboos and stigma may contribute to these outcomes. Whilst properly defining and measuring aspects of MHM, future studies must also investigate these other contributors to outcomes.

As a follow-up to the *menstruation and the cycle of poverty* trial, the present study shows that the distribution of AFRIpads did not improve MHM, despite intervention effectiveness in improving school attendance.[24] It may be that improving one aspect of MHM is sufficient to improve outcomes, as suggested by differential associations in this study, but is insufficient to provide girls with their full right to MHM.[7] It may also be the case that the provision of a reusable

product had a negligible impact on MHM as the hygiene of these products is dependent on washing, drying and privacy facilities which were unaffected by the intervention. In contrast, the provision of disposable pads which do not require washing or drying, and may be quicker to change, might have a larger impact on MHM. This should be investigated in future work. In interpreting the primary trial results,[24] it is likely that improvements to unmeasured aspects of menstrual management such as improving teachers' awareness of girls' needs or improved social support by prompting girls to discuss menstruation, may have contributed to observed effects. More quantitative epidemiological studies and in-depth analysis of trial results are needed to fully understand the pathways of effect in interventions and maximise their future effectiveness.

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Author contributions

Conceived and designed the experiments: JH PM CD LS. Performed the experiments: PM CD MW LS. Analysed the data: JH. Wrote the paper: JH PM. Commented on the paper: CD MW LS.

All authors have read and approved the final manuscript.

Conflicts of interest

All authors declare that there are no conflicts of interest.

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Data Sharing

No additional data available.

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STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Title page
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-5
Objectives	3	State specific objectives, including any prespecified hypotheses	6
Methods			
Study design	4	Present key elements of study design early in the paper	5-7, abstract
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5-6,6-8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7-10
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-10
Bias	9	Describe any efforts to address potential sources of bias	9-10
Study size	10	Explain how the study size was arrived at	6/(5-6)
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	9-10
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	9-10
		(b) Describe any methods used to examine subgroups and interactions	NA
		(c) Explain how missing data were addressed	9-10
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	5-6
		(c) Consider use of a flow diagram	Reference to primary paper provided
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	11
		(b) Indicate number of participants with missing data for each variable of interest	11-17
Outcome data	15*	Report numbers of outcome events or summary measures	11-17
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	11-17
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	18-19
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	19-21
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	21-22
Generalisability	21	Discuss the generalisability (external validity) of the study results	21-22
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	23

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda.

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Abstract

Objectives. The primary objective was to describe Ugandan schoolgirls menstrual hygiene management (MHM) practices and estimate the prevalence of inadequate MHM. Secondly, to assess the relative contribution of aspects of MHM to health, education, and psychosocial outcomes.

Design. Secondary analysis of survey data collected as part of the final follow-up from a controlled trial of reusable-sanitary pad and puberty education provision was used to provide a cross-sectional description of girls' MHM practices and assess relationships with outcomes.

Setting. Rural primary schools in the Kamuli district, Uganda.

Participants. Participants were 205 menstruating schoolgirls (10-19 years) from the eight study sites.

Primary and secondary outcome measures. The prevalence of adequate MHM, consistent with the concept definition, was estimated using dimensions of; absorbent used, frequency of absorbent change, washing and drying procedures, and privacy. Self-reported health, education (school attendance and engagement), and psychosocial (shame, insecurity, embarrassment) outcomes hypothesised to result from poor MHM were assessed as primary outcomes. Outcomes were measured through English surveys loaded on iPads and administered verbally in the local language.

Results. 90.5% (95%CI 85.6-93.9] of girls failed to meet available criteria for adequate MHM, with no significant difference between those using provided reusable sanitary pads (88.9%, 95%CI 79.0-94.4), and those using existing methods, predominantly cloth (91.5%, 95%CI 85.1-95.3), $\chi^2(1)=0.12$, $p=.729$. Aspects of MHM predicted some consequences including shame, not standing in class to answer questions, and concerns about odour.

Conclusions. This study was the first to assess the prevalence of MHM consistent with the concept definition. It found that the provision of reusable sanitary pads to a proportion of the sample did not affect MHM. The work demonstrates an urgent need for improved assessment and reporting of MHM, and for primary research testing the links between menstrual management and health, education, and psychosocial consequences.

Strengths and limitations of this study

- Offers a working example of the quantitative assessment of MHM, using best available evidence to assess each aspect
- Provides the first prevalence estimate of adequate menstrual hygiene management consistent with its definition
- Multivariable comparisons demonstrate the importance of multiple aspects of menstrual hygiene in predicting hypothesised health, education and psychosocial consequences
- Self-reported menstrual hygiene behaviours, health, education, and psychosocial outcomes are vulnerable to biases, particularly social-desirability
- The cross-sectional nature of the study limits causal inference, and the analyses are limited by the lack of ability to adjust for potential socio-demographic confounds, the small sample size, and lack of existing literature on which to base power analyses

Background

Menstrual hygiene management (MHM) has received increasing attention as a public health issue. After a history of silence, stakeholders from governments to local charities have started to speak about the barrier that the management of menstruation presents to gender equality, and the potential for programs to address the problem. Qualitative research has documented challenges girls face in managing their menses and indicated health, education and psychosocial wellbeing consequences of poor management.[1-4] However, rigorous quantitative studies of the associations between MHM and health, education and psychosocial outcomes are scarce.[5] With regard to health, few studies have assessed associations between infection and MHM. In the most comprehensive work to date, a case-control study concluded that there was evidence for an association between reusable pad use and lab-confirmed urogenital infection compared to disposable pads, but noted the complex range of MHM practices, and the need for more research.[6] Other physical and health outcomes including irritation, discomfort and urogenital symptoms, even if not confirmed infections, are also important potential consequences of poor MHM which impose on women’s ability to participate in society with dignity.[7,8]

School absenteeism and disengagement have been emphasised as important consequences of poor MHM. Quantitative evidence for links between MHM and attendance have been mixed, although studies have almost exclusively looked at absorbent type, rather than all MHM practices discussed below.[9-12] Studies have focused on attendance,[5] and additional work is needed to capture the impact of menstruation on concentration and engagement, even if girls are at school.[2 13] Psychosocial consequences including shame, insecurity, anxiety, and fear of stigma are well-documented correlates of menstruation in qualitative studies (e.g.,[2,4]). Such negative psychosocial outcomes have been hypothesised to arise from poor MHM such as inadequate absorbent use.[3] They may also result from a lack of knowledge and information about menstruation,[14], cultural stigma and taboos,[4] and as a result of transactional or coercive sex undertaken to meet MHM needs.[15] More quantitative evidence is needed to unpack the roles of these different contributors to wellbeing, and associations between MHM and wellbeing outcomes. As argued below, it may be inaccurate to label all of these predictors as MHM.

Menstrual hygiene management: definition, use, and measurement

A unified, working definition of MHM was developed by the Joint Monitoring Program of the World Health Organisation and UNICEF in 2012, defining MHM as: *“Women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for*

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3 *washing the body as required, and having access to facilities to dispose of used menstrual*
4 *management materials.”*[16] This captures aspects of the physical requirements for hygienic,
5 effective management of menstrual bleeding. Use of the term has proliferated; however,
6 operationalisation has been inconsistent. As per the above definition, adequate MHM would
7 require:
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- 10 • Clean absorbents
- 11 • Adequate frequency of absorbent change
- 12 • Washing the body with soap and water
- 13 • Adequate disposal
- 14 • Privacy for managing menstruation

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18 Studies to date have only reported a few of these aspects (see [17]). Prevalence studies, and
19 quantitative assessments of predictors and consequences of poor MHM have focused on the type of
20 absorbent used, the first aspect of MHM (e.g.,[18]). Some include one or two additional
21 components, such as washing the body, or disposal of absorbents (e.g.,[19,20]). None have included
22 all aspects of MHM or considered a pooled, comprehensive prevalence estimate requiring all
23 conditions to be met. Overextension of the term has also occurred with studies reporting a lack of
24 knowledge about menstruation, or cultural taboos as aspects of MHM, rather than contributors to
25 MHM (e.g.,[12]).
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32 One barrier to the full assessment of MHM is the lack of evidence and consensus of what
33 constitutes adequacy in each aspect. In a systematic review of MHM practices and infections,
34 Sumpter and Torondel [21] found no consistent standard in the application of ‘good’ and ‘bad’
35 MHM. They found that most studies used only absorbent type to predict consequences, and even
36 with this simplified criterion, did not agree on the adequacy of absorbents such as cloth. Single use
37 absorbents such as sanitary pads are easily classified as clean, however reusable absorbents such as
38 cloth or reusable pads (homemade or commercially produced) could be considered hygienic if
39 cleaned appropriately.[21] MHM literature is yet to provide evidenced guidance for washing and
40 drying absorbents. Washing with soap may be one important criterion. Drying practices are also
41 important, with exposure to UV through sunlight known to have a microbicidal effect.[22] Leaving
42 fabrics damp has been found to encourage microbial survival, and wearing absorbents wet has
43 frequently been considered unhygienic, with some evidence for greater infection risk and
44 discomfort.[1,6,22] Similarly, there is little rigorous evidence to guide absorbent change frequency.
45 The *Menstrual Hygiene Matters* report suggested changing absorbents every 2-6hrs dependent on
46 blood flow.[1] However, there is a lack of evidence on the irritation and infection risk associated with
47 prolonged wear, and women’s perceptions of the adequate frequency for changing for comfort and
48 risk of soiling. There is no clear guidance on optimal washing frequency, or correct use of soap and
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water on the body and genitals. Similarly, disposal method adequacy is likely to be contextually dependent and relies on latrine capacity, cultural appropriateness of burning absorbents, and other waste disposal methods. Finally, whilst the concept definition stresses the need to change absorbents in privacy, women and girls need privacy for all aspects of MHM, such as washing the body and absorbents.[7] Each of these aspects must be considered in trying to estimate the prevalence of MHM, establish relationships between predictors and consequences of poor MHM, and evaluate interventions aimed at improving MHM.

Recent calls for action, such as the *MHM in Ten* report,[23] state the need for a strong quantitative evidence base. This is difficult to achieve without consistent, transparent reports of MHM as defined. Prevalence estimates are needed to assess the distribution of the issue, and to advocate effectively for MHM to be addressed by governments, non-government organisations, and other interest groups. Assessment of all aspects of MHM is needed to identify the relevant contributors to the problem, and establish quantitative links between MHM and consequences. For example, a recent systematic review of MHM studies in India reported that in multivariable models, the use of sanitary pads did not predict school attendance.[12] It is inaccurate to conclude from this finding that MHM does not predict attendance, but only that the type of absorbent used may not. Similarly, trials to date have focused on education and sanitary product provision.[5] No studies have reported if addressing these contributors to MHM, that is, education informing girls how to manage menstruation hygienically, and the provision of clean absorbents as a resource to improve one aspect of MHM (clean absorbents), actually improves MHM overall. Given the many components of MHM detailed above, it is likely that the provision of menstrual products without attention to other factors is insufficient to improve MHM. This has implications for our expectations and interpretations of intervention outcomes. Trials to date assume that improvements in school attendance or psychosocial outcomes observed are the result of improved MHM, but none have tested this. It may be that other factors such as reductions in menstrual stigma, improved pain management strategies, or improved social support amongst classmates contribute to these improvements. While important aspects of managing menstruation, these factors do not fall under the MHM definition. They risk being minimised if studies focus only on MHM, or being mishandled if inaccurately labelled as MHM, which may further complicate its definition and make measurement more difficult. Thus there is a need to understand how proposed interventions affect MHM and to establish the role of MHM, in contrast to other aspects of managing menstruation, in hypothesised consequences.

The present study

This study employs secondary data analysis of the final survey data from the *Menstruation and the Cycle of Poverty* trial undertaken in rural Uganda from January 2012 to December 2014. The trial methods and outcomes of school attendance and psychosocial wellbeing are described elsewhere (see[24]). Briefly, eight primary schools (including primary school grades 3 to 7) located in Kamuli district, Uganda, an area characterised by poor performance on education and health indicators, were quasi-randomised to one of four conditions, the provision of: puberty education alone, AFRIpads alone, puberty education and AFRIpads, or a no-intervention control. Schools were paired to maximise distance between the four conditions and the risk of contamination. Pairs were allocated sequentially in alphabetical order to conditions. Schools were selected to be comparable on characteristics such as size, educational provision and quality, and there were no differences between the conditions at baseline (see[24]). While water sources were closer to some schools than others, water, sanitation and hygiene (WASH) for MHM was comparable across schools.

Girls in the AFRIpad conditions were provided with one pack of AFRIpads and small quantity (one sachet, 45 grams) of Omo soap in October 2012, and again in March 2014. AFRIpads are a washable, reusable cloth sanitary pad produced in Uganda (<http://www.afripads.com/>). Deluxe packs provided to girls included two soil-resistant plastic-lined 'base' pads, three attachable winged liners, three straight liners and two small bags for carrying. Girls were taught about the correct use and cleaning of AFRIpads by local research assistants from the partner NGO upon delivery.[24] Girls in the puberty education conditions received an education session (in October 2012) lasting approximately 1.25 hrs (see [24]). Attendance registers were taken at education sessions and girls who received AFRIpads were recorded. Girls who transferred into the study schools during the trial were included in intervention delivery (if attending school at those times) and follow-up surveys as not to identify or stigmatise girls in the trial or discriminate against those transferring after the baseline from receiving resources. While girls transferring into the school could not be included in primary trial intention-to-treat analyses, their responses were incorporated into the final survey data set for secondary analyses. This maximised cross-sectional sample size in the survey data set.

The present study employs the final survey data from the trial to provide the first estimate of MHM consistent with the concept definition. This is used to estimate the association between poor MHM and health, education, and psychosocial outcomes, alongside an assessment of the relative contribution of aspects of MHM to outcomes. MHM prevalence was compared between those who received AFRIpads as part of the trial and those who did not.

Research Questions

- 1. What are the self-reported MHM practices of girls in rural Uganda?
- 2. What is the prevalence of MHM consistent with the concept definition?
- 3. Is adequate MHM greater amongst those provided with reusable sanitary pads?
- 4. How do aspects of MHM, and pooled MHM, comparatively predict health, education, and psychosocial wellbeing?

Methods

This study was conducted and reported according to best practice guidelines in the Strengthening the Reporting of Observational studies in Epidemiology.[25] Checklist for cross-sectional studies is reported in Supplementary Materials 1.

Participants

435 schoolgirls across the 8 study schools completed follow-up surveys. This included girls who had been involved in the trial, and girls in the same classes who had joined the school after the trial commenced. All girls were surveyed to avoid selectively identifying those menstruating or involved in the trial, potentially stigmatising these girls. 205 girls who had reached menarche are included in this study.

Survey design

The survey was administered in November 2014. Trained local research assistants from the partner NGO (Plan International) used an English version of the survey loaded on iPads in the app *SurveyGizmo*. iPads were used in the field offline and data was uploaded to the online service *SurveyGizmo* at the end of each day once an internet connection could be established. Research assistants, all young women, verbally administered surveys in Lusoga (the local language) and inputted answers in English into the instrument. Girls were surveyed individually in a private place on the school grounds, for menstruating girls this lasted approximately 30-40 minutes.

Survey items were designed following a pilot trial and qualitative research in Ghana (see [3,11]), where a number of similar items were also used. Additional questions were developed following feasibility and acceptability work leading to the selection of AFRipads for the intervention study,[26] and in consultation with stakeholders and partner NGO staff. To support best practice and transparency in reporting, a full list of survey items used is reported in Supplementary Materials 2.

MHM measure

Survey items capturing MHM practices were used to generate the measure of MHM prevalence.

MHM practices. Girls self-reported MHM practices through structured questions. To assess absorbent use, girls were asked: “What do you usually use to catch/absorb your menstrual period (MP)?”, and their free responses were recorded by research assistants as AFRIpad, cloth, toilet roll, sanitary pad, or other. Few girls reported use of toilet roll so this was recoded to other, along with use of underwear alone and using mattress or sponge. In a follow-up question girls were asked where they (or the person who gives them the absorbent) obtains it. This item was used to determine if girls were using old or new cloth. Girls were also asked: “How frequently do you change your sanitary protection?” with guidance from research assistants that per-day meant in 24hrs.

For girls who reported using AFRIpads or cloths, follow-up questions captured washing and drying procedures. Girls responded yes/no to items: “Did you ever wash the AFRIpad/cloth?”, and to the follow-up: “Did you use soap?”. To assess drying girls were asked: “Where did you hang the cloth to dry?” with responses including under the bed, outdoors, in the school dorm rooms, and in a secret place. Free text responses to the question included: in the bathroom, behind the toilet, in the grass, and behind the house. Responses were back-coded into three categories: outside, hung inside, or hidden inside. Girls were then asked: “How often did you wear the cloth/AFRIpad damp?” with response options *never*, *sometimes*, and *usually*.

Girls were asked: “What do you usually do with your used sanitary protection when you have to change at home/school?” with response options *throw in latrine*, *throw in bush*, *dispose at community rubbish heap*, *bury*, and *burn*. When asked about disposal at school, listed responses also included *go home to change*. *Wash and reuse* was a listed option for home disposal. For both questions girls volunteered information and research assistants selected the appropriate category.

Those using reusable absorbents were asked: “Do you worry about being observed when washing the cloth/AFRIpad?” with yes/no response options.

MHM criteria. Self-reported MHM behaviours were used to generate a pooled, aggregate estimate of MHM consistent with the concept definition discussed in the background. Criteria for available aspects of MHM are detailed below, and the pooled estimate included; absorbent cleanliness, adequate change frequency, hygienic washing and drying, and privacy. Criteria for each step were derived from background literature, although existing evidence is sparse. Each criterion was added sequentially and the number of girls considered to have adequate or inadequate MHM at

each step reported in results. Absorbents were considered clean if they were AFRIpads, new cloth or sanitary pads, with old cloth and other items such as toilet paper, mattress, sponge, or underwear alone considered inadequate. Changing absorbents 3 or more times per 24hrs was required to be considered adequate MHM, consistent with recent work,[6] and guidance.[1] For reusable absorbents, MHM was considered inadequate if not washed with soap. Absorbents were considered to be hygienically dried if dried outside, rather than hung up or hidden inside. Never wearing absorbents damp was also required for adequate MHM. Finally, girls needed to report they were not worried about privacy for washing their absorbents. There were no appropriate items in the survey capturing washing the body or genitals, or items on the ability to change absorbents in privacy, which would have improved the MHM estimate. Whilst disposal methods were reported, there was no consistent guidance on what could be considered an adequate method, so this item was not included in the overall estimate. These aspects were considered the *minimal* requirements for MHM, using best available evidence.

As criteria for MHM could be debated given the lack of evidence, an additional measure of MHM was used for comparison. For this pooled total more *relaxed* criteria were used. Both new and old cloth were considered to be adequate absorbents at step one, with the concession that if washed appropriately old cloth could be considered an adequate absorbent. Girls were only required to change their sanitary protection twice per day, although were still required to wash absorbents with soap and water. To meet criteria as having adequate MHM in the relaxed model girls needed to dry absorbents outside or hung up inside; only those who dried their absorbent hidden away were considered to have poor MHM. The criteria that girls never wear absorbents damp remained unchanged, as did the requirement they felt they had adequate privacy to wash reusable absorbents. Girls were required to meet all relaxed criteria to be considered to have adequate MHM in this model.

Survey measures

Additional survey measures assessed participant characteristics and hypothesised consequences of poor MHM.

Participant characteristics. Girls self-reported their age, grade in school, and how long it took them to walk to school. Data were also collected concerning access to water and soap at home and schools as yes/no responses to items asking “Do you have regular access to (water/soap) at (school/home)?”.

Health. Girls were asked to report if during their *last* period they experienced: skin irritation or rashes in the pelvic area with a yes/no response. They were also asked if since the beginning of the school year they had experienced “any itching or burning in the pelvic area”, or “any white or grey discharge from their [your] vagina” and could report if this was while on their period, at only other times, or both during their period and at other times. All girls reported that this was experienced either only during their period, or during their period and at other times, so only a dichotomous *experienced* response was used. Girls were asked: “Do you worry that other people can smell your menstrual period?” with yes/no responses.

Education. Girls reported if they felt their menstruation ever caused them to miss school or not to do their homework as part of a longer list of activities (including other items such as participating in sports or being around males). Girls were asked: “Do you avoid standing in class to answer questions while on your menstrual period?” and “Do you find it difficult to concentrate at school when you have your menstrual period?” with yes/no options. The latter was followed with a multiple response item capturing the reasons for difficulties concentrating, listed in results tables.

Psychosocial wellbeing. Girls reported if during their *last* period they experienced embarrassment. They also reported if during their menstruation they felt ashamed or insecure or if this was the same as when they were not menstruating. Psychosocial wellbeing was assessed using the total score from the Strengths and Difficulties Questionnaire (SDQ:[27]). The SDQ consists of 25, 3-point Likert scale items from 0 ‘not true’ to 2 ‘true’, with a midpoint of 1 ‘somewhat true’. The total score (0-40) uses summed scores from the four problem subscales of: hyperactivity (e.g., “I am easily distracted.”), conduct problems (e.g., “I usually do as I am told”), peer problems (e.g., “I would rather be alone than with people of my age”), and emotional problems (e.g., “I have many fears. I am easily scared.”). The questionnaire has been well validated and was a secondary outcome in the *Menstruation and the cycle of poverty* trial (see[24]), with norms for different countries available online (www.sdqinfo.com).

School attendance

Attendance data was recorded for girls participating in the *menstruation and the cycle of poverty* trial from baseline. For the present study, follow-up attendance data was used. Research assistants from the partner NGO collected attendance for the fourth week of each of the three terms in 2014. This was collapsed to create a continuous variable: the percent attendance out of the 15 days recorded. Week four of the school term was selected to avoid very-low attendance periods coinciding with school fee collection at the start of term or agricultural practices, based on advice from site visits and local agents. Girls were not asked to record menstrual cycles over the 2-year trial,

so attendance includes menstruating and non-menstruating days. Attendance was linked to survey responses through participant ID.

Analyses

Analyses were conducted using Stata 14.0.[28] Participant characteristics were detailed using descriptive statistics, as were the prevalence of MHM practices and consequences. Combined measures of MHM were reported using descriptive statistics, including 95% confidence intervals (CI) of the total proportions of those with adequate and inadequate MHM. The chi-square statistic was used to compare the pooled MHM between those who received AFRipads and those who did not. Bivariate correlations were used to test the overlap of MHM aspects prior to use in multivariable models.

Univariate logistic regressions assessed the relationships between MHM practices and health, education, and psychosocial outcomes. Washing absorbents (with or without soap) was not used as a predictor in these comparisons as almost all girls reported doing so. All of the girls who reported never wearing their absorbent damp had also dried their absorbent outside, so only the location of drying was used as a predictor in the models. All four aspects of MHM were included in multivariable logistic regressions to assess the individual contribution of each to hypothesised consequences. Univariate logistic regressions assessed the relationship between the combined measures of MHM and outcomes. For continuous outcomes of school attendance and total SDQ score, independent samples t-tests were used.

Ethics

Ethical approval for the study was received from the Social Science & Humanities Inter-Divisional Research Ethics Committee at the University of Oxford (Ref: SSD/CUREC1/11-056), the AIDS Support Organisation (TASO) Institutional Review Committee Uganda (TASOIRC/022/14-UG-IRC-009), and the University of Illinois (#12236). To participate in the trial, girls and their parent/caregiver provided written consent. Schools provided consent for participation throughout the duration of the study. At the start of the survey girls provided verbal consent to participate. No girls declined participation. They were informed that they were free not to answer any question in the survey.

Results

Participant characteristics

Of the 205 menstruating girls included in this paper, 145 (70.7%) had been attending the schools in the trial at baseline. Of the 145 trial girls, 96 (66.2%) had received one of the tested interventions (puberty education alone: 36 (24.8%), pads alone: 40 (27.6%), and education and pads: 27 (18.6%). Of the 60 girls who had not been in the trial schools at baseline, 20 (33.3%) had received pads alone and 1 had received the education intervention. 81 girls in the full sample had received no intervention.

Girls ranged from a self-reported age of 10-19 years (*Mean*=14.20,*SD*=1.12). The average age at menarche was 12.82 years (*SD*=1.28). Table 1 describes the participant characteristics.

Table 1. Participant characteristics (n=205)

	%	N
Grade		
P3	0.5	1
P4	8.3	17
P5	21.5	44
P6	44.9	92
P7	24.9	51
Age		
10	0.5	1
11	0.5	1
12	1.0	2
13	21.5	44
14	44.9	92
15	20.5	42
16	8.8	18
17	1.0	2
18	1.0	2
19	0.5	1
Did you go to the same school last year?		
Yes	94.6	194
No	5.4	11
How long does it take you to get to school?		
10 minutes or less	19.8	33
11-30 minutes	37.7	63
31-60 minutes	37.7	63
>1hr	4.8	8
No answer		38
Do you have regular access to:		
Soap at home (n=200)	94.0	188
Water at home (n=200)	99.0	198
Soap at school? (n=199)	27.1	54
Water at school? (n=199)	44.2	88

Menstrual hygiene management (MHM) practices

Table 2 describes the girls’ MHM practices. Four did not report the type of absorbent used, therefore were not asked follow-up questions. Thus the table reports on 201 girls, unless otherwise indicated. Almost 36% of the sample were using AFRIPads received as part of the intervention study. Most girls who had not received pads used cloth as absorbent. Of those using reusable absorbents, almost all reported washing them and using soap for every wash. Half of those who washed absorbents hid them to dry, most commonly under the bed. 23% reported wearing absorbents wet at least once. No girls reported disposing at community rubbish heaps, burning, or burying pads.

Table 2. Self-reported menstrual hygiene management practices (n=201)

	%	N
Absorbent		
What do you usually use as menstrual absorbent?		
AFRIpad	35.8	72
New cloth	14.9	30
Old cloth	30.9	62
Sanitary pad	9.0	18
Other (incl. toilet paper, underwear, mattress, sponge)	9.5	19
How frequently do you change your sanitary protection?		
1x per day	6.1	12
2x per day	33.2	65
3x per day	49.0	96
4x per day	9.7	19
5+ times per day	2.0	4
Missing		5
Washing reusable absorbents		
Did you wash the absorbent? (n=158)¹		
Yes	95.7	154
No	1.9	3
No answer/don't know	2.5	4
Did you use soap? (n=154)²		
Never	0	0
Sometimes	1.9	3
Every time	98.1	151
Drying reusable absorbents		
Where did you dry the absorbent? (n=154)²		
Hidden inside (e.g., under bed)	47.4	73
Hung up inside (e.g., girls dorm, bathroom)	11.0	17
Outside	41.6	64
How often did you wear the absorbent damp? (n=154)²		
Never	77.3	119
Sometimes	6.5	10
Usually	16.2	25
Absorbent disposal		
What do you usually do with your used sanitary protection when you have to change at school? (n=158)³		
Throw in latrine	12.3	19
Take home to wash or dispose	85.7	132
Other	12.0	3
What do you usually do with your used sanitary protection when you change at home? (n=199)		
Throw in latrine	11.6	23
Put in trash	0.5	1
Wash and reuse	87.9	175
Privacy		
Do you worry about being observed when washing the absorbent? (n=154)²		
Yes	73.4	113
No	26.6	41

¹ Of girls using reusable menstrual absorbents (AFRIpads, cloth)² Of girls using reusable menstrual absorbents (AFRIpads, cloth) who reported washing their absorbent³ Only asked of girls who reported they 'couldn't go whole day at school without changing absorbent'

Prevalence estimate: menstrual hygiene management

By adding each available aspect of MHM assessed, the overall prevalence of MHM was estimated. Table 3 displays the proportion of girls who met criteria at each step. That is, the proportion of girls remaining after the introduction of that requirement for MHM. Each additional aspect of MHM resulted in fewer girls qualifying. There were particularly large drops following the introduction of changing frequency, drying, and privacy. After the inclusion of available aspects, only 9.5% of the sample qualified as having adequate MHM using minimal criteria. The prevalence of inadequate MHM did not differ between those who used AFRIpads (88.6%) and those using existing methods (90.5%), $\chi^2(1)=0.12, p=.729$.

As noted previously, there is a lack of evidence for MHM criteria. Thus, more relaxed criteria were applied for comparison (Table 3, right columns). Despite these changes, the overall prevalence of poor MHM remained high and there was no significant difference between those using AFRIpads (80.6%) and those using existing methods (76.7%), $\chi^2(1)=0.20, p=.655$.

Table 3. Estimated prevalence of menstrual hygiene management, using minimal and relaxed criteria

	MHM criteria (minimal)		MHM criteria (relaxed)	
	AFRIpad users N=72	Usual practice N=129	AFRIpad users N=72	Usual practice N=129
	application of criteria % (n) retained		application of criteria % (n) retained	
Clean absorbent	(criteria: AFRIpad, new cloth, or sanitary pad) 100 (72) 37.2 (48)		(criteria: AFRIpad, old or new cloth, sanitary pad) 100 (72) 85.3 (110)	
Changed frequently	(criteria: 3 times or more) 66.7 (48) 19.4 (25)		(criteria: 2 times or more) 93.1 (67) 80.6 (104)	
Washed with soap ¹	(criteria: washed absorbent with soap) 65.3 (47) 18.6 (24)		(criteria: washed absorbent with soap) 90.3 (65) 79.1 (102)	
Dried adequately ¹	(criteria: absorbent dried outside) 29.2 (21) 10.1 (13)		(criteria: absorbent dried outside or hung inside) 56.9 (41) 45.7 (59)	
	(criteria: absorbent never worn damp) 29.2 (21) 10.1 (13)		(criteria: absorbent never worn damp) 56.9 (41) 41.1 (53)	
Privacy for washing ¹	(criteria: not worried about being observed washing absorbent) 11.1 (8) 8.5 (11)		(criteria: not worried about being observed washing absorbent) 19.4 (14) 23.3 (30)	
	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)
Meet available criteria:	11.1 [5.6-21.0](8)	8.5 [4.7-14.8] (11)	19.4 [11.7-30.5](14)	23.3 [16.7-31.4](30)
Prevalence of poor MHM:	88.9 [79.0-94.4](64)	91.5 [85.2-95.3](118)	80.6 [69.5-88.3](58)	76.7 [68.6-83.3](99)
	Total % [95%CI] (n)		Total % [95%CI] (n)	
Met available criteria:	9.5 [6.1-14.4] (19)		21.9 [16.7-28.2] (44)	
Prevalence of poor MHM:	90.5 [85.6-93.9] (182)		78.1 [71.8-83.3] (157)	

¹If reusable absorbent (AFRIpad, new/old cloth)

While the study aimed to use each aspect of MHM to predict outcomes, almost all girls reported washing absorbents with soap. Thus groups were not large enough for reliable comparison in chi-square or logistic regression so this criterion was dropped from analysis of association with outcomes. As noted in the analysis section, drying criteria were collapsed. The minimal MHM criteria from Table 3 (i.e., new cloth, AFRipad or sanitary pads considered clean absorbent, and outside alone considered adequate drying), were used for comparison with health, education and psychosocial outcomes.

To check for multicollinearity and associations between the different aspects of MHM, bivariate correlations were compared between the clean absorbents (AFRipad, new cloth, sanitary pad), frequency of absorbent change (3+ times), drying adequately (outside), and having adequate privacy. There was only one significant correlation between girls feeling they had adequate privacy to wash absorbents and drying absorbents adequately (outside), $r=0.42$, $p<.001$. All other associations were very low ($r<.08$).

Consequences of poor MHM

Table 4 presents the proportion of girls reporting negative health, education and psychosocial outcomes. Approximately half of the sample reported discomfort, possibly indicating health consequences. Less than 20% of girls stated that menstruation caused them to miss school, although over half reported not standing in class to answer questions, and finding it difficult to concentrate when menstruating. Discomfort, fear of soiling, and menstrual pain were the most common reasons for difficulty concentrating. Many girls reported embarrassment, shame, and insecurity associated with menstruation.

Table 4. Prevalence of proposed consequences of poor MHM (n=201)

	%	N
Health/comfort		
Skin irritation/rashes in pelvic area during last MP (n=153) ¹	54.3	83
Itching or burning in the pelvic area (since start of the school year) (n=199)	60.3	120
White or green discharge (since start of the school year) (n=199)	47.2	94
Do you worry people can smell your MP? (yes)	70.2	141
Education		
Does your MP ever cause you to: (n=185) ¹		
Miss school	18.4	34
Not do your homework	7.6	14
School attendance at intervention follow-up (n=144) <i>M (SD)</i>	81.06	(18.58)
Do you avoid standing in class to answer questions on your MP (n=198)	64.7	128
Do you find it difficult to concentrate at school when you have your MP? (n=198)	51.0	101
Reasons it is difficult to concentrate during MP (n=101)		
Actual soiling	24.8	25

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Fear of soiling	72.3	73
Scent	15.8	16
Discomfort	49.5	50
Actual teasing	4.0	4
Fear of teasing	21.8	22
Cramps	54.5	55
Psychosocial wellbeing		
Strengths & Difficulties Questionnaire (SDQ) total score <i>M (SD)</i>	19.11	(5.31)
Did you experience embarrassment during your last MP (n=153) ¹	45.8	70
During your MP do you feel ashamed?	69.2	139
During your MP do you feel insecure?	69.2	139

¹ n's lower than 201 resulted in part from iPad issues where, in about 40 cases, the appropriate page froze or failed to load, additional missing resulted from girls not providing an answer to the question

Relationships between MHM aspects and proposed consequences

Table 5 displays the univariate and multivariable relationships between MHM aspects, pooled MHM estimates (minimal and relaxed), and health, education, and psychosocial wellbeing.

There were no significant associations with itching or burning, despite a consistently higher rate of report among those with poorer MHM. Drying outside had the reverse relationship to discharge than expected, with less white or green discharge reported amongst those drying inside or hidden. This unexpected direction of effect was also found for girls' fears that others could smell their menses. Unclean absorbents and inadequate privacy were associated with increased concerns about odour in multivariable comparison.

Only one aspect of MHM was associated with school attendance, with those changing less than 3 times a day having a higher rate of attendance. Unclean absorbents and privacy were associated with higher odds of avoiding standing in class to answer questions, as were pooled MHM estimates. Only adequate privacy for washing absorbents was associated with difficulties concentrating, although having a clean menstrual absorbent trended towards significance with an almost 10% difference in reports. Drying practices were associated with shame in the opposite direction to that expected. Adequate privacy for washing was associated with shame and insecurity.

Despite very large percentage differences in the reports of consequences between those categorised as having adequate and inadequate MHM, the small number of girls with adequate MHM meant there was insufficient power to demonstrate statistically significant effects. Percent differences should be noted, however, with the potential for large effect sizes to be identified in larger samples.

Table 5. Univariate and multivariable comparisons of aspects of MHM, combined measures of MHM, and hypothesised consequences.

	Absorbent type		Absorbent change		Absorbent drying		Privacy (for washing)		MHM (minimal)		MHM (relaxed)	
	Clean	Unclean	3+ times	<3 times	Outside	Inside/hid	No concern	Concern	Adequate	Inadequate	Adequate	Inadequate
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
	OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)	
Health/comfort												
Itching or burning in the pelvic area (since start of the school year)	59.7 (71)	61.3 (49)	60.2 (71)	60.5 (49)	58.6 (58)	62.0 (62)	54.4 (43)	64.2 (77)	52.6 (10)	61.1 (110)	54.6 (24)	61.9 (96)
OR _{adj} (95%CI)		1.07 (0.60-1.91)		1.01 (0.57-1.81)		1.15 (0.65-2.04)		1.50 (0.84-2.67)		1.41 (0.55-3.65)		1.36 (0.69-2.67)
White or green discharge (since start of the school year)	44.5 (53)	51.3 (41)	48.3 (57)	45.7 (37)	53.5 (53)	41.0 (41)	44.3 (35)	49.2 (59)	31.6 (6)	48.9 (88)	47.7 (21)	47.1 (73)
OR _{adj} (95%CI)		1.10 (0.61-1.98)		0.98 (0.54-1.76)		0.96 (0.51-1.82)		1.54 (0.80-2.93)				
Worry people can smell your MP?	65.8 (79)	76.5 (62)	68.9 (82)	73.0 (59)	74.3 (75)	66.0 (66)	58.2 (46)	77.9 (95)	63.2 (12)	70.9 (129)	59.1 (26)	73.3 (115)
OR _{adj} (95%CI)		1.69 [†] (0.90-3.20)		1.16 (0.62-2.15)		0.68 (0.37-1.24)		2.52** (1.36-4.69)		1.42 (0.53-3.80)		1.90 [†] (0.94-3.81)
		1.88 [†] (0.96-3.68)		0.94 (0.49-1.81)		0.34** (0.16-0.73)		4.51*** (2.09-9.77)				
Education												
School attendance <i>M</i> (<i>SD</i>) (<i>n</i> =144)	82.10 (18.33)	79.39 (19.04)	84.89 (14.28)	76.40** (22.23)	79.00 (21.54)	83.19 (14.82)	80.12 (21.14)	81.67 (16.86)	86.19 (13.95)	80.51 (18.98)	81.96 (20.07)	80.79 (18.19)
Do you avoid standing in class to answer questions on your MP?	59.3 (70)	72.5 (58)	63.6 (75)	66.3 (53)	59.6 (59)	69.7 (69)	53.2 (42)	72.3 (86)	26.3 (5)	68.7 (123)	45.5 (20)	70.1 (108)
OR _{adj} (95%CI)		1.81 (0.98-3.34)		1.13 (0.62-2.04)		1.56 (0.87-2.81)		2.30** (1.26-4.17)		6.15** (2.11-17.91)		2.82** (1.42-5.60)
Do you find it difficult to concentrate at school when you have your MP? (<i>n</i> =198)	46.6 (55)	57.5 (46)	49.2 (58)	53.8 (43)	52.5 (52)	49.5 (49)	39.2 (31)	58.8 (70)	42.1 (8)	52.0 (93)	31.8 (14)	56.5 (87)
OR _{adj} (95%CI)		1.55 (0.87-2.75)		1.20 (0.68-2.12)		0.89 (0.51-1.55)		2.21** (1.24-3.95)		1.49 (0.57-3.87)		2.78** (1.37-5.66)
		1.69 [†] (0.93-3.05)		1.05 (0.58-1.91)		0.55 (0.29-1.07)		3.03** (1.54-5.99)				

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Psychosocial wellbeing												
Strengths & Difficulties Questionnaire <i>M(SD)</i>	18.65 (5.24)	19.80 (5.37)	18.75 (5.42)	19.65 (5.13)	18.91 (5.34)	19.32 (5.29)	18.84 (5.42)	19.30 (5.25)	17.11 (6.30)	19.32 (5.17)	18.25 (5.80)	19.36 (5.16)
Did you experience embarrassment during your last MP (n=153)	47.8 (43)	42.9 (27)	46.2 (42)	45.2 (28)	48.8 (39)	42.5 (31)	54.4 (31)	40.6 (39)	50.0 (6)	45.4 (64)	38.7 (12)	47.5 (58)
OR _{adj} (95%CI)		0.82 (0.43-1.57)		0.96 (0.50-1.84)		0.78 (0.41-1.47)		0.57 (0.30-1.11)		0.83 (0.26-2.70)		1.43 (0.64-3.21)
During your MP do you feel ashamed? (n=201)	66.7 (80)	72.8 (59)	69.8 (83)	68.3 (56)	72.3 (73)	66.0 (66)	59.5 (47)	75.4 (92)	52.6 (10)	70.9 (129)	56.8 (25)	72.6 (114)
OR _{adj} (95%CI)		1.34 (0.72-2.49)		0.93 (0.51-1.72)		0.74 (0.41-1.36)		2.09* (1.13-3.84)		2.19 (0.84-5.70)		2.01* (1.01-4.03)
During your MP do you feel insecure?	68.3 (82)	60.4 (57)	69.8 (83)	68.3 (56)	68.3 (69)	70.0 (70)	60.8 (48)	74.6 (91)	63.2 (12)	69.8 (127)	61.4 (27)	71.3 (112)
OR _{adj} (95%CI)		1.10 (0.60-2.03)		0.93 (0.51-1.72)		1.08 (0.59-1.97)		1.90* (1.03-3.48)		1.35 (0.50-3.60)		1.57 (0.78-3.15)
		1.16 (0.62-2.16)		0.86 (0.46-1.60)		0.78 (0.39-1.54)		2.16* (1.09-4.28)				

Adequate absorbent OR=1.00; Changed frequently OR=1.00; Drying outside OR=1.00; Don't worry about privacy OR=1.00; Adequate MHM strict OR=1.00; Adequate MHM relaxed OR=1.00
OR_{adj}: Odds ratio for multivariable models where all aspects of MHM were included in the model.
p*<.05, *p*<.01, ****p*<.001, †*p*<.10

Discussion

Prevalence of poor MHM

This study was the first to provide a prevalence estimate for MHM consistent with the concept definition; “*women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.*”. [16] 90.5% (95%CI 85.6-93.9%) of the sample had inadequate MHM. This did not differ between those provided with AFRIpads and those using existing methods (71.3% cloth, 14.0% disposable sanitary pads, 14.7% other methods including toilet paper and underwear alone). Even when more relaxed criteria were used (use of sanitary pad, AFRIpad, old or new cloth, that was changed 2 or more times per day, with absorbents washed with soap and dried hung outside or inside, absorbents never worn damp, and girls reporting they were not worried about being observed washing their absorbent), the prevalence of poor MHM was 78.1% (95%CI 71.8-83.3%), and did not differ for those using AFRIpads. By employing the current definition of the concept, this work has shown that reporting individual aspects of MHM alone underestimates the extent of deprivation. Furthermore, when MHM is considered as a whole, providing reusable sanitary pads was not effective in improving girls’ menstrual hygiene.

MHM behaviours reported by the sample are consistent with the rural context and poverty in the study area. The sample may be more disadvantaged, at least in terms of menstrual hygiene, than some past studies. A higher proportion of girls (who did not receive AFRIpads) reported using cloth compared to studies of girls in rural India (pooled prevalence: 63% [12]), and single-study estimates from East Africa (24% in rural Kenya [19]; 56% in Ethiopia [9]). A similarly high rate of cloth use (87%) was recently reported in the Rukungiri district of Uganda.[29] There are far fewer studies with which to compare reports of washing or drying practices. Past studies have also failed to adequately report questions used to capture MHM practices, which limits comparison (see [17]). This study focused on the absorbent girls reported using *most frequently*.

Facilities for MHM were comparable across all study schools. Latrines were gender-separated but had few adequate doors or locks, and no access to water. Girls reported going home to change absorbents, and all stated that they washed and dried reusable absorbents at home, rather than at school. No survey items asked about transporting menstrual absorbents home for cleaning, which may have presented an additional challenge for girls and resulted in anxiety or stigma. Improvements to facilities for changing and cleaning absorbents at the schools may have improved MHM. While advocates have increasingly focused on the provision of facilities at school

for MHM,[23] this was not the focus of the present study and the washing and drying practices reported in this sample were undertaken at home, rather than at school.

Consequences of poor MHM

High rates of negative outcomes were observed. Many girls reported genital irritation, discharge, and concerns about odour. Whilst self-reported symptoms may not be the best predictor of laboratory-confirmed infections,[8] girls’ discomfort and symptoms which may cause distress, represent important health outcomes. Over half the sample reported not standing to answer questions and difficulties concentrating in school. 69% of girls reported shame and insecurity during menstruation. High SDQ scores in the sample have been discussed elsewhere (see [24]), in part consistent with high scores reported in low-income contexts, and a possible bias towards affirmative responses.[24] Large percent differences were observed using the pooled MHM measures for all consequences assessed. Unfortunately, the small proportion of girls with adequate hygiene meant there was insufficient power to detect many effects. Nevertheless, findings support the importance of considering all aspects of MHM together.

There were few associations between aspects of MHM and health symptoms. As noted above this may reflect the poor validity of girls self-reports.[8] Concerns about odour were associated with absorbent type, drying practices and privacy. AFRIPads provided as part of the *Menstruation and the Cycle of Poverty* trial were approximately 7-8 months old at the time of follow-up survey. If poorly maintained, these may not have been a clean absorbent, or associated with reduced irritation and infection.

Using unclean absorbents was associated with concerns about odour, difficulties in school concentration, and standing to answer questions. Actual soiling or fear of soiling and odour may mediate the identified relationship with school participation, and should be investigated in future work. Drying absorbents adequately was associated in an unanticipated direction with both odour concerns and reports of discharge. There may be multiple explanations for this finding. Firstly, girls drying absorbents outside may place them on unclean surfaces or on the ground, which may increase contamination. Drying outside may provoke concerns that absorbents will be seen, thus they may not be left to dry adequately. Consistency of reports between drying outside and never wearing absorbents damp, however, works against this interpretation. Whilst replication would be needed, findings have interesting implications for interventions which encourage outside drying. If conditions outside are unclean, this may cause unintended harm.

Concerns about privacy for washing absorbents were associated with many consequences including shame, insecurity, and disengagement at school. The privacy item captured worry about

privacy for washing absorbents, so associations may have been driven by girls' trait anxiety. However, it would be difficult to measure privacy more objectively, as adequacy is in many ways subjective.[7] Girls' feelings of safety are likely to reflect some individual differences. In interpreting the associations between privacy for washing and outcomes, one explanation may be that girls who felt they were likely to be observed did not wash absorbents as well as those without this pressure. As noted above, high rates of reported washing with soap 'always' are likely to be misleading. This also did not capture the quality of washing. Those washing absorbents quickly may have been unable to get them clean and properly prepared for future use and minimal odour. More research is needed to investigate the validity and reliability of these measures, and provide recommendations on criteria for adequate washing for health and odour prevention. Reports of perceived privacy for changing and drying absorbents represent important parts of the MHM concept definition which were not able to be captured by available measures in this study.

Only the frequency of absorbent change was associated with school attendance, although the sample size was limited. This was in the opposite direction to guidelines for MHM. As past literature (e.g., [30]), and reports from local agents in field suggest, girls may go home to change absorbents. Thus it may be unsurprising that a higher frequency of changing predicted lower attendance. This has important implications for education interventions which advise girls to increase their frequency of absorbent change. Results suggest these recommendations may have unintended negative consequences if girls do not have adequate facilities to change at school. It also suggests that girls who need to change more frequently, either due to the reliability of their absorbents or their individual menstrual flow, may face a greater barrier to attendance.

Strengths and limitations

The present study was undertaken in a difficult-to-reach population of adolescent girls in rural Uganda. The use of local research assistants and language improved access to the population and facilitated comfort with the interviewers. The prevalences of MHM behaviours are heavily dependent on the reliability of girls' reports and questions used, an issue that pervades MHM studies. The study found almost universal washing with soap. Whilst girls report that soap and water is available to them at home, qualitative interviews, site reports, and reports from the field suggest always washing absorbents with soap to be unlikely. Social desirability is likely to have influenced self-reported behaviours, urogenital symptoms, and the impact of menstruation on schooling. Interviewers were from the local NGO, well known in the area, with a recent campaign focused on girls' education (<https://plan-international.org/what-we-do/because-i-am-girl>). In addition, many had been involved in delivering the AFRipads to the girls. It is unclear if written surveys would have

reduced social-desirability in responses, and may have introduced other biases given the low levels of literacy in the area. Additionally, this would have required costly translation of surveys and girls' responses. The distribution of AFRIPads and education in the sample mean that the prevalences of MHM behaviours and consequences reported may not reflect practices prior to the interventions. As noted previously, a proportion of girls (n=60) not included in the *Menstruation and the Cycle of Poverty* trial results were included in this study. While these girls were not included in the trial sample, many had been attending the study schools from very near the baseline assessment, and were comparable to girls in the trial, with many also receiving the interventions. This study used best available evidence to guide criteria for MHM estimates and predictive models; however, as noted, there is a dearth of literature to guide hygiene recommendations and research.

The cross-sectional and correlational nature of the research precludes causal inference. Further, relationships between MHM and health, education, and psychosocial wellbeing outcomes are limited by the inability to adjust for socio-demographic confounds. It is likely that greater access to resources is associated both with better MHM, and proposed consequences. Girls with greater access to resources are likely to have better health outcomes, family support for school attendance, fewer other challenges to psychosocial wellbeing. Thus, the study would have been greatly improved by the ability to adjust for socio-demographic factors such as parental education and poverty.[12] The small sample size further limited these analysis. As this work was exploratory, and the first to estimate a combined measure of MHM and assess multiple aspects of MHM and their relationship to outcomes, there was very limited literature on which to base α -priori power analyses. This study provides some indication of expected effect sizes to enable power analyses in future studies.

The nature of, and need for, a pooled estimate of MHM could be questioned. As argued in the background to this paper, this is useful for establishing the state of MHM in different populations and advocating for attention. It also promotes use of the MHM term consistent with its definition, and provides greater clarity around what should be considered predictors and consequences of MHM, rather than aspects of it. This highlights the need for alternate terminology capturing other factors such as menstrual taboos that impact on girls' menstrual management but are not MHM. Until evidenced-guidelines are developed, and comparable measures of MHM have been tested and used across studies, it is not advised to present only pooled estimates. The individual aspects that make up MHM will always be important individual factors, as indicated by the differential relationships with outcomes identified in this work. This paper presents a worked example of how the MHM concept could be operationalised. The aspects of the definition, placing equal value on each of these, and the cut off points used in this work could all be debated. More work is needed to guide research and practice.

Finally, the individual items available to appraise MHM in this study could be improved. MHM literature has paid insufficient attention to measurement issues and there are presently no validated questionnaires for assessing practices such as absorbent washing and drying.[17] The measures in the present study could be improved upon in future work. Questions often asked about how girls 'usually' dry or dispose of absorbents which may result in greater social desirability in responses than asking about the last menstrual period. Response options for drying items need improvement. Field work in the study found that girls drying absorbents outside would often do so under another piece of fabric which may reduce the UV benefits of drying outside. Drying pads 'hidden' lacks specificity which could be improved on in future work.

Implications for research and practice

Recent calls for action on MHM state the need for a strong quantitative evidence base.[23] This cannot be achieved without consistent reporting of MHM as defined. Prevalence estimates are needed to advocate effectively for action, establish hypothesised consequences, and measure improvements in intervention trials. Slow movement to address MHM deficits to date may reflect the present absence of quantitative prevalence figures and links to consequences. Confusion between what represents a predictor or aspect of poor MHM will continue without guidance and tools for measuring MHM as defined. This delays the development of a detailed, and quantitatively supported, problem theory of MHM. There is an urgent need for guidelines detailing the MHM concept, and criteria for adequacy in each aspect, as well as research guidance to establish a rigorous primary evidence base in this field.

Minimal correlations between aspects of MHM, and differential associations between aspects and consequences in multivariable models demonstrate unique impact of each facet. Findings suggest all MHM aspects must be considered in testing links with hypothesised consequences. Null results, particularly for psychosocial consequences, suggest more predictors may need to be considered. Hygiene management is not the only menstruation related challenge facing girls in low income contexts. Fear around menstruation due to lack of understanding, taboos and stigma may contribute to these outcomes. Whilst properly defining and measuring aspects of MHM, future studies must also investigate these other contributors to outcomes.

As a follow-up to the *Menstruation and the Cycle of Poverty* trial, the present study shows that the distribution of AFRIpads did not improve MHM, despite intervention effectiveness in improving school attendance.[24] It may be that improving one aspect of MHM is sufficient to improve outcomes, as suggested by differential associations in this study, but is insufficient to provide girls with their full right to MHM.[7] The provision of a reusable product may have had a

negligible impact on MHM due to their dependency on washing, drying and privacy facilities which were unaffected by the intervention. Alternatively, girls may have needed additional training in AFRIpad use beyond what was provided, to improve cleaning practices. Providing disposable pads which do not require washing or drying, and may be quicker to change, might have a larger impact on MHM. This should be investigated in future work. Inserted products including menstrual cups and tampons were not considered culturally appropriate in this population, but may present another alternative to reusable pads for future studies.[26] In interpreting the primary trial results, which found improvements in school attendance following reusable pad provision,[24] it is likely that improvements to unmeasured aspects of menstrual management such as improving teachers' awareness of girls' needs or improved social support by prompting girls to discuss menstruation, may have contributed to these effects. More quantitative epidemiological studies and in-depth analysis of trial results, such as mediation analyses, are needed to fully understand the pathways of effect in interventions and maximise their future effectiveness.

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Author contributions

Conceived and designed the experiments: JH PM CD LS. Performed the experiments: PM CD MW LS. Analysed the data: JH. Wrote the paper: JH PM. Commented on the paper: CD MW LS.

All authors have read and approved the final manuscript.

Conflicts of interest

All authors declare that there are no conflicts of interest.

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Data sharing statement

No additional data available.

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STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of cross-sectional studies

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Title page
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	3	State specific objectives, including any prespecified hypotheses	7
Methods			
Study design	4	Present key elements of study design early in the paper	6-7, abstract
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6-7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7-11
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-11
Bias	9	Describe any efforts to address potential sources of bias	9-11
Study size	10	Explain how the study size was arrived at	6-7, 12
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	9-11
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	10-11
		(b) Describe any methods used to examine subgroups and interactions	NA
		(c) Explain how missing data were addressed	11
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7,12
		(b) Give reasons for non-participation at each stage	12
		(c) Consider use of a flow diagram	Reference to primary paper provided
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	12
		(b) Indicate number of participants with missing data for each variable of interest	12-20
Outcome data	15*	Report numbers of outcome events or summary measures	12-20
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12-20
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	21-22
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	22-23
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	23-25
Generalisability	21	Discuss the generalisability (external validity) of the study results	23-25
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	26

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

Intervention Survey Oct 2014

Introduction

You may remember that we came here last year and interviewed you about your MP for a study meant to find out how best to help girls manage their MP while they are in school. If you choose to participate in the study again today, we will ask you similar questions about your menstruation. The questions will take about 30 minutes. We will never reveal your identity to anyone. In fact, all your answers will be kept secret and we are not going to tell anyone. You may choose to participate or not and may quit at any time. Would you like to continue? Your name will not be associated with the picture and will only be used in academic presentations, lectures and/or publications associated with this project.

Interview consent:*

[RA: TICK THE APPROPRIATE 'YES' BOX IF CONSENT HAS BEEN EXPLAINED AND RESPONDENT HAS AGREED. IF CONSENT HAS NOT BEEN OBTAINED, DO NOT CONTINUE AND CONTACT YOUR SUPERVISOR FOR INSTRUCTIONS]

☐ Yes, consent obtained

☐ No (consent NOT obtained)

Study ID:*

General Demographics Information

Logic: Show/hide trigger exists.

Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]*

☐ Girl consented to interview. - *This will enable more questions below.*

☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Okay, here is the first question. How old are you?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW ENTER DK] [IF NO ANSWER ENTER 999]

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

What class in school are you?*

☐ P3

☐ P4

☐ P5

☐ P6

☐ P7

☐ NONE OF THESE/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Did you go to the same school last year?*

- ☐ Yes
☐ No (trigger)
☐ No answer

Logic: Hidden unless: Question "Did you go to the same school last year?" #3 is one of the following answers ("No (trigger)")

Which school did you go to?*

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Are you repeating this class?*

- ☐ Yes
☐ No
☐ No answer

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you ever repeated any other class?*

- ☐ Yes
☐ No
☐ No answer
-

Empowerment

Logic: Show/hide trigger exists.

Page 3 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - *This will enable more questions below*
☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

[READ] Now, I am going to ask you for your own opinions on some things. For each question, please tell me the answer that comes closest to your own view.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

What do you think is the biggest factor in determining your future? Do you think it is...[READ]*

- ☐ Your own hard work

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- ☐ Your family
- ☐ Your future husband
- ☐ Your community
- ☐ Your education
- ☐ Your government
- ☐ Or something else? (specify): _____ *
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think education will increase your opportunities in life a little? A lot? Or not at all?*

- ☐ Increase my opportunities a little
- ☐ Increase my opportunities a lot
- ☐ Not increase my opportunities at all
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be going to secondary school?*

- ☐ Will go
- ☐ Probably won't go (trigger)
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be going to secondary school?" #9 is one of the following answers ("Probably won't go (trigger)")

Why do you think you won't be going to secondary school?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be able to finish primary school?*

- ☐ Think I will stay through the end of P7
- ☐ Think I will likely leave (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be able to finish primary school?" #11 is one of the following answers ("Think I will likely leave (trigger)")

Why do you think you will likely leave?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____*
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you like going to school?*

- ☐ Like going to school
- ☐ Would rather not go to school
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Going to school is more important for boys? Or girls? Or is it the same for both?*

- ☐ Boys
- ☐ Girls
- ☐ The same for both
- ☐ DON'T KNOW/NO ANSWER

Subjective Well-being

Logic: Show/hide trigger exists.

Page 4 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - This will enable more questions below.
- ☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

[READ] Now, I want you to think about your life over the past six months. I am going to read some sentences. For each one, please tell me if it is not true, sometimes true, or true about you.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

Here is the first sentence: I try to be nice to other people. I care about their feelings. Is that...[READ]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am restless. I cannot stay still for long. Is that...[READ]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get a lot of headaches, stomach aches, or sickness. Is that...[READ]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually share with others, for example, games, food. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get very angry and often lose my temper. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I would rather be alone than with people of my age. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually do as I am told. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am helpful if someone is hurt, upset or feeling ill. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I have one good friend or more. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I fight a lot. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I can make other people do what I want. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often unhappy, depressed, or tearful. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other people my age generally like me. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am easily distracted. I find it difficult to concentrate. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am nervous in new situations. I can easily lose confidence. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am kind to younger children. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often accused of lying or cheating. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other children or young people pick on or bully me. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I often offer to help others (parents, teachers, children). [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I think before I do things. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I take things that are not mine from home, school or elsewhere. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I get along better with adults than with people my own age. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I have many fears. I am easily scared. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I finish the work I'm doing. My attention is good. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Menstruation and Reproductive Health

Logic: Show/hide trigger exists.

Page 5 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - This will enable more questions below.
- ☐ Consent was not obtained.

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Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

[READ] Now, I am going to ask you some questions about women's health and how you understand it. Please remember that we will not tell anyone else your answers.

Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Can you describe to me what MP is?*
[ENSURE GIRL GIVES AT LEAST TWO ITEMS ABOUT MP, BLOOD, PREGNANCY, PUBERTY ITEMS SUCH AS BREASTS]
☐ Yes, respondent understands
☐ No, respondent does not understand
☐ No answer

Logic: Show/hide trigger exists. Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you started your MP?*
☐ Yes - *This will enable more questions below.*
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

When did you first start your MP?*
[ENTER YEAR] [IF EXACT MONTH NOT KNOWN, PROBE FOR ESTIMATED MONTH.] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Show/hide trigger exists. Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

Did you know about MP before it happened to you?*
☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you know about MP before it happened to you?" #42 is one of the following answers ("Yes (trigger)")

Who first told you about it?*
[IF GIRL SAYS SCHOOL. ASK QUESTIONS TO DELINEATE PLAN/STRAIGHT TALK VS. ANOTHER SCHOOL PROGRAM].
☐ Mother
☐ Girl own age
☐ Aunt/Grandmother
☐ School/School program
☐ PLAN/straight talk education program
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - This will enable more questions below.")

Did you experience ANY of the following during your last MP? [READ]

[CHECK ALL THAT APPLY]*

- ☐ Skin irritation / rashes in the pelvic area
- ☐ Fear of panty soiling
- ☐ Odour
- ☐ Outside garment soiling
- ☐ Embarrassment
- ☐ Irritability/moodiness/depression/sadness
- ☐ Insecurity
- ☐ Fear that sanitary protection would fall out of underwear
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Sanitary Protection Method

Logic: Show/hide trigger exists.

Page 6 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Show/hide trigger exists. Hidden unless: Question "Page 6 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP?

[This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]*

- ☐ AFRIPAD
- ☐ Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]
- ☐ Toilet roll
- ☐ Sanitary pad
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

Who USUALLY provides you with the CLOTH that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]*

- ☐ Obtain it myself (trigger)
- ☐ Mother (trigger)
- ☐ Other family member (trigger)
- ☐ Non-related household member (trigger)
- ☐ Friend (trigger)
- ☐ Boyfriend (trigger)

- ☐ Teacher (trigger)
- ☐ Other (specify) (trigger): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Mother (trigger)","Other family member (trigger)","Non-related household member (trigger)","Friend (trigger)","Boyfriend (trigger)","Teacher (trigger)","Other (specify) (trigger)"

- Where does this person USUALLY get the CLOTH?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Obtain it myself (trigger)"

- Where do you USUALLY get the CLOTH you use when you're on your MP?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ I reuse material.
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

- [CLOTH] How many pieces do you have?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]
- _____

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

- [CLOTH] How many do you use a day?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] Do you share cloth with anyone else in your household?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Walk a long distance*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be gone from home for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Move quickly or strenuously*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

How much of a problem is leaking while using CLOTH? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Does ANYONE else in your household use cloth?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Did you ever try to wash the CLOTH?*

- ☐ Yes (trigger)
- ☐ No (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("No (trigger)")

Why didn't you try to wash the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Had trouble getting water
- ☐ Could not afford soap

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- ☐ Could afford soap but just didn't have any
- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use soap...[READ]***
- ☐ Every time,
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #64 is one of the following answers ("Sometimes, or", "Never?")

- Why didn't you use soap?**
[CHECK ALL THAT APPLY]*
- ☐ Often don't have soap
 - ☐ Don't need soap to get it clean
 - ☐ Don't care to use soap
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use hot water or cold water?***
- ☐ Hot water
 - ☐ Cold water
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Was the water clean or dirty?***
- ☐ Clean
 - ☐ Dirty
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you feel disgusted by washing the CLOTH?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you worry about being observed washing the CLOTH?***

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

Did you try to dry the CLOTH?*

- ☐ Yes (trigger)
☐ No (trigger)
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("No (trigger)")

Why didn't you try to dry the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
☐ Decided not to use it again
☐ Did not have enough privacy
☐ It was disgusting
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Did you worry about drying the CLOTH?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Where did you hang the CLOTH to dry?

[CHECK ALL THAT APPLY]*

- ☐ Dried pad under bed
☐ Dried pad outdoors
☐ Dried pad in dorm where other girls could see, such as on a peg
☐ Dried pad in another secret place
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

How many hours did it take to dry the CLOTH completely?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

How often did you wear the CLOTH damp? Would you say...[READ]*

- ☐ Usually

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- ☐ Sometimes, or
- ☐ Never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]*
☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the TOILET ROLL?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the TOILET ROLL you use when you're on your MP?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Walk a long distance

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be gone from home for a long time

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Move quickly or strenuously*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the market*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

How much of a problem is leaking while using TOILET ROLL? Is it...[READ]*

- ☐ Not a problem at all,
☐ A little bit of a problem, or
☐ A big problem?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Does anyone else in your household use toilet roll?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

Who USUALLY provides you with the SANITARY PADS that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]*

- ☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the SANITARY PADS?*

- ☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the SANITARY PADS?*

- ☐ Shop
- ☐ Market
- ☐ School
- ☐ Rubbish
- ☐ From other females
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Sit for a long time*
- ☐ Yes

- ☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- How much of a problem is leaking while using SANITARY PAD? Is it...[READ]***
- ☐ Not a problem at all,
 - ☐ A little bit of a problem, or
 - ☐ A big problem?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- Does anyone else in your household use sanitary pads?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

- [OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]***
- ☐ Obtain it myself (trigger)
 - ☐ Mother (trigger)
 - ☐ Other family member (trigger)
 - ☐ Non-related household member (trigger)
 - ☐ Friend (trigger)
 - ☐ Boyfriend (trigger)
 - ☐ Teacher (trigger)
 - ☐ Other (specify) (trigger): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]" #102 is one of the following answers ("Mother (trigger)","Other family member (trigger)","Non-related household member (trigger)","Friend (trigger)","Boyfriend (trigger)","Teacher (trigger)","Other (specify) (trigger)")

- [OTHER] Where does this person USUALLY get the material?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

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5 **Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material**
6 **that you use during your MP?**

7 **[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU**
8 **WITH THE MATERIAL?]" #102 is one of the following answers ("Obtain it myself (trigger)")**

9
10 **[OTHER] Where do you USUALLY get the material you use when you're on your MP?***

11 ☐ Old cloth

12 ☐ Shop

13 ☐ Market

14 ☐ School

15 ☐ Rubbish

16 ☐ From other females

17 ☐ *I reuse material.*

18 ☐ Other (specify): _____ *

19 ☐ DON'T KNOW/NO ANSWER
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22 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
23 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

24 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
25 **USE?]" #45 is one of the following answers ("Other (specify)")**

26
27 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
28 **soiling when you have to:**

29 **Walk a long distance***

30 ☐ Yes

31 ☐ No

32 ☐ NOT APPLICABLE

33 ☐ DON'T KNOW/NO ANSWER
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36 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
37 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

38 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
39 **USE?]" #45 is one of the following answers ("Other (specify)")**

40
41 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
42 **soiling when you have to:**

43 **Be gone from home for a long time***

44 ☐ Yes

45 ☐ No

46 ☐ NOT APPLICABLE

47 ☐ DON'T KNOW/NO ANSWER
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50 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
51 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

52 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
53 **USE?]" #45 is one of the following answers ("Other (specify)")**

54
55 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
56 **soiling when you have to:**

57 **Move quickly or strenuously***

58 ☐ Yes

59 ☐ No

60 ☐ NOT APPLICABLE

☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

**[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time***
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

**[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males***
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

**[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home***
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

**[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school***
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] How much of a problem is leaking while using this material? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] Does anyone else in your household use this material?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Were you given a pack of AFRIPADs since we came last year?*

- ☐ Yes (trigger)
- ☐ No
- ☐ No answer

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Logic: Show/hidden trigger exists. Hidden unless: Question "Were you given a pack of AFRIPADS since we came last year?" #115 is one of the following answers ("Yes (trigger)")

- Did you...[READ]***
- ☐ Never use them?
 - ☐ Use them only once?
 - ☐ Use them more than once and are still using them? Or
 - ☐ Use them more than once but stop using them?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Which of the following are reasons you decided not to try the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not look like they would work well?
 - ☐ You were afraid the AFRIPAD would smell?
 - ☐ You were afraid the AFRIPAD would show through clothing?
 - ☐ You were afraid the AFRIPAD would leak?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Are there any other reasons you decided not to use the AFRIPAD?***
- ☐ Yes (specify): _____ *
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

- Which of the following are reasons you decided to stop using the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not work well?
 - ☐ The AFRIPADS smelled?
 - ☐ The AFRIPADS showed through clothing?
 - ☐ The AFRIPADS leaked?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

Are there any other reasons you decided to stop using the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you given a pack of AFRIPADs since we came last year?" #115 is one of the following answers ("Yes (trigger)")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") OR Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER"))

Did you share any part of your AFRIPAD pack?*

- ☐ Yes (trigger)
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("Yes (trigger)")

Who did you share with?

[CHECK ALL THAT APPLY]*

- ☐ Family
- ☐ Friends
- ☐ Other girls at school
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

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- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

- Did you give away any part of your AFRIPAD pack? Would you say...[READ]***
- ☐ Yes, part of the pack? Or
 - ☐ No, none of it?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

- Did you give away any part of your AFRIPAD pack? Would you say...[READ]***
- ☐ Yes, part of the pack? Or
 - ☐ No, none of it?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: ((Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #125 is one of the following answers ("Yes, the whole thing?", "Yes, part of the pack? Or") OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #126 is one of the following answers ("Yes, part of the pack? Or")) OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #127 is one of the following answers ("Yes, part of the pack? Or"))

- Who did you give it to?**
[CHECK ALL THAT APPLY]*
- ☐ Family
 - ☐ Friends
 - ☐ Other girls at school
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

- How much did you like or dislike the AFRIPAD? Did you...[READ]***
- ☐ Like it very much
 - ☐ Like it a little
 - ☐ Dislike it a little, or
 - ☐ Dislike it very much?
 - ☐ [IF VOLUNTEERED] Neither
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

During the day, how many hours did you usually wear the AFRIPAD before you had to change it?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Did you ever wear it for longer than 8 hours? Would you say...[READ]*

- ☐ Yes, usually
- ☐ Yes, but only on light days or at night, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]*

- ☐ Yes, always
- ☐ Yes, on some days, but not others, depending on the flow, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]" #132 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

How much of a problem is it to change your AFRIPAD at school? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

How much of a problem is leaking while using an AFRIPAD? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this

school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE

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() DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the market*
() Yes
() No
() NOT APPLICABLE
() DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

Did you ever wash the AFRIPAD?*
() Yes (trigger)
() No (trigger)
() DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("No (trigger)")

Why didn't you try to wash the AFRIPAD?
[CHECK ALL THAT APPLY]*
[] Had trouble getting water
[] Could not afford soap
[] Could afford soap but just didn't have any
[] Did not have enough time
[] Decided not to use it again
[] Did not have enough privacy
[] It was disgusting
[] Other (specify): _____*
[] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use soap...[READ]*
() Every time,
() Sometimes, or
() Never?
() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #145 is one of the following answers ("Sometimes, or", "Never?")

Why didn't you use soap?

[CHECK ALL THAT APPLY]*

☐ Often don't have soap

☐ Don't need soap to get it clean

☐ Don't care to use soap

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use hot water or cold water?*

☐ Hot water

☐ Cold water

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Was the water clean or dirty?*

☐ Clean

☐ Dirty

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you feel disgusted by washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you worry about being observed washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you try to dry the pad?*

☐ Yes (trigger)

☐ No (trigger)

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("No (trigger)")

Why didn't you try to dry the pad?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Where did you hang the pad to dry?**
[CHECK ALL THAT APPLY]*
- ☐ Dried pad under bed
 - ☐ Dried pad outdoors
 - ☐ Dried pad in dorm where other girls could see, such as on a peg
 - ☐ Dried pad in another secret place
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- How many hours did it take to dry the pad completely?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]
- _____

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Did you worry about drying the pad?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

- How often did you wear the pad damp? Would you say...[READ]***
- ☐ Usually
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

**Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))**

- If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?***
- ☐ Yes, would choose AFRIPADS
 - ☐ No, would choose other methods
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?" #157 is one of the following answers ("No, would choose other methods")

What would you choose instead of AFRIPADS?*

- ☐ Sanitary pads
- ☐ Cloth from home
- ☐ Another manufactured cloth pad
- ☐ Toilet roll
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

AFRIPADS cost 15 thousand shillings and last for about a year. Would you be able to afford them if you wanted to buy them?*

- ☐ Yes
- ☐ No
- ☐ Maybe
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

If you had 15 thousand shillings, how likely would you be to buy the AFRIPADS?...[READ]*

- ☐ Not at all likely
- ☐ Slightly likely
- ☐ Moderately likely
- ☐ Very likely
- ☐ Extremely likely
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Do you have any suggestions for improving the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Since we came last year, did you use any other sanitary products for your MP other than the AFRIPADs? If so, what?
[CHECK ALL THAT APPLY]*
☐ Bought sanitary pads from shops
☐ Cloth
☐ Other (specify): _____*
☐ I used nothing else.
☐ DON'T KNOW/NO ANSWER

Menstrual Practices

Logic: Show/hide trigger exists.

Page 7 - [RA: INTERVIEW DISPOSITION]*
☐ Consent obtained and MP
☐ Consent obtained but NO MP
☐ No consent

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Now, I'm going to ask you some more questions about your MP.

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]*
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 times a day
☐ Over 5 times a day
☐ Never change protection
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]" #163 is one of the following answers ("1 time a day", "2 times a day", "3 times a day", "4 times a day", "Over 5 times a day", "DON'T KNOW/NO ANSWER")

When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]*
☐ Immediately go home to change?
☐ Wait until you are back home to change? Or
☐ Change while away from home?
☐ [DO NOT READ]DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Immediately go home to change?", "Wait until you are back home to change? Or")

Why do you change at home?**[CHECK ALL THAT APPLY]***

- ☐ Do not carry extra sanitary protection with me
- ☐ Do not have enough privacy
- ☐ Do not know where to dispose of sanitary protection away from home
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Change while away from home?")

What do you USUALLY do with your used sanitary protection when you have to change away from home or school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AWAY FROM HOME OR SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How many minutes does it usually take for you to change your sanitary protection?*
 [ENTER NUMBER OF MINUTES] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you bathe more often when you are on your MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to soap at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to water at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to soap at school?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to water at school?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have underwear?*
☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you have underwear?" #173 is one of the following answers ("Yes (trigger)")

Do you usually wear underwear with your sanitary protection?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]*
☐ Yes, always
☐ Yes, on some days, but not others, depending on the flow, or
☐ No, never?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

How much of a problem is it to change your sanitary protection at school? Is it...[READ]*
☐ Not a problem at all
☐ A little bit of a problem, or
☐ A big problem?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you do when you need to change your sanitary protection at school?*

- ☐ Ask permission from teacher
- ☐ Leave without permission
- ☐ Sit and wait until others are gone
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you USUALLY do with your used sanitary protection when you have to change at school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Go home to change
- ☐ Don't go to school if need to change
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

What do you USUALLY do with your used sanitary protection when you change at home?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT HOME?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Put in trash at home
- ☐ Dispose at community rubbish heap
- ☐ Wash at home and reuse
- ☐ Bury
- ☐ Burn
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Health, School, and Activities

Logic: Show/hide trigger exists.

Page 8 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

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Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Have you ever used a sanitary pad?***
- ☐ Yes
 - ☐ No
 - ☐ Not Applicable
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month.***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month." #181 is one of the following answers ("Yes (trigger)")

- Did you experience the itching or burning while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever had any white or green discharge from your vagina?***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever had any white or green discharge from your vagina?" #183 is one of the following answers ("Yes (trigger)")

- Did you experience the discharge while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How often do you worry about odor during your MP? Would you say...[READ]***
- ☐ Never,
 - ☐ Rarely,
 - ☐ Sometimes,
 - ☐ Often, or
 - ☐ All the time?

() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How often do you worry about odor during your MP? Would you say...[READ]" #185 is one of the following answers ("Rarely," "Sometimes," "Often, or", "All the time?")

In what situations do you worry about odor?

[CHECK ALL THAT APPLY]*

☐ At school

☐ Around males

☐ In other social environments (on the bus, at church, at the market, etc.)

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Does your MP ever cause you to...[READ]

[CHECK ALL THAT APPLY]*

☐ Miss school

☐ Not do your homework

☐ Miss work in the field/gardens

☐ Be unable to play with other children

☐ Avoid physical sports/exercise

☐ Stay indoors

☐ Avoid being around males

☐ Avoid chores

☐ Avoid sex

☐ Anything else? (specify): _____ *

☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

How many days of school do you miss during your MP?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Why did you miss school?

[CHECK ALL THAT APPLY]*

☐ Cramps/bad physical feelings

☐ Fear of leaking

☐ Don't have (lost)/can't afford pads

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Which of the following causes you to miss school the most?...[READ]*

() Physical pain,

() Fear of soiling, or

() Not having any sanitary protection?

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() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- What reasons besides your MP cause you to miss school? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Being ill for other reasons
 - ☐ Household duties
 - ☐ Helping on the farm
 - ☐ Tending to others who are sick
 - ☐ Bad weather
 - ☐ Earning money for the household
 - ☐ Too far
 - ☐ No uniform
 - ☐ No supplies
 - ☐ Caring for smaller children
 - ☐ Lack of school dues
 - ☐ Problems with children at school teasing/bullying
 - ☐ Problems with teachers at school
 - ☐ Any other reasons? (specify): _____ *
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How many minutes does it take you to get to school?***
- ☐ [ENTER MINUTES]: _____ *
 - ☐ Boards at school
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How many minutes does it take you to get to school?" #192 is one of the following answers ("[ENTER MINUTES]", "DON'T KNOW/NO ANSWER")

- How do you usually get to school?***
- ☐ Walk
 - ☐ Ride the bus
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you find it difficult to concentrate at school when you have your MP?***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you find it difficult to concentrate at school when you have your MP?" #194 is one of the following answers ("Yes (trigger)")

- Why? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Actual soiling
 - ☐ Fear of soiling
 - ☐ Scent

- ☐ Discomfort
☐ Actual teasing
☐ Fear of teasing
☐ Cramps
☐ Any other reasons? (specify): _____ *
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you avoid standing in class to answer questions during your MP?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities that are forbidden to you while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities that are forbidden to you while you are on your MP?" #197 is one of the following answers ("Yes (trigger)")

What activities are forbidden to you while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Fetching water
☐ Serving food and beverages to men
☐ Cooking
☐ Being in a sacred space
☐ Other (specify): _____ *
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities or settings you avoid while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities or settings you avoid while you are on your MP?" #199 is one of the following answers ("Yes (trigger)")

What activities or settings do you avoid while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Being around males
☐ Fetching water
☐ Cooking
☐ Being in a sacred space
☐ Physical sports/exercise
☐ Playing with other children

- ☐ Working in the field/garden
- ☐ Going to school
- ☐ Doing homework
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Menstrual Knowledge and Beliefs

Logic: Show/hide trigger exists.

Page 9 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel ashamed? Or do you feel about the same as when you are not on your MP?*

- ☐ Feel ashamed
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you worry that other people can smell your MP? Or are you not worried about this?*

- ☐ Worry that others can smell MP
- ☐ Not worried about this
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do the boys you know tease girls about their MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel insecure? Or do you feel about the same?*

- ☐ Feel insecure
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you ever worry about getting pregnant?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect any of the following changes from you?

[READ]

[CHECK ALL THAT APPLY]*

- ☐ Finding a job
- ☐ Leaving school
- ☐ Getting married soon
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect you to do more housework? Less housework? Or about the same amount of housework?*

- ☐ More housework
- ☐ Less housework
- ☐ About the same amount of housework
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family give you more money? Less money? Or about the same amount of money?*

- ☐ More money
- ☐ Less money
- ☐ About the same amount of money
- ☐ My parents never gave me any money
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you feel more LIKE A WOMAN? Or do you feel about the same?*

- ☐ Feel more like a woman
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do others treat you more LIKE A WOMAN? Or do they treat you the same?*

- ☐ Treat you more like a woman
- ☐ Treat you about the same
- ☐ DON'T KNOW/NO ANSWER

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Admin

[RA: ENTER YOUR NAME]*

[ENTER INTERVIEW DATE (DD/MM/YYYY)]*

[RA DO YOU HAVE ANY COMMENTS YOU WOULD LIKE TO ADD FOR THIS GIRL'S RESPONSES OR OTHER CONDITIONS RELATED TO THIS GIRL]

Thank You!

Thank you for taking our survey. Your response is very important to us.

BMJ Open

Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda.

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Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda.

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Keywords: menstrual hygiene management; adolescent girls; education; reproductive health; risk factors; epidemiology

Abstract

Objectives. The primary objective was to describe Ugandan schoolgirls menstrual hygiene management (MHM) practices and estimate the prevalence of inadequate MHM. Secondly, to assess the relative contribution of aspects of MHM to health, education, and psychosocial outcomes.

Design. Secondary analysis of survey data collected as part of the final follow-up from a controlled trial of reusable-sanitary pad and puberty education provision was used to provide a cross-sectional description of girls' MHM practices and assess relationships with outcomes.

Setting. Rural primary schools in the Kamuli district, Uganda.

Participants. Participants were 205 menstruating schoolgirls (10-19 years) from the eight study sites.

Primary and secondary outcome measures. The prevalence of adequate MHM, consistent with the concept definition, was estimated using dimensions of; absorbent used, frequency of absorbent change, washing and drying procedures, and privacy. Self-reported health, education (school attendance and engagement), and psychosocial (shame, insecurity, embarrassment) outcomes hypothesised to result from poor MHM were assessed as primary outcomes. Outcomes were measured through English surveys loaded on iPads and administered verbally in the local language.

Results. 90.5% (95%CI 85.6-93.9) of girls failed to meet available criteria for adequate MHM, with no significant difference between those using reusable sanitary pads (88.9%, 95%CI 79.0-94.4), and those using existing methods, predominantly cloth (91.5%, 95%CI 85.1-95.3), $\chi^2(1)=0.12, p=.729$. Aspects of MHM predicted some consequences including shame, not standing in class to answer questions, and concerns about odour.

Conclusions. This study was the first to assess the prevalence of MHM consistent with the concept definition. Results suggest that when all aspects of menstrual hygiene are considered together, the prevalence is much higher than has previously been reported based on absorbents alone. The work demonstrates an urgent need for improved assessment and reporting of MHM, and for primary research testing the links between menstrual management and health, education, and psychosocial consequences.

Strengths and limitations of this study

- Offers a working example of the quantitative assessment of MHM, using best available evidence to assess each aspect
- Provides the first prevalence estimate of adequate menstrual hygiene management consistent with its definition
- Multivariable comparisons demonstrate the importance of multiple aspects of menstrual hygiene in predicting hypothesised health, education and psychosocial consequences
- Self-reported menstrual hygiene behaviours, health, education, and psychosocial outcomes are vulnerable to biases, particularly social-desirability
- The cross-sectional nature of the study limits causal inference, and the analyses are limited by the lack of ability to adjust for potential socio-demographic confounds, the small sample size, and lack of existing literature on which to base power analyses

Background

Menstrual hygiene management (MHM) has received increasing attention as a public health issue. After a history of silence, stakeholders from governments to local charities have started to speak about the barrier that the management of menstruation presents to gender equality, and the potential for programs to address the problem. Qualitative research has documented challenges girls face in managing their menses and indicated health, education and psychosocial wellbeing consequences of poor management.[1-4] However, quantitative studies of the associations between MHM and health, education and psychosocial outcomes are scarce.[5] With regard to health, few studies have assessed associations between infection and MHM. In the most comprehensive work to date, a case-control study concluded that there was evidence for an association between reusable pad use and lab-confirmed urogenital infection compared to disposable pads, but noted the complex range of MHM practices, and the need for more research.[6] Other physical and health outcomes including irritation, discomfort and urogenital symptoms, even if not confirmed infections, are also important potential consequences of poor MHM which impose on women’s ability to participate in society with dignity.[7,8]

School absenteeism and disengagement have been emphasised as important consequences of poor MHM. Quantitative evidence for links between MHM and attendance have been mixed, although studies have almost exclusively looked at absorbent type, rather than all MHM practices discussed below.[9-12] Studies have focused on attendance,[5] and additional work is needed to capture the impact of menstruation on concentration and engagement, even if girls are at school.[2 13] Psychosocial consequences including shame, insecurity, anxiety, and fear of stigma are well-documented correlates of menstruation in qualitative studies (e.g.,[2,4]). Such negative psychosocial outcomes have been hypothesised to arise from poor MHM such as inadequate absorbent use.[3] They may also result from a lack of knowledge and information about menstruation,[14], cultural stigma and taboos,[4] and as a result of transactional or coercive sex undertaken to meet MHM needs.[15] More quantitative evidence is needed to unpack the roles of these different contributors to wellbeing, and associations between MHM and wellbeing outcomes. As argued below, it may be inaccurate to label all of these predictors as MHM.

Menstrual hygiene management: definition, use, and measurement

A unified, working definition of MHM was developed by the Joint Monitoring Program of the World Health Organisation and UNICEF in 2012, defining MHM as: *“Women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for*

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3 *washing the body as required, and having access to facilities to dispose of used menstrual*
4 *management materials.”*[16] This captures aspects of the physical requirements for hygienic,
5 effective management of menstrual bleeding. Use of the term has proliferated; however,
6 operationalisation has been inconsistent. As per the above definition, adequate MHM would
7 require:
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- 10 • Clean absorbents
- 11 • Adequate frequency of absorbent change
- 12 • Washing the body with soap and water
- 13 • Adequate disposal
- 14 • Privacy for managing menstruation

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18 Studies to date have only reported a few of these aspects (see [17]). Prevalence studies, and
19 quantitative assessments of predictors and consequences of poor MHM have focused on the type of
20 absorbent used, the first aspect of MHM (e.g.,[18]). Some include one or two additional
21 components, such as washing the body, or disposal of absorbents (e.g.,[19,20]). None have included
22 all aspects of MHM or considered a pooled, comprehensive prevalence estimate requiring all
23 conditions to be met. Overextension of the term has also occurred with studies reporting a lack of
24 knowledge about menstruation, or cultural taboos as aspects of MHM, rather than contributors to
25 MHM (e.g.,[12]).
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32 One barrier to the full assessment of MHM is the lack of evidence and consensus of what
33 constitutes adequacy in each aspect. In a systematic review of MHM practices and infections,
34 Sumpter and Torondel [21] found no consistent standard in the application of ‘good’ and ‘bad’
35 MHM. They found that most studies used only absorbent type to predict consequences, and even
36 with this simplified criterion, did not agree on the adequacy of absorbents such as cloth. Single use
37 absorbents such as sanitary pads are easily classified as clean, however reusable absorbents such as
38 cloth or reusable pads (homemade or commercially produced) could be considered hygienic if
39 cleaned appropriately.[21] MHM literature is yet to provide evidenced guidance for washing and
40 drying absorbents. Washing with soap may be one important criterion. Drying practices are also
41 important, with exposure to UV through sunlight known to have a microbicidal effect.[22] Leaving
42 fabrics damp has been found to encourage microbial survival, and wearing absorbents wet has
43 frequently been considered unhygienic, with some evidence for greater infection risk and
44 discomfort.[1,6,22] Similarly, there is little rigorous evidence to guide absorbent change frequency.
45 The *Menstrual Hygiene Matters* report suggested changing absorbents every 2-6hrs dependent on
46 blood flow.[1] However, there is a lack of evidence on the irritation and infection risk associated with
47 prolonged wear, and women’s perceptions of the adequate frequency for changing for comfort and
48 risk of soiling. There is no clear guidance on optimal washing frequency, or correct use of soap and
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water on the body and genitals. Similarly, disposal method adequacy is likely to be contextually dependent and relies on latrine capacity, cultural appropriateness of burning absorbents, and other waste disposal methods. Finally, whilst the concept definition stresses the need to change absorbents in privacy, women and girls need privacy for all aspects of MHM, such as washing the body and absorbents.[7] Each of these aspects must be considered in trying to estimate the prevalence of MHM, establish relationships between predictors and consequences of poor MHM, and evaluate interventions aimed at improving MHM.

Recent calls for action, such as the *MHM in Ten* report,[23] state the need for a strong quantitative evidence base. This is difficult to achieve without consistent, transparent reports of MHM as defined. Prevalence estimates are needed to assess the distribution of the issue, and to advocate effectively for MHM to be addressed by governments, non-government organisations, and other interest groups. Assessment of all aspects of MHM is needed to identify the relevant contributors to the problem, and establish quantitative links between MHM and consequences. For example, a recent systematic review of MHM studies in India reported that in multivariable models, the use of sanitary pads did not predict school attendance.[12] It is inaccurate to conclude from this finding that MHM does not predict attendance, but only that the type of absorbent used may not. Similarly, trials to date have focused on education and sanitary product provision.[5] No studies have reported if addressing these contributors to MHM, that is, education informing girls how to manage menstruation hygienically, and the provision of clean absorbents as a resource to improve one aspect of MHM (clean absorbents), actually improves MHM overall. Given the many components of MHM detailed above, it is likely that the provision of menstrual products without attention to other factors is insufficient to improve MHM. This has implications for our expectations and interpretations of intervention outcomes. Trials to date assume that improvements in school attendance or psychosocial outcomes observed are the result of improved MHM, but none have tested this. It may be that other factors such as reductions in menstrual stigma, improved pain management strategies, or improved social support amongst classmates contribute to these improvements. While important aspects of managing menstruation, these factors do not fall under the MHM definition. They risk being minimised if studies focus only on MHM, or being mishandled if inaccurately labelled as MHM, which may further complicate its definition and make measurement more difficult. Thus there is a need to understand how proposed interventions affect MHM and to establish the role of MHM, in contrast to other aspects of managing menstruation, in hypothesised consequences.

The present study

This study employs secondary data analysis of the final survey data from the *Menstruation and the Cycle of Poverty* trial undertaken in rural Uganda from January 2012 to December 2014 (Pan African Clinical Trials Registry PACTR201503001044408). The trial methods and outcomes of school attendance and psychosocial wellbeing are described elsewhere (see[24]). Briefly, eight primary schools (including primary school grades 3 to 7) located in Kamuli district, Uganda, an area characterised by poor performance on education and health indicators, were quasi-randomised to one of four conditions, the provision of: puberty education alone, AFRIpads alone, puberty education and AFRIpads, or a no-intervention control. Schools were paired to maximise distance between the four conditions and the risk of contamination. Pairs were allocated sequentially in alphabetical order to conditions. Schools were recruited through the partner NGO and selected to be comparable on characteristics such as size, educational provision and quality (see[24]). While water sources were closer to some schools than others, water, sanitation and hygiene (WASH) for MHM was comparable across schools. All girls in the schools in primary school classes 3 to 5 at baseline were included in the trial, regardless of menstrual status.[24]

Girls in the reusable pad conditions were provided with one pack of AFRIpads and small quantity (one sachet, 45 grams) of Omo soap in October 2012, and again in March 2014. Girls were taught about the correct use and cleaning of AFRIpads by local research assistants from the partner NGO upon each delivery.[24] AFRIpads are a washable, reusable cloth sanitary pad produced in Uganda (<http://www.afripads.com/>). Deluxe packs provided to girls included two soil-resistant plastic-lined 'base' pads, three attachable winged liners, three straight liners and two small bags for carrying. AFRIpads can be reused for 12 months. Girls in the puberty education conditions received an education session (in October 2012) lasting approximately 1.25 hrs (see [24]). Girls who transferred into the study schools during the trial were included in intervention delivery (if attending school at those times) alongside those in the trial and follow-up surveys as not to identify or stigmatise girls in the trial or discriminate against those transferring after the baseline from receiving resources. While girls transferring into the school could not be included in trial outcomes compared across conditions, their responses were incorporated into the final survey data set for secondary analyses. This maximised cross-sectional sample size in the survey data set.

The present study employs the final survey data from the trial to provide the first estimate of MHM consistent with the concept definition. This was used to estimate the association between poor MHM and health, education, and psychosocial outcomes, alongside an assessment of the relative contribution of aspects of MHM to these experiences. MHM prevalence was assessed separately for

those using the AFRIpads provided in the intervention, and girls using other existing methods. The present study uses data from the final follow-up survey of the trial but does not compare across trial conditions, the work provides cross-sectional assessment of practices as reported in the survey and their associations with health, education and psychosocial wellbeing. **Research Questions**

1. What are the self-reported MHM practices of girls in rural Uganda?
2. What is the prevalence of MHM consistent with the concept definition?
3. Is adequate MHM greater amongst those using reusable sanitary pads?
4. How do aspects of MHM, and pooled MHM, comparatively predict health, education, and psychosocial wellbeing?

Methods

This study was conducted and reported according to best practice guidelines in the Strengthening the Reporting of Observational studies in Epidemiology.[25] Checklist for cross-sectional studies is reported in Supplementary Materials 1.

Participants

435 schoolgirls across the 8 study schools completed follow-up surveys. This included girls who had been involved in the trial, and girls in the same classes who had joined the school after the trial commenced. All girls were surveyed to avoid selectively identifying those menstruating or involved in the trial, potentially stigmatising these girls. 205 girls who reported in the survey that they had reached menarche were asked questions about menstrual management, and are included in this study. There were no *a*-priori power analyses for this cross-sectional assessment as the study seeks to demonstrate the calculation of a prevalence estimate of MHM, and there was no past evidence from which to draw effect size estimates between aspects of MHM and health, education and psychosocial wellbeing outcomes assessed.

Survey design

The survey was administered in November 2014. Trained local research assistants from the partner NGO (Plan International) used an English version of the survey loaded on iPads in the app *SurveyGizmo*. iPads were used in the field offline and data was uploaded to the online service *SurveyGizmo* at the end of each day once an internet connection could be established. Research assistants, all young women, verbally administered surveys in Lusoga (the local language) and inputted answers in English into the instrument. Girls were surveyed individually in a private place on the school grounds, for menstruating girls this lasted approximately 30-40 minutes.

Survey items were designed following a pilot trial and qualitative research in Ghana (see [3,11]), where a number of similar items were also used. Additional questions were developed following feasibility and acceptability work leading to the selection of AFRIpads for the intervention study,[26] and in consultation with stakeholders and partner NGO staff. To support best practice and transparency in reporting, a full list of survey items used is reported in Supplementary Materials 2.

MHM measure

Survey items capturing MHM practices were used to generate the measure of MHM prevalence.

MHM practices. Girls self-reported MHM practices through structured questions. To assess absorbent use, girls were asked: “What do you usually use to catch/absorb your menstrual period (MP)?”, and their free responses were recorded by research assistants as AFRIpad, cloth, toilet roll, sanitary pad, or other. Few girls reported use of toilet roll so this was recoded to other, along with use of underwear alone and using mattress or sponge. In a follow-up question girls were asked where they (or the person who gives them the absorbent) obtains it. This item was used to determine if girls were using old or new cloth. Girls were also asked: “How frequently do you change your sanitary protection?” with guidance from research assistants that per-day meant in 24hrs.

For girls who reported using AFRIpads or cloths, follow-up questions captured washing and drying procedures. Girls responded yes/no to items: “Did you ever wash the AFRIpad/cloth?”, and to the follow-up: “Did you use soap?”. To assess drying girls were asked: “Where did you hang the cloth to dry?” with responses including under the bed, outdoors, in the school dorm rooms, and in a secret place. Free text responses to the question included: in the bathroom, behind the toilet, in the grass, and behind the house. Responses were back-coded into three categories: outside, hung inside, or hidden inside. Girls were then asked: “How often did you wear the cloth/AFRIpad damp?” with response options *never*, *sometimes*, and *usually*.

Girls were asked: “What do you usually do with your used sanitary protection when you have to change at home/school?” with response options *throw in latrine*, *throw in bush*, *dispose at community rubbish heap*, *bury*, and *burn*. When asked about disposal at school, listed responses also included *go home to change*. *Wash and reuse* was a listed option for home disposal. For both questions girls volunteered information and research assistants selected the appropriate category.

Those using reusable absorbents were asked: “Do you worry about being observed when washing the cloth/AFRIpad?” with yes/no response options.

MHM criteria. Self-reported MHM behaviours were used to generate a pooled, aggregate estimate of MHM consistent with the concept definition discussed in the background. Criteria for available aspects of MHM are detailed below, and the pooled estimate included; absorbent cleanliness, adequate change frequency, hygienic washing and drying, and privacy. Criteria for each step were derived from background literature, although existing evidence is sparse. Each criterion was added sequentially and the number of girls considered to have adequate or inadequate MHM at each step reported in results. Absorbents were considered clean if they were AFRIpads, new cloth or sanitary pads, with old cloth and other items such as toilet paper, mattress, sponge, or underwear alone considered inadequate. Changing absorbents 3 or more times per 24hrs was required to be considered adequate MHM, consistent with recent work,[6] and guidance.[1] For reusable absorbents, MHM was considered inadequate if not washed with soap. Absorbents were considered to be hygienically dried if dried outside, rather than hung up or hidden inside. Never wearing absorbents damp was also required for adequate MHM. Finally, girls needed to report they were not worried about privacy for washing their absorbents. There were no appropriate items in the survey capturing washing the body or genitals, or items on the ability to change absorbents in privacy, which would have improved the MHM estimate. Whilst disposal methods were reported, there was no consistent guidance on what could be considered an adequate method, so this item was not included in the overall estimate. These aspects were considered the *minimal* requirements for MHM, using best available evidence.

As criteria for MHM could be debated given the lack of evidence, an additional measure of MHM was used for comparison. For this pooled total more *relaxed* criteria were used. Both new and old cloth were considered to be adequate absorbents at step one, with the concession that if washed appropriately old cloth could be considered an adequate absorbent. Girls were only required to change their sanitary protection twice per day, although were still required to wash absorbents with soap and water. To meet criteria as having adequate MHM in the relaxed model girls needed to dry absorbents outside or hung up inside; only those who dried their absorbent hidden away were considered to have poor MHM. The criteria that girls never wear absorbents damp remained unchanged, as did the requirement they felt they had adequate privacy to wash reusable absorbents. Girls were required to meet all relaxed criteria to be considered to have adequate MHM in this model.

Survey measures

Additional survey measures assessed participant characteristics and hypothesised consequences of poor MHM.

Participant characteristics. Girls self-reported their age, grade in school, and how long it took them to walk to school. Data were also collected concerning access to water and soap at home and schools as yes/no responses to items asking “Do you have regular access to (water/soap) at (school/home)?”.

Health. Girls were asked to report if during their *last* period they experienced: skin irritation or rashes in the pelvic area with a yes/no response. They were also asked if since the beginning of the school year they had experienced “any itching or burning in the pelvic area”, or “any white or grey discharge from their [your] vagina” and could report if this was while on their period, at only other times, or both during their period and at other times. All girls reported that this was experienced either only during their period, or during their period and at other times, so only a dichotomous *experienced* response was used. Girls were asked: “Do you worry that other people can smell your menstrual period?” with yes/no responses.

Education. Girls reported if they felt their menstruation ever caused them to miss school or not to do their homework as part of a longer list of activities (including other items such as participating in sports or being around males). Girls were asked: “Do you avoid standing in class to answer questions while on your menstrual period?” and “Do you find it difficult to concentrate at school when you have your menstrual period?” with yes/no options. The latter was followed with a multiple response item capturing the reasons for difficulties concentrating, listed in results tables.

Psychosocial wellbeing. Girls reported if during their *last* period they experienced embarrassment. They also reported if during their menstruation they felt ashamed or insecure or if this was the same as when they were not menstruating. Psychosocial wellbeing was assessed using the total score from the Strengths and Difficulties Questionnaire (SDQ:[27]) . The SDQ consists of 25, 3-point Likert scale items from 0 ‘not true’ to 2 ‘true’, with a midpoint of 1 ‘somewhat true’. The total score (0-40) uses summed scores from the four problem subscales of; hyperactivity (e.g., “I am easily distracted.”), conduct problems (e.g., “I usually do as I am told”), peer problems (e.g., “I would rather be alone than with people of my age”), and emotional problems (e.g., “I have many fears. I am easily scared.”). The total difficulties score can range from 0-40. For 4-17-year-olds, current 4-band categorisation based on a UK survey population are; average (0-14), slightly raised (15-17), high (18-19), very high (20-40). The questionnaire has been well validated and was a secondary outcome in the *Menstruation and the cycle of poverty* trial (see[24]), with norms for different countries available online (www.sdqinfo.com).

School attendance

Attendance data was recorded for girls participating in the *menstruation and the cycle of poverty* trial from baseline. For the present study, only follow-up attendance data was used. Research assistants from the partner NGO collected attendance for the fourth week of each of the three terms in 2014. This was collapsed to create a continuous variable: the percent attendance out of the 15 days recorded. Week four of the school term was selected to avoid very-low attendance periods coinciding with school fee collection at the start of term or agricultural practices, based on advice from site visits and local agents. Girls were not asked to record menstrual cycles, so attendance includes menstruating and non-menstruating days. Attendance was linked to survey responses through participant ID.

Analyses

Analyses were conducted using Stata 14.0.[28] Participant characteristics were detailed using descriptive statistics, as were the prevalence of MHM practices and consequences. Combined measures of MHM were reported using descriptive statistics, including 95% confidence intervals (CI) of the total proportions of those with adequate and inadequate MHM. The chi-square statistic was used to compare the pooled MHM between those using AFRipads and using other existing methods. Bivariate correlations were used to test the overlap of MHM aspects prior to use in multivariable models.

Univariate logistic regressions assessed the relationships between MHM practices and health, education, and psychosocial outcomes. Washing absorbents (with or without soap) was not used as a predictor in these comparisons as almost all girls reported doing so. All of the girls who reported never wearing their absorbent damp had also dried their absorbent outside, so only the location of drying was used as a predictor in the models. All four aspects of MHM were included in multivariable logistic regressions to assess the individual contribution of each to hypothesised consequences. Univariate logistic regressions assessed the relationship between the combined measures of MHM and outcomes. For continuous outcomes of school attendance and total SDQ score, independent samples t-tests were used.

Ethics

Ethical approval for the study was received from the Social Science & Humanities Inter-Divisional Research Ethics Committee at the University of Oxford (Ref: SSD/CUREC1/11-056), the AIDS Support Organisation (TASO) Institutional Review Committee Uganda (TASOIRC/022/14-UG-IRC-009), and the University of Illinois (#12236). To participate in the trial, girls and their

parent/caregiver provided written consent. Schools provided consent for participation throughout the duration of the study. At the start of the survey girls provided verbal consent to participate. No girls declined participation. They were informed that they were free not to answer any question in the survey.

For peer review only

Results

Participant characteristics

A total of 205 menstruating girls were included in this study. 145 (70.7%) had been attending the schools in the trial at baseline. Of the 145 trial girls, 96 (66.2%) had received one of the tested interventions (puberty education alone: 36 (24.8%), pads alone: 40 (27.6%), and education and pads: 27 (18.6%). Of the 60 girls who had not been in the trial schools at baseline, 20 (33.3%) had received pads alone and 1 had received the education intervention. Interventions were identical for all girls, including transfers. Transfer girls received the interventions alongside girls in the trial from baseline to ensure there was no stigmatisation of either group. 81 girls in the full sample had received no intervention, this included girls in the control condition, as well as girls who failed to receive their assigned intervention. Girls in this study were compared according to their self-reported menstrual hygiene practices.

Girls ranged from a self-reported age of 10-19 years (*Mean*=14.20,*SD*=1.12). The average age at menarche was 12.82 years (*SD*=1.28). Table 1 describes the participant characteristics for this study.

Table 1. Participant characteristics (n=205)

	%	N
Grade		
P3	0.5	1
P4	8.3	17
P5	21.5	44
P6	44.9	92
P7	24.9	51
Age		
10	0.5	1
11	0.5	1
12	1.0	2
13	21.5	44
14	44.9	92
15	20.5	42
16	8.8	18
17	1.0	2
18	1.0	2
19	0.5	1
Did you go to the same school last year?		
Yes	94.6	194
No	5.4	11
How long does it take you to get to school?		
10 minutes or less	19.8	33
11-30 minutes	37.7	63
31-60 minutes	37.7	63

>1hr	4.8	8
No answer		38
Do you have regular access to:		
Soap at home (n=200)	94.0	188
Water at home (n=200)	99.0	198
Soap at school? (n=199)	27.1	54
Water at school? (n=199)	44.2	88

Menstrual hygiene management (MHM) practices

Table 2 describes the girls' MHM practices. Four did not report the type of absorbent used, therefore were not asked follow-up questions. Thus the table reports on 201 girls, unless otherwise indicated. Almost 36% of the sample were using AFRIPads received as part of the intervention study as their primary absorbent. Of girls not using AFRIPads, most used cloth as absorbent. Of those using reusable absorbents, almost all reported washing them and using soap for every wash. Half of those who washed absorbents hid them to dry, most commonly under the bed. 23% reported wearing absorbents wet at least once. No girls reported disposing at community rubbish heaps, burning, or burying pads.

Table 2. Self-reported menstrual hygiene management practices (n=201)

	%	N
Absorbent		
What do you usually use as menstrual absorbent?		
AFRIpad	35.8	72
New cloth	14.9	30
Old cloth	30.9	62
Sanitary pad	9.0	18
Other (incl. toilet paper, underwear, mattress, sponge)	9.5	19
How frequently do you change your sanitary protection?		
1x per day	6.1	12
2x per day	33.2	65
3x per day	49.0	96
4x per day	9.7	19
5+ times per day	2.0	4
Missing		5
Washing reusable absorbents		
Did you wash the absorbent? (n=158)¹		
Yes	95.7	154
No	1.9	3
No answer/don't know	2.5	4
Did you use soap? (n=154)²		
Never	0	0
Sometimes	1.9	3
Every time	98.1	151
Drying reusable absorbents		
Where did you dry the absorbent? (n=154)²		
Hidden inside (e.g., under bed)	47.4	73
Hung up inside (e.g., girls dorm, bathroom)	11.0	17
Outside	41.6	64
How often did you wear the absorbent damp? (n=154)²		
Never	77.3	119
Sometimes	6.5	10
Usually	16.2	25
Absorbent disposal		
What do you usually do with your used sanitary protection when you have to change at school? (n=158)³		
Throw in latrine	12.3	19
Take home to wash or dispose	85.7	132
Other	12.0	3
What do you usually do with your used sanitary protection when you change at home? (n=199)		
Throw in latrine	11.6	23
Put in trash	0.5	1
Wash and reuse	87.9	175
Privacy		
Do you worry about being observed when washing the absorbent? (n=154)²		
Yes	73.4	113
No	26.6	41

¹ Of girls using reusable menstrual absorbents (AFRIpads, cloth)

² Of girls using reusable menstrual absorbents (AFRIpads, cloth) who reported washing their absorbent

³ Only asked of girls who reported they 'couldn't go whole day at school without changing absorbent'

Prevalence estimate: menstrual hygiene management

By adding each available aspect of MHM assessed, the overall prevalence of MHM was estimated. Table 3 displays the proportion of girls who met criteria at each step. That is, the proportion of girls remaining after the introduction of that requirement for MHM. Each additional aspect of MHM resulted in fewer girls qualifying. There were particularly large drops following the introduction of changing frequency, drying, and privacy. After the inclusion of available aspects, only 9.5% of the sample qualified as having adequate MHM using minimal criteria. The prevalence of inadequate MHM did not differ between those who used AFRIpads (88.6%) and those using existing methods (90.5%), $\chi^2(1)=0.12$, $p=.729$.

As noted previously, there is a lack of evidence for MHM criteria. Thus, more relaxed criteria were applied for comparison (Table 3, right columns). Despite these changes, the overall prevalence of poor MHM remained high and there was no significant difference between those using AFRIpads (80.6%) and those using existing methods (76.7%), $\chi^2(1)=0.20$, $p=.655$.

Table 3. Estimated prevalence of menstrual hygiene management, using minimal and relaxed criteria

	MHM criteria (minimal)		MHM criteria (relaxed)	
	AFRIpad users N=72	Usual practice N=129	AFRIpad users N=72	Usual practice N=129
	application of criteria % (n) retained		application of criteria % (n) retained	
Clean absorbent	(criteria: AFRIpad, new cloth, or sanitary pad) 100 (72) 37.2 (48)		(criteria: AFRIpad, old or new cloth, sanitary pad) 100 (72) 85.3 (110)	
Changed frequently	(criteria: 3 times or more) 66.7 (48) 19.4 (25)		(criteria: 2 times or more) 93.1 (67) 80.6 (104)	
Washed with soap ¹	(criteria: washed absorbent with soap) 65.3 (47) 18.6 (24)		(criteria: washed absorbent with soap) 90.3 (65) 79.1 (102)	
Dried adequately ¹	(criteria: absorbent dried outside) 29.2 (21) 10.1 (13)		(criteria: absorbent dried outside or hung inside) 56.9 (41) 45.7 (59)	
	(criteria: absorbent never worn damp) 29.2 (21) 10.1 (13)		(criteria: absorbent never worn damp) 56.9 (41) 41.1 (53)	
Privacy for washing ¹	(criteria: not worried about being observed washing absorbent) 11.1 (8) 8.5 (11)		(criteria: not worried about being observed washing absorbent) 19.4 (14) 23.3 (30)	
	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)
Meet available criteria:	11.1 [5.6-21.0](8)	8.5 [4.7-14.8] (11)	19.4 [11.7-30.5](14)	23.3 [16.7-31.4](30)
Prevalence of poor MHM:	88.9 [79.0-94.4](64)	91.5 [85.2-95.3](118)	80.6 [69.5-88.3](58)	76.7 [68.6-83.3](99)
	Total % [95%CI] (n)		Total % [95%CI] (n)	
Met available criteria:	9.5 [6.1-14.4] (19)		21.9 [16.7-28.2] (44)	
Prevalence of poor MHM:	90.5 [85.6-93.9] (182)		78.1 [71.8-83.3] (157)	

¹If reusable absorbent (AFRIpad, new/old cloth)

While the study aimed to use each aspect of MHM to predict outcomes, almost all girls reported washing absorbents with soap. Thus groups were not large enough for reliable comparison in chi-square or logistic regression so this criterion was dropped from analysis of association with outcomes. As noted in the analysis section, drying criteria were collapsed. The minimal MHM criteria from Table 3 (i.e., new cloth, AFRipad or sanitary pads considered clean absorbent, and outside alone considered adequate drying), were used for comparison with health, education and psychosocial outcomes.

To check for multicollinearity and associations between the different aspects of MHM, bivariate correlations were compared between the clean absorbents (AFRipad, new cloth, sanitary pad), frequency of absorbent change (3+ times), drying adequately (outside), and having adequate privacy. There was only one significant correlation between girls feeling they had adequate privacy to wash absorbents and drying absorbents adequately (outside), $r=0.42$, $p<.001$. All other associations were very low ($r<.08$).

Consequences of poor MHM

Table 4 presents the proportion of girls reporting negative health, education, and psychosocial outcomes. Approximately half of the sample reported discomfort, possibly indicating health consequences. Less than 20% of girls stated that menstruation caused them to miss school, although over half reported not standing in class to answer questions, and finding it difficult to concentrate when menstruating. Discomfort, fear of soiling, and menstrual pain were the most common reasons for difficulty concentrating. Many girls reported embarrassment, shame, and insecurity associated with menstruation.

Table 4. Prevalence of proposed consequences of poor MHM (n=201)

	%	N
Health/comfort		
Skin irritation/rashes in pelvic area during last MP (n=153) ¹	54.3	83
Itching or burning in the pelvic area (since start of the school year) (n=199)	60.3	120
White or green discharge (since start of the school year) (n=199)	47.2	94
Do you worry people can smell your MP? (yes)	70.2	141
Education		
Does your MP ever cause you to: (n=185) ¹		
Miss school	18.4	34
Not do your homework	7.6	14
School attendance at intervention follow-up (n=144) <i>M (SD)</i>	81.06	(18.58)
Do you avoid standing in class to answer questions on your MP (n=198)	64.7	128
Do you find it difficult to concentrate at school when you have your MP? (n=198)	51.0	101
Reasons it is difficult to concentrate during MP (n=101)		
Actual soiling	24.8	25

Fear of soiling	72.3	73
Scent	15.8	16
Discomfort	49.5	50
Actual teasing	4.0	4
Fear of teasing	21.8	22
Cramps	54.5	55
Psychosocial wellbeing		
Strengths & Difficulties Questionnaire (SDQ) total score <i>M (SD)</i>	19.11	(5.31)
Did you experience embarrassment during your last MP (n=153) ¹	45.8	70
During your MP do you feel ashamed?	69.2	139
During your MP do you feel insecure?	69.2	139

¹ n's lower than 201 resulted in part from iPad issues where, in about 40 cases, the appropriate page froze or failed to load, additional missing resulted from girls not providing an answer to the question

Relationships between MHM aspects and proposed consequences

Table 5 displays the univariate and multivariable relationships between MHM aspects, pooled MHM estimates (minimal and relaxed), and health, education, and psychosocial wellbeing.

There were no significant associations with itching or burning, despite a consistently higher rate of report among those with poorer MHM. Drying outside had the reverse relationship to discharge than expected, with less white or green discharge reported amongst those drying inside or hidden. This unexpected direction of effect was also found for girls' fears that others could smell their menses. Unclean absorbents and inadequate privacy were associated with increased concerns about odour in multivariable comparison.

Only one aspect of MHM was associated with school attendance, with those changing 3 times a day or more having a higher attendance rate. Unclean absorbents and privacy were associated with higher odds of avoiding standing in class to answer questions, as were pooled MHM estimates. Only adequate privacy for washing absorbents was associated with difficulties concentrating, although having a clean menstrual absorbent trended towards significance with an almost 10% difference in reports. Drying practices were associated with shame in the opposite direction to that expected. Adequate privacy for washing was associated with shame and insecurity.

Despite very large percentage differences in the reports of consequences between those categorised as having adequate and inadequate MHM, the small number of girls with adequate MHM meant there was insufficient power to demonstrate statistically significant effects. Percent differences should be noted, however, with the potential for large effect sizes to be identified in larger samples.

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Table 5. Univariate and multivariable comparisons of aspects of MHM, combined measures of MHM, and hypothesised consequences.

	Absorbent type		Absorbent change		Absorbent drying		Privacy (for washing)		MHM (minimal)		MHM (relaxed)	
	Clean	Unclean	3+ times	<3 times	Outside	Inside/hid	No concern	Concern	Adequate	Inadequate	Adequate	Inadequate
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
	OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)	
Health/comfort												
Itching or burning in the pelvic area (since start of the school year)	59.7 (71)	61.3 (49)	60.2 (71)	60.5 (49)	58.6 (58)	62.0 (62)	54.4 (43)	64.2 (77)	52.6 (10)	61.1 (110)	54.6 (24)	61.9 (96)
		1.07		1.01		1.15		1.50		1.41		1.36
		(0.60-1.91)		(0.57-1.81)		(0.65-2.04)		(0.84-2.67)		(0.55-3.65)		(0.69-2.67)
OR _{adj} (95%CI)		1.10		0.98		0.96		1.54				
		(0.61-1.98)		(0.54-1.76)		(0.51-1.82)		(0.80-2.93)				
White or green discharge (since start of the school year)	44.5 (53)	51.3 (41)	48.3 (57)	45.7 (37)	53.5 (53)	41.0 (41)	44.3 (35)	49.2 (59)	31.6 (6)	48.9 (88)	47.7 (21)	47.1 (73)
		1.31		0.90		0.60		1.22		2.07		0.98
		(0.74-2.31)		(0.51-1.59)		(0.34-1.06)		(0.69-2.15)		(0.75-5.69)		(0.50-1.91)
OR _{adj} (95%CI)		1.36		0.80		0.47*		1.78				
		(0.76-2.43)		(0.45-1.44)		(0.24-0.88)		(0.92-3.43)				
Worry people can smell your MP?	65.8 (79)	76.5 (62)	68.9 (82)	73.0 (59)	74.3 (75)	66.0 (66)	58.2 (46)	77.9 (95)	63.2 (12)	70.9 (129)	59.1 (26)	73.3 (115)
		1.69[†]		1.16		0.68		2.52**		1.42		1.90[†]
		(0.90-3.20)		(0.62-2.15)		(0.37-1.24)		(1.36-4.69)		(0.53-3.80)		(0.94-3.81)
OR _{adj} (95%CI)		1.88[†]		0.94		0.34**		4.51***				
		(0.96-3.68)		(0.49-1.81)		(0.16-0.73)		(2.09-9.77)				
Education												
School attendance <i>M</i> (<i>SD</i>) (<i>n</i> =144)	82.10 (18.33)	79.39 (19.04)	84.89 (14.28)	76.40** (22.23)	79.00 (21.54)	83.19 (14.82)	80.12 (21.14)	81.67 (16.86)	86.19 (13.95)	80.51 (18.98)	81.96 (20.07)	80.79 (18.19)
Do you avoid standing in class to answer questions on your MP?	59.3 (70)	72.5 (58)	63.6 (75)	66.3 (53)	59.6 (59)	69.7 (69)	53.2 (42)	72.3 (86)	26.3 (5)	68.7 (123)	45.5 (20)	70.1 (108)
		1.81		1.13		1.56		2.30**		6.15**		2.82**
		(0.98-3.34)		(0.62-2.04)		(0.87-2.81)		(1.26-4.17)		(2.11-17.91)		(1.42-5.60)
OR _{adj} (95%CI)		1.97*		1.05		1.14		2.31*				
		(1.05-3.71)		(0.56-1.95)		(0.58-2.22)		(1.18-4.53)				
Do you find it difficult to concentrate at school when you have your MP? (<i>n</i> =198)	46.6 (55)	57.5 (46)	49.2 (58)	53.8 (43)	52.5 (52)	49.5 (49)	39.2 (31)	58.8 (70)	42.1 (8)	52.0 (93)	31.8 (14)	56.5 (87)
		1.55		1.20		0.89		2.21**		1.49		2.78**
		(0.87-2.75)		(0.68-2.12)		(0.51-1.55)		(1.24-3.95)		(0.57-3.87)		(1.37-5.66)
OR _{adj} (95%CI)		1.69[†]		1.05		0.55		3.03**				
		(0.93-3.05)		(0.58-1.91)		(0.29-1.07)		(1.54-5.99)				

Psychosocial wellbeing

Strengths & Difficulties Questionnaire <i>M(SD)</i>	18.65 (5.24)	19.80 (5.37)	18.75 (5.42)	19.65 (5.13)	18.91 (5.34)	19.32 (5.29)	18.84 (5.42)	19.30 (5.25)	17.11 (6.30)	19.32 (5.17)	18.25 (5.80)	19.36 (5.16)
Did you experience embarrassment during your last MP (n=153)	47.8 (43)	42.9 (27)	46.2 (42)	45.2 (28)	48.8 (39)	42.5 (31)	54.4 (31)	40.6 (39)	50.0 (6)	45.4 (64)	38.7 (12)	47.5 (58)
OR _{adj} (95%CI)		0.82 (0.43-1.57)		0.96 (0.50-1.84)		0.78 (0.41-1.47)		0.57 (0.30-1.11)		0.83 (0.26-2.70)		1.43 (0.64-3.21)
During your MP do you feel ashamed? (n=201)	66.7 (80)	72.8 (59)	69.8 (83)	68.3 (56)	72.3 (73)	66.0 (66)	59.5 (47)	75.4 (92)	52.6 (10)	70.9 (129)	56.8 (25)	72.6 (114)
OR _{adj} (95%CI)		1.34 (0.72-2.49)		0.93 (0.51-1.72)		0.74 (0.41-1.36)		2.09* (1.13-3.84)		2.19 (0.84-5.70)		2.01* (1.01-4.03)
During your MP do you feel insecure?	68.3 (82)	60.4 (57)	69.8 (83)	68.3 (56)	68.3 (69)	70.0 (70)	60.8 (48)	74.6 (91)	63.2 (12)	69.8 (127)	61.4 (27)	71.3 (112)
OR _{adj} (95%CI)		1.10 (0.60-2.03)		0.93 (0.51-1.72)		1.08 (0.59-1.97)		1.90* (1.03-3.48)		1.35 (0.50-3.60)		1.57 (0.78-3.15)
		1.16 (0.62-2.16)		0.86 (0.46-1.60)		0.78 (0.39-1.54)		2.16* (1.09-4.28)				

Adequate absorbent OR=1.00; Changed frequently OR=1.00; Drying outside OR=1.00; Don't worry about privacy OR=1.00; Adequate MHM strict OR=1.00; Adequate MHM relaxed OR=1.00

OR_{adj}: Odds ratio for multivariable models where all aspects of MHM were included in the model.

p*<.05, *p*<.01, ****p*<.001, †*p*<.10

Discussion

Prevalence of poor MHM

This study was the first to provide a prevalence estimate for MHM consistent with the concept definition; “*women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.*”. [16] 90.5% (95%CI 85.6-93.9%) of the sample had inadequate MHM. This did not differ between those using reusable pads and those using other existing methods (71.3% cloth, 14.0% disposable sanitary pads, 14.7% other methods including toilet paper and underwear alone). Even when more relaxed criteria were used (use of sanitary pad, AFRIPad, old or new cloth, that was changed 2 or more times per day, with absorbents washed with soap and dried hung outside or inside, absorbents never worn damp, and girls reporting they were not worried about being observed washing their absorbent), the prevalence of poor MHM was 78.1% (95%CI 71.8-83.3%), and did not differ for those using reusable pads. By employing the current definition of the concept, this work has shown that reporting individual aspects of MHM alone underestimates the extent of deprivation. Furthermore, when MHM is considered as a whole, girls using reusable sanitary pads provided as part of the intervention trial did not report a lower prevalence of poor MHM. As such, the use of reusable sanitary pads alone may not improve girls’ menstrual hygiene.

MHM behaviours reported by the sample are consistent with the rural context and poverty in the study area. The sample may be more disadvantaged, at least in terms of menstrual hygiene, than some past studies. A higher proportion of girls (who did not use AFRIPads) reported using cloth compared to studies of girls in rural India (pooled prevalence: 63% [12]), and single-study estimates from East Africa (24% in rural Kenya [19]; 56% in Ethiopia [9]). A similarly high rate of cloth use (87%) was recently reported in the Rukungiri district of Uganda.[29] There are far fewer studies with which to compare reports of washing or drying practices. Past studies have also failed to adequately report questions used to capture MHM practices, which limits comparison (see [17]). This study focused on the absorbent girls reported using *most frequently*.

Facilities for MHM were comparable across all study schools. Latrines were gender-separated but had few adequate doors or locks, and no access to water. Girls reported going home to change absorbents, and all stated that they washed and dried reusable absorbents at home, rather than at school. No survey items asked about transporting menstrual absorbents home for cleaning, which may have presented an additional challenge for girls and resulted in anxiety or

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3 stigma. Improvements to facilities for changing and cleaning absorbents at the schools may have
4 improved MHM. While advocates have increasingly focused on the provision of facilities at school
5 for MHM,[23] this was not the focus of the present study and the washing and drying practices
6 reported in this sample were undertaken at home, rather than at school.
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9 10 **Consequences of poor MHM**

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12 High rates of negative outcomes were observed. Many girls reported genital irritation,
13 discharge, and concerns about odour. Whilst self-reported symptoms may not be the best predictor
14 of laboratory-confirmed infections,[8] girls' discomfort and symptoms which may cause distress,
15 represent important health outcomes. Over half the sample reported not standing to answer
16 questions and difficulties concentrating in school. 69% of girls reported shame and insecurity during
17 menstruation. High SDQ scores in the sample have been discussed elsewhere (see [24]), in part
18 consistent with high scores reported in low-income contexts, and a possible bias towards affirmative
19 responses.[24] Large percent differences were observed using the pooled MHM measures for all
20 consequences assessed. Unfortunately, the small proportion of girls with adequate hygiene meant
21 there was insufficient power to detect many effects. Nevertheless, findings support the value of
22 considering all aspects of MHM together.
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26 There were few associations between aspects of MHM and health symptoms. As noted
27 above this may reflect the poor validity of girls self-reports.[8] Concerns about odour were
28 associated with absorbent type, drying practices and privacy. AFRIPads provided as part of the
29 *Menstruation and the Cycle of Poverty* trial were approximately 7-8 months old at the time of follow-
30 up survey. If poorly maintained, these may not have been a clean absorbent, or associated with
31 reduced irritation and infection.
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35 Using unclean absorbents was associated with concerns about odour, difficulties in school
36 concentration, and standing to answer questions. Actual soiling or fear of soiling and odour may
37 mediate the identified relationship with school participation, and should be investigated in future
38 work. Drying absorbents adequately was associated in an unanticipated direction with both odour
39 concerns and reports of discharge. There may be multiple explanations for this finding. Firstly, girls
40 drying absorbents outside may place them on unclean surfaces or on the ground, which may
41 increase contamination. Drying outside may provoke concerns that absorbents will be seen, thus
42 they may not be left to dry adequately. Consistency of reports between drying outside and never
43 wearing absorbents damp, however, works against this interpretation. Whilst replication would be
44 needed, findings have interesting implications for interventions which encourage outside drying. If
45 conditions outside are unclean, this may cause unintended harm.
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Concerns about privacy for washing absorbents were associated with many consequences including shame, insecurity, and disengagement at school. The privacy item captured worry about privacy for washing absorbents, so associations may have been driven by girls’ trait anxiety. However, it would be difficult to measure privacy more objectively, as adequacy is in many ways subjective.[7] Girls’ feelings of safety are likely to reflect some individual differences. In interpreting the associations between privacy for washing and outcomes, one explanation may be that girls who felt they were likely to be observed did not wash absorbents as well as those without this pressure. As noted above, high rates of reported washing with soap ‘*always*’ are likely to be misleading. This also did not capture the quality of washing. Those washing absorbents quickly may have been unable to get them clean and properly prepared for future use and minimal odour. More research is needed to investigate the validity and reliability of these measures, and provide recommendations on criteria for adequate washing for health and odour prevention. Reports of perceived privacy for changing and drying absorbents represent important parts of the MHM concept definition which were not able to be captured by available measures in this study.

Only the frequency of absorbent change was significantly associated with school attendance, although the sample size was limited. Consistent with guidelines for MHM, girls changing their absorbents 3 or more times per day had a greater percentage of school days attended. This may be due to a lower rate of soiling, or concerns about soiling, amongst these girls as they used a fresh absorbent more often. This group of girls may feel more confident to change their absorbents at school, leading to greater attendance. Past literature (e.g., [30]) and reports from local agents in the field in this study suggest many girls go home to change their absorbents. Interventions proposing to improve the quality of facilities for changing at school may therefore be effective in improving attendance for more girls. It should be noted that in order for girls to change three or more times per day they must have access to sufficient absorbents (cloth or pads) to do so, thus this may represent a more advantaged group and this study was unable to adjust for such sociodemographic confounds.

Strengths and limitations

The present study was undertaken in a difficult-to-reach population of adolescent girls in rural Uganda. The use of local research assistants and language improved access to the population and facilitated comfort with the interviewers. The prevalences of MHM behaviours are heavily dependent on the reliability of girls’ reports and questions used, an issue that pervades MHM studies. The study found almost universal washing with soap. Whilst girls report that soap and water is available to them at home, qualitative interviews, site reports, and reports from the field suggest

always washing absorbents with soap to be unlikely. Social desirability is likely to have influenced self-reported behaviours, urogenital symptoms, and the impact of menstruation on schooling. Interviewers were from the local NGO, well known in the area, with a recent campaign focused on girls' education (<https://plan-international.org/what-we-do/because-i-am-girl>). In addition, many had been involved in delivering the AFRIPads to the girls. It is unclear if written surveys would have reduced social-desirability in responses, and may have introduced other biases given the low levels of literacy in the area. Additionally, this would have required costly translation of surveys and girls' responses.

The use of an objective measure of school attendance meant this was not subject to girls' self-reports, however, means this data reflects attendance across all days including both menstruating and non-menstruating days. This means effect sizes are limited, and the impact of confounds on attendance which pervade across non-menstrual days may have a greater influence than if only menstruating school days were compared. Future studies of menstrual-specific absence would provide a more specific measurement of menstrual and MHM-related absenteeism, but may be difficult to obtain as they are reliant on receiving girls' self-reports of their cycle. The distribution of AFRIPads and education in the sample mean that the prevalences of MHM behaviours and consequences reported may not reflect practices prior to the interventions. As noted previously, a proportion of girls (n=60) not included in the *Menstruation and the Cycle of Poverty* trial results were included in this study. While these girls were not included in the trial sample, many had been attending the study schools from very near the baseline assessment, and were comparable to girls in the trial, with many also receiving the interventions alongside the trial girls. This study used best available evidence to guide criteria for MHM estimates and predictive models; however, as noted, there is a dearth of literature to guide hygiene recommendations and research.

The cross-sectional and correlational nature of the research precludes causal inference. With regard to the prevalence of menstrual hygiene, this study compared girls who reported using AFRIPads provided in the trial as their primary absorbent to those using other methods when calculating MHM prevalence. While this presents a cross-sectional assessment of menstrual hygiene when using a reusable product, it does not reflect the effectiveness of providing reusable pads in an intervention. Girls' were not compared across the intervention arms, rather across the primary absorbent used. Those in the reusable pad arms who may have received AFRIPads but not used them, were grouped according to the absorbent they used most often. Cross-sectional relationships between MHM and health, education, and psychosocial wellbeing outcomes are limited by the inability to adjust for socio-demographic confounds. It is likely that greater access to resources is associated both with better MHM, and proposed consequences. Girls with greater access to

resources are likely to have better health outcomes, family support for school attendance, fewer other challenges to psychosocial wellbeing. Thus, the study would have been greatly improved by the ability to adjust for socio-demographic factors such as parental education and poverty.[12] The small sample size further limited these analysis. As this work was exploratory, and the first to estimate a combined measure of MHM and assess multiple aspects of MHM and their relationship to outcomes, there was very limited literature on which to base *a*-priori power analyses and none were undertaken. This study provides some indication of expected effect sizes to enable power analyses in future studies.

The nature of, and need for, a pooled estimate of MHM could be questioned. As argued in the background to this paper, this is useful for establishing the state of MHM in different populations and advocating for attention. It also promotes use of the MHM term consistent with its definition, and provides greater clarity around what should be considered predictors and consequences of MHM, rather than aspects of it. This highlights the need for alternate terminology capturing other factors such as menstrual taboos that impact on girls’ menstrual management but are not MHM. Until evidenced-guidelines are developed, and comparable measures of MHM have been tested and used across studies, it is not advised to present only pooled estimates. The individual aspects that make up MHM will always be important individual factors, as indicated by the differential relationships with outcomes identified in this work. This paper presents a worked example of how the MHM concept could be operationalised. The aspects of the definition, placing equal value on each of these, and the cut off points used in this work could all be debated. More work is needed to guide research and practice.

Finally, the individual items available to appraise MHM in this study could be improved. MHM literature has paid insufficient attention to measurement issues and there are presently no validated questionnaires for assessing practices such as absorbent washing and drying.[17] The measures in the present study could be improved upon in future work. Questions often asked about how girls ‘usually’ dry or dispose of absorbents which may result in greater social desirability in responses than asking about the last menstrual period. Response options for drying items need improvement. Field work in the study found that girls drying absorbents outside would often do so under another piece of fabric which may reduce the UV benefits of drying outside. Drying pads ‘hidden’ lacks specificity which could be improved on in future work.

Implications for research and practice

Recent calls for action on MHM state the need for a strong quantitative evidence base.[23] This cannot be achieved without consistent reporting of MHM as defined. Prevalence estimates are

needed to advocate effectively for action, establish hypothesised consequences, and measure improvements in intervention trials. Slow movement to address MHM deficits to date may reflect the present absence of quantitative prevalence figures and links to consequences. Confusion between what represents a predictor or aspect of poor MHM will continue without guidance and tools for measuring MHM as defined. This delays the development of a detailed, and quantitatively supported, problem theory of MHM. There is an urgent need for guidelines detailing the MHM concept, and criteria for adequacy in each aspect, as well as research guidance to establish a rigorous primary evidence base in this field.

Minimal correlations between aspects of MHM, and differential associations between aspects and consequences in multivariable models demonstrate unique impact of each facet. Findings suggest all MHM aspects must be considered in testing links with hypothesised consequences. Null results, particularly for psychosocial consequences, suggest more predictors may need to be considered. Hygiene management is not the only menstruation related challenge facing girls in low income contexts. Fear around menstruation due to lack of understanding, taboos and stigma may contribute to these outcomes. Whilst properly defining and measuring aspects of MHM, future studies must also investigate these other contributors to outcomes.

The present study suggests that using AFRIpads was not associated with a higher prevalence of adequate MHM. Whilst this study does not compare intervention conditions, findings suggest that improving only one aspect of MHM, the absorbent used, may not improve MHM overall. The *Menstruation and the Cycle of Poverty* trial did find that across conditions the provision of AFRIpads was effective in improving school attendance.[24]. Thus, it may be that addressing only one aspects of MHM is sufficient to improve outcomes, as suggested by differential associations in this study, but is insufficient to provide girls with their full right to MHM.[7] The provision of a reusable product may have a negligible impact on MHM due to their dependency on washing, drying and privacy facilities which are unaffected by product-provision interventions. In the present study it may be that girls needed additional training in AFRIpad use beyond what was provided, to improve cleaning practices. Providing disposable pads which do not require washing or drying, and may be quicker to change, might have a larger impact on MHM. This should be investigated in future work. Inserted products including menstrual cups and tampons were not considered culturally appropriate in this population, but may present another alternative to reusable pads for future studies.[26 31-32] In interpreting the primary trial results, which found improvements in school attendance following reusable pad provision,[24] it is likely that improvements to unmeasured aspects of menstrual management such as improving teachers' awareness of girls' needs or improved social support by prompting girls to discuss menstruation, may have contributed to these effects. More quantitative

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epidemiological studies and in-depth analysis of trial results, such as mediation analyses, are needed to fully understand the pathways of effect in interventions and maximise their future effectiveness.

For peer review only

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Author contributions

Conceived and designed the experiments: JH PM CD LS. Performed the experiments: PM CD MW LS. Analysed the data: JH. Wrote the paper: JH PM. Commented on the paper: CD MW LS.

All authors have read and approved the final manuscript.

Conflicts of interest

All authors declare that there are no conflicts of interest.

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Data sharing statement

No additional data available.

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Intervention Survey Oct 2014

Introduction

You may remember that we came here last year and interviewed you about your MP for a study meant to find out how best to help girls manage their MP while they are in school. If you choose to participate in the study again today, we will ask you similar questions about your menstruation. The questions will take about 30 minutes. We will never reveal your identity to anyone. In fact, all your answers will be kept secret and we are not going to tell anyone. You may choose to participate or not and may quit at any time. Would you like to continue? Your name will not be associated with the picture and will only be used in academic presentations, lectures and/or publications associated with this project.

Interview consent:*

[RA: TICK THE APPROPRIATE 'YES' BOX IF CONSENT HAS BEEN EXPLAINED AND RESPONDENT HAS AGREED. IF CONSENT HAS NOT BEEN OBTAINED, DO NOT CONTINUE AND CONTACT YOUR SUPERVISOR FOR INSTRUCTIONS]

☐ Yes, consent obtained

☐ No (consent NOT obtained)

Study ID:*

General Demographics Information

Logic: Show/hide trigger exists.

Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]*

☐ Girl consented to interview. - *This will enable more questions below.*

☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Okay, here is the first question. How old are you?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW ENTER DK] [IF NO ANSWER ENTER 999]

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

What class in school are you?*

☐ P3

☐ P4

☐ P5

☐ P6

☐ P7

☐ NONE OF THESE/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Did you go to the same school last year?*

- ☐ Yes
☐ No (trigger)
☐ No answer

Logic: Hidden unless: Question "Did you go to the same school last year?" #3 is one of the following answers ("No (trigger)")

Which school did you go to?*

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Are you repeating this class?*

- ☐ Yes
☐ No
☐ No answer

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you ever repeated any other class?*

- ☐ Yes
☐ No
☐ No answer
-

Empowerment

Logic: Show/hide trigger exists.

Page 3 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - *This will enable more questions below*
☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

[READ] Now, I am going to ask you for your own opinions on some things. For each question, please tell me the answer that comes closest to your own view.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

What do you think is the biggest factor in determining your future? Do you think it is...[READ]*

- ☐ Your own hard work

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- ☐ Your family
- ☐ Your future husband
- ☐ Your community
- ☐ Your education
- ☐ Your government
- ☐ Or something else? (specify): _____ *
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think education will increase your opportunities in life a little? A lot? Or not at all?*

- ☐ Increase my opportunities a little
- ☐ Increase my opportunities a lot
- ☐ Not increase my opportunities at all
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be going to secondary school?*

- ☐ Will go
- ☐ Probably won't go (trigger)
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be going to secondary school?" #9 is one of the following answers ("Probably won't go (trigger)")

Why do you think you won't be going to secondary school?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be able to finish primary school?*

- ☐ Think I will stay through the end of P7
- ☐ Think I will likely leave (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be able to finish primary school?" #11 is one of the following answers ("Think I will likely leave (trigger)")

Why do you think you will likely leave?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____*
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you like going to school?*

- ☐ Like going to school
- ☐ Would rather not go to school
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Going to school is more important for boys? Or girls? Or is it the same for both?*

- ☐ Boys
- ☐ Girls
- ☐ The same for both
- ☐ DON'T KNOW/NO ANSWER

Subjective Well-being

Logic: Show/hide trigger exists.

Page 4 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - This will enable more questions below.
- ☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

[READ] Now, I want you to think about your life over the past six months. I am going to read some sentences. For each one, please tell me if it is not true, sometimes true, or true about you.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

Here is the first sentence: I try to be nice to other people. I care about their feelings. Is that...[READ]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am restless. I cannot stay still for long. Is that...[READ]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get a lot of headaches, stomach aches, or sickness. Is that...[READ]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually share with others, for example, games, food. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get very angry and often lose my temper. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I would rather be alone than with people of my age. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually do as I am told. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am helpful if someone is hurt, upset or feeling ill. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I have one good friend or more. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I fight a lot. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I can make other people do what I want. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often unhappy, depressed, or tearful. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other people my age generally like me. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am easily distracted. I find it difficult to concentrate. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am nervous in new situations. I can easily lose confidence. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am kind to younger children. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often accused of lying or cheating. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other children or young people pick on or bully me. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I often offer to help others (parents, teachers, children). [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I think before I do things. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I take things that are not mine from home, school or elsewhere. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I get along better with adults than with people my own age. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I have many fears. I am easily scared. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I finish the work I'm doing. My attention is good. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Menstruation and Reproductive Health

Logic: Show/hide trigger exists.

Page 5 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - This will enable more questions below.
- ☐ Consent was not obtained.

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Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

[READ] Now, I am going to ask you some questions about women's health and how you understand it. Please remember that we will not tell anyone else your answers.

Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Can you describe to me what MP is?*
[ENSURE GIRL GIVES AT LEAST TWO ITEMS ABOUT MP, BLOOD, PREGNANCY, PUBERTY ITEMS SUCH AS BREASTS]
☐ Yes, respondent understands
☐ No, respondent does not understand
☐ No answer

Logic: Show/hide trigger exists. Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you started your MP?*
☐ Yes - *This will enable more questions below.*
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

When did you first start your MP?*
[ENTER YEAR] [IF EXACT MONTH NOT KNOWN, PROBE FOR ESTIMATED MONTH.] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Show/hide trigger exists. Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

Did you know about MP before it happened to you?*
☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you know about MP before it happened to you?" #42 is one of the following answers ("Yes (trigger)")

Who first told you about it?*
[IF GIRL SAYS SCHOOL. ASK QUESTIONS TO DELINEATE PLAN/STRAIGHT TALK VS. ANOTHER SCHOOL PROGRAM].
☐ Mother
☐ Girl own age
☐ Aunt/Grandmother
☐ School/School program
☐ PLAN/straight talk education program
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - This will enable more questions below.")

Did you experience ANY of the following during your last MP? [READ]

[CHECK ALL THAT APPLY]*

- ☐ Skin irritation / rashes in the pelvic area
- ☐ Fear of panty soiling
- ☐ Odour
- ☐ Outside garment soiling
- ☐ Embarrassment
- ☐ Irritability/moodiness/depression/sadness
- ☐ Insecurity
- ☐ Fear that sanitary protection would fall out of underwear
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Sanitary Protection Method

Logic: Show/hide trigger exists.

Page 6 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Show/hide trigger exists. Hidden unless: Question "Page 6 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP?

[This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]*

- ☐ AFRIPAD
- ☐ Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]
- ☐ Toilet roll
- ☐ Sanitary pad
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Who USUALLY provides you with the CLOTH that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]*

- ☐ Obtain it myself (trigger)
- ☐ Mother (trigger)
- ☐ Other family member (trigger)
- ☐ Non-related household member (trigger)
- ☐ Friend (trigger)
- ☐ Boyfriend (trigger)

- ☐ Teacher (trigger)
- ☐ Other (specify) (trigger): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Mother (trigger)","Other family member (trigger)","Non-related household member (trigger)","Friend (trigger)","Boyfriend (trigger)","Teacher (trigger)","Other (specify) (trigger)"

- Where does this person USUALLY get the CLOTH?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Obtain it myself (trigger)"

- Where do you USUALLY get the CLOTH you use when you're on your MP?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ I reuse material.
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

- [CLOTH] How many pieces do you have?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]
- _____

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

- [CLOTH] How many do you use a day?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

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6 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
7 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
8 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
9 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
10 **CLOTH NOT AFRIPAD]")**

11 **[CLOTH] Do you share cloth with anyone else in your household?***

- 12 ☐ Yes
13 ☐ No
14 ☐ DON'T KNOW/NO ANSWER
15
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18 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
19 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
20 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
21 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
22 **CLOTH NOT AFRIPAD]")**

23 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
24 **soiling when you have to:**

25 **Walk a long distance***

- 26 ☐ Yes
27 ☐ No
28 ☐ NOT APPLICABLE
29 ☐ DON'T KNOW/NO ANSWER
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33 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
34 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
35 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
36 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
37 **CLOTH NOT AFRIPAD]")**

38 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
39 **soiling when you have to:**

40 **Be gone from home for a long time***

- 41 ☐ Yes
42 ☐ No
43 ☐ NOT APPLICABLE
44 ☐ DON'T KNOW/NO ANSWER
45
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48 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
49 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
50 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
51 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
52 **CLOTH NOT AFRIPAD]")**

53 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
54 **soiling when you have to:**

55 **Move quickly or strenuously***

- 56 ☐ Yes
57 ☐ No
58 ☐ NOT APPLICABLE
59 ☐ DON'T KNOW/NO ANSWER
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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

How much of a problem is leaking while using CLOTH? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Does ANYONE else in your household use cloth?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Did you ever try to wash the CLOTH?*

- ☐ Yes (trigger)
- ☐ No (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("No (trigger)")

Why didn't you try to wash the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Had trouble getting water
- ☐ Could not afford soap

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- ☐ Could afford soap but just didn't have any
- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use soap...[READ]***
- ☐ Every time,
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #64 is one of the following answers ("Sometimes, or", "Never?")

- Why didn't you use soap?**
[CHECK ALL THAT APPLY]*
- ☐ Often don't have soap
 - ☐ Don't need soap to get it clean
 - ☐ Don't care to use soap
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use hot water or cold water?***
- ☐ Hot water
 - ☐ Cold water
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Was the water clean or dirty?***
- ☐ Clean
 - ☐ Dirty
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you feel disgusted by washing the CLOTH?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you worry about being observed washing the CLOTH?***

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

Did you try to dry the CLOTH?*

- ☐ Yes (trigger)
☐ No (trigger)
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("No (trigger)")

Why didn't you try to dry the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
☐ Decided not to use it again
☐ Did not have enough privacy
☐ It was disgusting
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Did you worry about drying the CLOTH?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Where did you hang the CLOTH to dry?

[CHECK ALL THAT APPLY]*

- ☐ Dried pad under bed
☐ Dried pad outdoors
☐ Dried pad in dorm where other girls could see, such as on a peg
☐ Dried pad in another secret place
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

How many hours did it take to dry the CLOTH completely?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

How often did you wear the CLOTH damp? Would you say...[READ]*

- ☐ Usually

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- ☐ Sometimes, or
- ☐ Never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]*
☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the TOILET ROLL?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the TOILET ROLL you use when you're on your MP?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Walk a long distance

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be gone from home for a long time

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Move quickly or strenuously*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the market*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

How much of a problem is leaking while using TOILET ROLL? Is it...[READ]*

- ☐ Not a problem at all,
☐ A little bit of a problem, or
☐ A big problem?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Does anyone else in your household use toilet roll?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

Who USUALLY provides you with the SANITARY PADS that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]*

- ☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the SANITARY PADS?*

- ☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the SANITARY PADS?*

- ☐ Shop
- ☐ Market
- ☐ School
- ☐ Rubbish
- ☐ From other females
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Sit for a long time*
- ☐ Yes

- ☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

How much of a problem is leaking while using SANITARY PAD? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

Does anyone else in your household use sanitary pads?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]*

- ☐ Obtain it myself (trigger)
- ☐ Mother (trigger)
- ☐ Other family member (trigger)
- ☐ Non-related household member (trigger)
- ☐ Friend (trigger)
- ☐ Boyfriend (trigger)
- ☐ Teacher (trigger)
- ☐ Other (specify) (trigger): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]" #102 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

[OTHER] Where does this person USUALLY get the material?*

- ☐ Old cloth
- ☐ Shop
- ☐ Market
- ☐ School
- ☐ Rubbish
- ☐ From other females
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

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5 **Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material**
6 **that you use during your MP?**

7 **[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU**
8 **WITH THE MATERIAL?]" #102 is one of the following answers ("Obtain it myself (trigger)")**

9
10 **[OTHER] Where do you USUALLY get the material you use when you're on your MP?***

11 ☐ Old cloth

12 ☐ Shop

13 ☐ Market

14 ☐ School

15 ☐ Rubbish

16 ☐ From other females

17 ☐ *I reuse material.*

18 ☐ Other (specify): _____ *

19 ☐ DON'T KNOW/NO ANSWER
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22 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
23 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

24 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
25 **USE?]" #45 is one of the following answers ("Other (specify)")**

26
27 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
28 **soiling when you have to:**

29 **Walk a long distance***

30 ☐ Yes

31 ☐ No

32 ☐ NOT APPLICABLE

33 ☐ DON'T KNOW/NO ANSWER
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36 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
37 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

38 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
39 **USE?]" #45 is one of the following answers ("Other (specify)")**

40
41 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
42 **soiling when you have to:**

43 **Be gone from home for a long time***

44 ☐ Yes

45 ☐ No

46 ☐ NOT APPLICABLE

47 ☐ DON'T KNOW/NO ANSWER
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50 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
51 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

52 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
53 **USE?]" #45 is one of the following answers ("Other (specify)")**

54
55 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
56 **soiling when you have to:**

57 **Move quickly or strenuously***

58 ☐ Yes

59 ☐ No

60 ☐ NOT APPLICABLE

☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] How much of a problem is leaking while using this material? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify))"

[OTHER] Does anyone else in your household use this material?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRI PAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRI PAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Were you given a pack of AFRI PADS since we came last year?*

- ☐ Yes (trigger)
- ☐ No
- ☐ No answer

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Logic: Show/hidden trigger exists. Hidden unless: Question "Were you given a pack of AFRIPADS since we came last year?" #115 is one of the following answers ("Yes (trigger)")

- Did you...[READ]***
- ☐ Never use them?
 - ☐ Use them only once?
 - ☐ Use them more than once and are still using them? Or
 - ☐ Use them more than once but stop using them?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Which of the following are reasons you decided not to try the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not look like they would work well?
 - ☐ You were afraid the AFRIPAD would smell?
 - ☐ You were afraid the AFRIPAD would show through clothing?
 - ☐ You were afraid the AFRIPAD would leak?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Are there any other reasons you decided not to use the AFRIPAD?***
- ☐ Yes (specify): _____ *
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

- Which of the following are reasons you decided to stop using the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not work well?
 - ☐ The AFRIPADS smelled?
 - ☐ The AFRIPADS showed through clothing?
 - ☐ The AFRIPADS leaked?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

Are there any other reasons you decided to stop using the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you given a pack of AFRIPADs since we came last year?" #115 is one of the following answers ("Yes (trigger)")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") OR Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER"))

Did you share any part of your AFRIPAD pack?*

- ☐ Yes (trigger)
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("Yes (trigger)")

Who did you share with?

[CHECK ALL THAT APPLY]*

- ☐ Family
- ☐ Friends
- ☐ Other girls at school
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

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- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: ((Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #125 is one of the following answers ("Yes, the whole thing?", "Yes, part of the pack? Or") OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #126 is one of the following answers ("Yes, part of the pack? Or")) OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #127 is one of the following answers ("Yes, part of the pack? Or"))

Who did you give it to?

[CHECK ALL THAT APPLY]*

- ☐ Family
- ☐ Friends
- ☐ Other girls at school
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

How much did you like or dislike the AFRIPAD? Did you...[READ]*

- ☐ Like it very much
- ☐ Like it a little
- ☐ Dislike it a little, or
- ☐ Dislike it very much?
- ☐ [IF VOLUNTEERED] Neither
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

During the day, how many hours did you usually wear the AFRIPAD before you had to change it?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Did you ever wear it for longer than 8 hours? Would you say...[READ]*

- ☐ Yes, usually
- ☐ Yes, but only on light days or at night, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]*

- ☐ Yes, always
- ☐ Yes, on some days, but not others, depending on the flow, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]" #132 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

How much of a problem is it to change your AFRIPAD at school? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

How much of a problem is leaking while using an AFRIPAD? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this

school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE

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() DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the market*
() Yes
() No
() NOT APPLICABLE
() DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

Did you ever wash the AFRIPAD?*
() Yes (trigger)
() No (trigger)
() DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("No (trigger)")

Why didn't you try to wash the AFRIPAD?
[CHECK ALL THAT APPLY]*
[] Had trouble getting water
[] Could not afford soap
[] Could afford soap but just didn't have any
[] Did not have enough time
[] Decided not to use it again
[] Did not have enough privacy
[] It was disgusting
[] Other (specify): _____*
[] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use soap...[READ]*
() Every time,
() Sometimes, or
() Never?
() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #145 is one of the following answers ("Sometimes, or", "Never?")

Why didn't you use soap?

[CHECK ALL THAT APPLY]*

☐ Often don't have soap

☐ Don't need soap to get it clean

☐ Don't care to use soap

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use hot water or cold water?*

☐ Hot water

☐ Cold water

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Was the water clean or dirty?*

☐ Clean

☐ Dirty

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you feel disgusted by washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you worry about being observed washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you try to dry the pad?*

☐ Yes (trigger)

☐ No (trigger)

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("No (trigger)")

Why didn't you try to dry the pad?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Where did you hang the pad to dry?**
[CHECK ALL THAT APPLY]*
- ☐ Dried pad under bed
 - ☐ Dried pad outdoors
 - ☐ Dried pad in dorm where other girls could see, such as on a peg
 - ☐ Dried pad in another secret place
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- How many hours did it take to dry the pad completely?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]
- _____

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Did you worry about drying the pad?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

- How often did you wear the pad damp? Would you say...[READ]***
- ☐ Usually
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

**Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))**

- If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?***
- ☐ Yes, would choose AFRIPADS
 - ☐ No, would choose other methods
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?" #157 is one of the following answers ("No, would choose other methods")

What would you choose instead of AFRIPADS?*

- ☐ Sanitary pads
- ☐ Cloth from home
- ☐ Another manufactured cloth pad
- ☐ Toilet roll
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

AFRIPADS cost 15 thousand shillings and last for about a year. Would you be able to afford them if you wanted to buy them?*

- ☐ Yes
- ☐ No
- ☐ Maybe
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

If you had 15 thousand shillings, how likely would you be to buy the AFRIPADS?...[READ]*

- ☐ Not at all likely
- ☐ Slightly likely
- ☐ Moderately likely
- ☐ Very likely
- ☐ Extremely likely
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Do you have any suggestions for improving the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Since we came last year, did you use any other sanitary products for your MP other than the AFRIPADS? If so, what?
[CHECK ALL THAT APPLY]*
☐ Bought sanitary pads from shops
☐ Cloth
☐ Other (specify): _____*
☐ I used nothing else.
☐ DON'T KNOW/NO ANSWER

Menstrual Practices

Logic: Show/hide trigger exists.

Page 7 - [RA: INTERVIEW DISPOSITION]*
☐ Consent obtained and MP
☐ Consent obtained but NO MP
☐ No consent

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Now, I'm going to ask you some more questions about your MP.

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]*
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 times a day
☐ Over 5 times a day
☐ Never change protection
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]" #163 is one of the following answers ("1 time a day", "2 times a day", "3 times a day", "4 times a day", "Over 5 times a day", "DON'T KNOW/NO ANSWER")

When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]*
☐ Immediately go home to change?
☐ Wait until you are back home to change? Or
☐ Change while away from home?
☐ [DO NOT READ]DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Immediately go home to change?", "Wait until you are back home to change? Or")

Why do you change at home?**[CHECK ALL THAT APPLY]***

- ☐ Do not carry extra sanitary protection with me
- ☐ Do not have enough privacy
- ☐ Do not know where to dispose of sanitary protection away from home
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Change while away from home?")

What do you USUALLY do with your used sanitary protection when you have to change away from home or school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AWAY FROM HOME OR SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How many minutes does it usually take for you to change your sanitary protection?*
[ENTER NUMBER OF MINUTES] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you bathe more often when you are on your MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to soap at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to water at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to soap at school?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to water at school?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have underwear?*
☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you have underwear?" #173 is one of the following answers ("Yes (trigger)")

Do you usually wear underwear with your sanitary protection?*
☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]*
☐ Yes, always
☐ Yes, on some days, but not others, depending on the flow, or
☐ No, never?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

How much of a problem is it to change your sanitary protection at school? Is it...[READ]*
☐ Not a problem at all
☐ A little bit of a problem, or
☐ A big problem?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you do when you need to change your sanitary protection at school?*

- ☐ Ask permission from teacher
- ☐ Leave without permission
- ☐ Sit and wait until others are gone
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you USUALLY do with your used sanitary protection when you have to change at school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Go home to change
- ☐ Don't go to school if need to change
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

What do you USUALLY do with your used sanitary protection when you change at home?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT HOME?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Put in trash at home
- ☐ Dispose at community rubbish heap
- ☐ Wash at home and reuse
- ☐ Bury
- ☐ Burn
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Health, School, and Activities

Logic: Show/hide trigger exists.

Page 8 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

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Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Have you ever used a sanitary pad?***
- ☐ Yes
 - ☐ No
 - ☐ Not Applicable
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month.***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month." #181 is one of the following answers ("Yes (trigger)")

- Did you experience the itching or burning while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever had any white or green discharge from your vagina?***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever had any white or green discharge from your vagina?" #183 is one of the following answers ("Yes (trigger)")

- Did you experience the discharge while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How often do you worry about odor during your MP? Would you say...[READ]***
- ☐ Never,
 - ☐ Rarely,
 - ☐ Sometimes,
 - ☐ Often, or
 - ☐ All the time?

() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How often do you worry about odor during your MP? Would you say...[READ]" #185 is one of the following answers ("Rarely," "Sometimes," "Often, or", "All the time?")

In what situations do you worry about odor?

[CHECK ALL THAT APPLY]*

☐ At school

☐ Around males

☐ In other social environments (on the bus, at church, at the market, etc.)

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Does your MP ever cause you to...[READ]

[CHECK ALL THAT APPLY]*

☐ Miss school

☐ Not do your homework

☐ Miss work in the field/gardens

☐ Be unable to play with other children

☐ Avoid physical sports/exercise

☐ Stay indoors

☐ Avoid being around males

☐ Avoid chores

☐ Avoid sex

☐ Anything else? (specify): _____ *

☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

How many days of school do you miss during your MP?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Why did you miss school?

[CHECK ALL THAT APPLY]*

☐ Cramps/bad physical feelings

☐ Fear of leaking

☐ Don't have (lost)/can't afford pads

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Which of the following causes you to miss school the most?...[READ]*

() Physical pain,

() Fear of soiling, or

() Not having any sanitary protection?

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() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- What reasons besides your MP cause you to miss school? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Being ill for other reasons
 - ☐ Household duties
 - ☐ Helping on the farm
 - ☐ Tending to others who are sick
 - ☐ Bad weather
 - ☐ Earning money for the household
 - ☐ Too far
 - ☐ No uniform
 - ☐ No supplies
 - ☐ Caring for smaller children
 - ☐ Lack of school dues
 - ☐ Problems with children at school teasing/bullying
 - ☐ Problems with teachers at school
 - ☐ Any other reasons? (specify): _____ *
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How many minutes does it take you to get to school?***
- () [ENTER MINUTES]: _____ *
 - () Boards at school
 - () DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How many minutes does it take you to get to school?" #192 is one of the following answers ("[ENTER MINUTES]", "DON'T KNOW/NO ANSWER")

- How do you usually get to school?***
- () Walk
 - () Ride the bus
 - () Other (specify): _____ *
 - () DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you find it difficult to concentrate at school when you have your MP?***
- () Yes (trigger)
 - () No
 - () DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you find it difficult to concentrate at school when you have your MP?" #194 is one of the following answers ("Yes (trigger)")

- Why? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Actual soiling
 - ☐ Fear of soiling
 - ☐ Scent

- ☐ Discomfort
☐ Actual teasing
☐ Fear of teasing
☐ Cramps
☐ Any other reasons? (specify): _____*
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you avoid standing in class to answer questions during your MP?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities that are forbidden to you while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities that are forbidden to you while you are on your MP?" #197 is one of the following answers ("Yes (trigger)")

What activities are forbidden to you while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Fetching water
☐ Serving food and beverages to men
☐ Cooking
☐ Being in a sacred space
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities or settings you avoid while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities or settings you avoid while you are on your MP?" #199 is one of the following answers ("Yes (trigger)")

What activities or settings do you avoid while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Being around males
☐ Fetching water
☐ Cooking
☐ Being in a sacred space
☐ Physical sports/exercise
☐ Playing with other children

- ☐ Working in the field/garden
- ☐ Going to school
- ☐ Doing homework
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Menstrual Knowledge and Beliefs

Logic: Show/hide trigger exists.

Page 9 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel ashamed? Or do you feel about the same as when you are not on your MP?*

- ☐ Feel ashamed
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you worry that other people can smell your MP? Or are you not worried about this?*

- ☐ Worry that others can smell MP
- ☐ Not worried about this
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do the boys you know tease girls about their MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel insecure? Or do you feel about the same?*

- ☐ Feel insecure
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you ever worry about getting pregnant?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect any of the following changes from you?

[READ]

[CHECK ALL THAT APPLY]*

- ☐ Finding a job
- ☐ Leaving school
- ☐ Getting married soon
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect you to do more housework? Less housework? Or about the same amount of housework?*

- ☐ More housework
- ☐ Less housework
- ☐ About the same amount of housework
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family give you more money? Less money? Or about the same amount of money?*

- ☐ More money
- ☐ Less money
- ☐ About the same amount of money
- ☐ My parents never gave me any money
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you feel more LIKE A WOMAN? Or do you feel about the same?*

- ☐ Feel more like a woman
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do others treat you more LIKE A WOMAN? Or do they treat you the same?*

- ☐ Treat you more like a woman
- ☐ Treat you about the same
- ☐ DON'T KNOW/NO ANSWER

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Admin

[RA: ENTER YOUR NAME]*

[ENTER INTERVIEW DATE (DD/MM/YYYY)]*

[RA DO YOU HAVE ANY COMMENTS YOU WOULD LIKE TO ADD FOR THIS GIRL'S RESPONSES OR OTHER CONDITIONS RELATED TO THIS GIRL]

Thank You!

Thank you for taking our survey. Your response is very important to us.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	Title page
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	3	State specific objectives, including any prespecified hypotheses	7
Methods			
Study design	4	Present key elements of study design early in the paper	6-7, abstract
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6-7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7-11
Data sources/measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-11
Bias	9	Describe any efforts to address potential sources of bias	9-11
Study size	10	Explain how the study size was arrived at	6-7, 12
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	9-11
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	10-11
		(b) Describe any methods used to examine subgroups and interactions	NA
		(c) Explain how missing data were addressed	11
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

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Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7,12
		(b) Give reasons for non-participation at each stage	12
		(c) Consider use of a flow diagram	Reference to primary paper provided
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	12
		(b) Indicate number of participants with missing data for each variable of interest	12-20
Outcome data	15*	Report numbers of outcome events or summary measures	12-20
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12-20
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	21-22
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	22-23
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	23-25
Generalisability	21	Discuss the generalisability (external validity) of the study results	23-25
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	26

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda.

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Keywords: menstrual hygiene management; adolescent girls; education; reproductive health; risk factors; epidemiology

Abstract

Objectives. The primary objective was to describe Ugandan schoolgirls menstrual hygiene management (MHM) practices and estimate the prevalence of inadequate MHM. Secondly, to assess the relative contribution of aspects of MHM to health, education, and psychosocial outcomes.

Design. Secondary analysis of survey data collected as part of the final follow-up from a controlled trial of reusable-sanitary pad and puberty education provision was used to provide a cross-sectional description of girls' MHM practices and assess relationships with outcomes.

Setting. Rural primary schools in the Kamuli district, Uganda.

Participants. Participants were 205 menstruating schoolgirls (10-19 years) from the eight study sites.

Primary and secondary outcome measures. The prevalence of adequate MHM, consistent with the concept definition, was estimated using dimensions of; absorbent used, frequency of absorbent change, washing and drying procedures, and privacy. Self-reported health, education (school attendance and engagement), and psychosocial (shame, insecurity, embarrassment) outcomes hypothesised to result from poor MHM were assessed as primary outcomes. Outcomes were measured through English surveys loaded on iPads and administered verbally in the local language.

Results. 90.5% (95%CI 85.6-93.9) of girls failed to meet available criteria for adequate MHM, with no significant difference between those using reusable sanitary pads (88.9%, 95%CI 79.0-94.4), and those using existing methods, predominantly cloth (91.5%, 95%CI 85.1-95.3), $\chi^2(1)=0.12, p=.729$. Aspects of MHM predicted some consequences including shame, not standing in class to answer questions, and concerns about odour.

Conclusions. This study was the first to assess the prevalence of MHM consistent with the concept definition. Results suggest that when all aspects of menstrual hygiene are considered together, the prevalence is much higher than has previously been reported based on absorbents alone. The work demonstrates an urgent need for improved assessment and reporting of MHM, and for primary research testing the links between menstrual management and health, education, and psychosocial consequences.

Strengths and limitations of this study

- Offers a working example of the quantitative assessment of MHM, using best available evidence to assess each aspect
- Provides the first prevalence estimate of adequate menstrual hygiene management consistent with its definition
- Multivariable comparisons demonstrate the importance of multiple aspects of menstrual hygiene in predicting hypothesised health, education and psychosocial consequences
- Self-reported menstrual hygiene behaviours, health, education, and psychosocial outcomes are vulnerable to biases, particularly social-desirability
- The cross-sectional nature of the study limits causal inference, and the analyses are limited by the lack of ability to adjust for potential socio-demographic confounds, the small sample size, and lack of existing literature on which to base power analyses

Background

Menstrual hygiene management (MHM) has received increasing attention as a public health issue. After a history of silence, stakeholders from governments to local charities have started to speak about the barrier that the management of menstruation presents to gender equality, and the potential for programs to address the problem. Qualitative research has documented challenges girls face in managing their menses and indicated health, education and psychosocial wellbeing consequences of poor management.[1-4] However, quantitative studies of the associations between MHM and health, education and psychosocial outcomes are scarce.[5] With regard to health, few studies have assessed associations between infection and MHM. In the most comprehensive work to date, a case-control study concluded that there was evidence for an association between reusable pad use and lab-confirmed urogenital infection compared to disposable pads, but noted the complex range of MHM practices, and the need for more research.[6] Other physical and health outcomes including irritation, discomfort and urogenital symptoms, even if not confirmed infections, are also important potential consequences of poor MHM which impose on women’s ability to participate in society with dignity.[7,8]

School absenteeism and disengagement have been emphasised as important consequences of poor MHM. Quantitative evidence for links between MHM and attendance have been mixed, although studies have almost exclusively looked at absorbent type, rather than all MHM practices discussed below.[9-12] Studies have focused on attendance,[5] and additional work is needed to capture the impact of menstruation on concentration and engagement, even if girls are at school.[2 13] Psychosocial consequences including shame, insecurity, anxiety, and fear of stigma are well-documented correlates of menstruation in qualitative studies (e.g.,[2,4]). Such negative psychosocial outcomes have been hypothesised to arise from poor MHM such as inadequate absorbent use.[3] They may also result from a lack of knowledge and information about menstruation,[14], cultural stigma and taboos,[4] and as a result of transactional or coercive sex undertaken to meet MHM needs.[15] More quantitative evidence is needed to unpack the roles of these different contributors to wellbeing, and associations between MHM and wellbeing outcomes. As argued below, it may be inaccurate to label all of these predictors as MHM.

Menstrual hygiene management: definition, use, and measurement

A unified, working definition of MHM was developed by the Joint Monitoring Program of the World Health Organisation and UNICEF in 2012, defining MHM as: *“Women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for*

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3 *washing the body as required, and having access to facilities to dispose of used menstrual*
4 *management materials.”*[16] This captures aspects of the physical requirements for hygienic,
5 effective management of menstrual bleeding. Use of the term has proliferated; however,
6 operationalisation has been inconsistent. As per the above definition, adequate MHM would
7 require:
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- 10 • Clean absorbents
- 11 • Adequate frequency of absorbent change
- 12 • Washing the body with soap and water
- 13 • Adequate disposal
- 14 • Privacy for managing menstruation

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18 Studies to date have only reported a few of these aspects (see [17]). Prevalence studies, and
19 quantitative assessments of predictors and consequences of poor MHM have focused on the type of
20 absorbent used, the first aspect of MHM (e.g.,[18]). Some include one or two additional
21 components, such as washing the body, or disposal of absorbents (e.g.,[19,20]). None have included
22 all aspects of MHM or considered a pooled, comprehensive prevalence estimate requiring all
23 conditions to be met. Overextension of the term has also occurred with studies reporting a lack of
24 knowledge about menstruation, or cultural taboos as aspects of MHM, rather than contributors to
25 MHM (e.g.,[12]).
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32 One barrier to the full assessment of MHM is the lack of evidence and consensus of what
33 constitutes adequacy in each aspect. In a systematic review of MHM practices and infections,
34 Sumpter and Torondel [21] found no consistent standard in the application of ‘good’ and ‘bad’
35 MHM. They found that most studies used only absorbent type to predict consequences, and even
36 with this simplified criterion, did not agree on the adequacy of absorbents such as cloth. Single use
37 absorbents such as sanitary pads are easily classified as clean, however reusable absorbents such as
38 cloth or reusable pads (homemade or commercially produced) could be considered hygienic if
39 cleaned appropriately.[21] MHM literature is yet to provide evidenced guidance for washing and
40 drying absorbents. Washing with soap may be one important criterion. Drying practices are also
41 important, with exposure to UV through sunlight known to have a microbicidal effect.[22] Leaving
42 fabrics damp has been found to encourage microbial survival, and wearing absorbents wet has
43 frequently been considered unhygienic, with some evidence for greater infection risk and
44 discomfort.[1,6,22] Similarly, there is little rigorous evidence to guide absorbent change frequency.
45 The *Menstrual Hygiene Matters* report suggested changing absorbents every 2-6hrs dependent on
46 blood flow.[1] However, there is a lack of evidence on the irritation and infection risk associated with
47 prolonged wear, and women’s perceptions of the adequate frequency for changing for comfort and
48 risk of soiling. There is no clear guidance on optimal washing frequency, or correct use of soap and
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water on the body and genitals. Similarly, disposal method adequacy is likely to be contextually dependent and relies on latrine capacity, cultural appropriateness of burning absorbents, and other waste disposal methods. Finally, whilst the concept definition stresses the need to change absorbents in privacy, women and girls need privacy for all aspects of MHM, such as washing the body and absorbents.[7] Each of these aspects must be considered in trying to estimate the prevalence of MHM, establish relationships between predictors and consequences of poor MHM, and evaluate interventions aimed at improving MHM.

Recent calls for action, such as the *MHM in Ten* report,[23] state the need for a strong quantitative evidence base. This is difficult to achieve without consistent, transparent reports of MHM as defined. Prevalence estimates are needed to assess the distribution of the issue, and to advocate effectively for MHM to be addressed by governments, non-government organisations, and other interest groups. Assessment of all aspects of MHM is needed to identify the relevant contributors to the problem, and establish quantitative links between MHM and consequences. For example, a recent systematic review of MHM studies in India reported that in multivariable models, the use of sanitary pads did not predict school attendance.[12] It is inaccurate to conclude from this finding that MHM does not predict attendance, but only that the type of absorbent used may not. Similarly, trials to date have focused on education and sanitary product provision.[5] No studies have reported if addressing these contributors to MHM, that is, education informing girls how to manage menstruation hygienically, and the provision of clean absorbents as a resource to improve one aspect of MHM (clean absorbents), actually improves MHM overall. Given the many components of MHM detailed above, it is likely that the provision of menstrual products without attention to other factors is insufficient to improve MHM. This has implications for our expectations and interpretations of intervention outcomes. Trials to date assume that improvements in school attendance or psychosocial outcomes observed are the result of improved MHM, but none have tested this. It may be that other factors such as reductions in menstrual stigma, improved pain management strategies, or improved social support amongst classmates contribute to these improvements. While important aspects of managing menstruation, these factors do not fall under the MHM definition. They risk being minimised if studies focus only on MHM, or being mishandled if inaccurately labelled as MHM, which may further complicate its definition and make measurement more difficult. Thus there is a need to understand how proposed interventions affect MHM and to establish the role of MHM, in contrast to other aspects of managing menstruation, in hypothesised consequences.

The present study

This study employs secondary data analysis of the final survey data from the *Menstruation and the Cycle of Poverty* trial undertaken in rural Uganda from January 2012 to December 2014 (Pan African Clinical Trials Registry PACTR201503001044408). The trial methods and outcomes of school attendance and psychosocial wellbeing are described elsewhere (see[24]). Briefly, eight primary schools (including primary school grades 3 to 7) located in Kamuli district, Uganda, an area characterised by poor performance on education and health indicators, were quasi-randomised to one of four conditions, the provision of: puberty education alone, AFRIpads alone, puberty education and AFRIpads, or a no-intervention control. Schools were paired to maximise distance between the four conditions and the risk of contamination. Pairs were allocated sequentially in alphabetical order to conditions. Schools were recruited through the partner NGO and selected to be comparable on characteristics such as size, educational provision and quality (see[24]). While water sources were closer to some schools than others, water, sanitation and hygiene (WASH) for MHM was comparable across schools. All girls in the schools in primary school classes 3 to 5 at baseline were included in the trial, regardless of menstrual status.[24]

Girls in the reusable pad conditions were provided with one pack of AFRIpads and small quantity (one sachet, 45 grams) of Omo soap in October 2012, and again in March 2014. Girls were taught about the correct use and cleaning of AFRIpads by local research assistants from the partner NGO upon each delivery.[24] AFRIpads are a washable, reusable cloth sanitary pad produced in Uganda (<http://www.afripads.com/>). Deluxe packs provided to girls included two soil-resistant plastic-lined 'base' pads, three attachable winged liners, three straight liners and two small bags for carrying. AFRIpads can be reused for 12 months. Girls in the puberty education conditions received an education session (in October 2012) lasting approximately 1.25 hrs (see [24]). Girls who transferred into the study schools during the trial were included in intervention delivery (if attending school at those times) alongside those in the trial and follow-up surveys as not to identify or stigmatise girls in the trial or discriminate against those transferring after the baseline from receiving resources. While girls transferring into the school could not be included in trial outcomes compared across conditions, their responses were incorporated into the final survey data set for secondary analyses. This maximised cross-sectional sample size in the survey data set.

The present study employs the final survey data from the trial to provide the first estimate of MHM consistent with the concept definition. This was used to estimate the association between poor MHM and health, education, and psychosocial outcomes, alongside an assessment of the relative contribution of aspects of MHM to these experiences. MHM prevalence was assessed separately for

those using the AFRIpads provided in the intervention, and girls using other existing methods. The present study uses data from the final follow-up survey of the trial but does not compare across trial conditions, the work provides cross-sectional assessment of practices as reported in the survey and their associations with health, education and psychosocial wellbeing.

Research Questions

- 1. What are the self-reported MHM practices of girls in rural Uganda?
- 2. What is the prevalence of MHM consistent with the concept definition?
- 3. Is adequate MHM greater amongst those using reusable sanitary pads?
- 4. How do aspects of MHM, and pooled MHM, comparatively predict health, education, and psychosocial wellbeing?

Methods

This study was conducted and reported according to best practice guidelines in the Strengthening the Reporting of Observational studies in Epidemiology.[25] Checklist for cross-sectional studies is reported in Supplementary Materials 1.

Participants

435 schoolgirls across the 8 study schools completed follow-up surveys. This included girls who had been involved in the trial, and girls in the same classes who had joined the school after the trial commenced. All girls were surveyed to avoid selectively identifying those menstruating or involved in the trial, potentially stigmatising these girls. 205 girls who reported in the survey that they had reached menarche were asked questions about menstrual management, and are included in this study. There were no *a*-priori power analyses for this cross-sectional assessment as the study seeks to demonstrate the calculation of a prevalence estimate of MHM, and there was no past evidence from which to draw effect size estimates between aspects of MHM and health, education and psychosocial wellbeing outcomes assessed.

Survey design

The survey was administered in November 2014. Trained local research assistants from the partner NGO (Plan International) used an English version of the survey loaded on iPads in the app *SurveyGizmo*. iPads were used in the field offline and data was uploaded to the online service *SurveyGizmo* at the end of each day once an internet connection could be established. Research assistants, all young women, verbally administered surveys in Lusoga (the local language) and

inputted answers in English into the instrument. Girls were surveyed individually in a private place on the school grounds, for menstruating girls this lasted approximately 30-40 minutes.

Survey items were designed following a pilot trial and qualitative research in Ghana (see [3,11]), where a number of similar items were also used. Additional questions were developed following feasibility and acceptability work leading to the selection of AFRipads for the intervention study,[26] and in consultation with stakeholders and partner NGO staff. To support best practice and transparency in reporting, a full list of survey items used is reported in Supplementary Materials 2.

MHM measure

Survey items capturing MHM practices were used to generate the measure of MHM prevalence.

MHM practices. Girls self-reported MHM practices through structured questions. To assess absorbent use, girls were asked: *"What do you usually use to catch/absorb your menstrual period (MP)?"*, and their free responses were recorded by research assistants as AFRipad, cloth, toilet roll, sanitary pad, or other. Few girls reported use of toilet roll so this was recoded to other, along with use of underwear alone and using mattress or sponge. In a follow-up question girls were asked where they (or the person who gives them the absorbent) obtains it. This item was used to determine if girls were using old or new cloth. Girls were also asked: *"How frequently do you change your sanitary protection?"* with guidance from research assistants that per-day meant in 24hrs.

For girls who reported using AFRipads or cloths, follow-up questions captured washing and drying procedures. Girls responded yes/no to items: *"Did you ever wash the AFRipad/cloth?"*, and to the follow-up: *"Did you use soap?"*. To assess drying girls were asked: *"Where did you hang the cloth to dry?"* with responses including under the bed, outdoors, in the school dorm rooms, and in a secret place. Free text responses to the question included: in the bathroom, behind the toilet, in the grass, and behind the house. Responses were back-coded into three categories: outside, hung inside, or hidden inside. Girls were then asked: *"How often did you wear the cloth/AFRipad damp?"* with response options *never, sometimes, and usually*.

Girls were asked: *"What do you usually do with your used sanitary protection when you have to change at home/school?"* with response options *throw in latrine, throw in bush, dispose at community rubbish heap, bury, and burn*. When asked about disposal at school, listed responses also included *go home to change*. *Wash and reuse* was a listed option for home disposal. For both questions girls volunteered information and research assistants selected the appropriate category.

Those using reusable absorbents were asked: “Do you worry about being observed when washing the cloth/AFRipad?” with yes/no response options.

MHM criteria. Self-reported MHM behaviours were used to generate a pooled, aggregate estimate of MHM consistent with the concept definition discussed in the background. Criteria for available aspects of MHM are detailed below, and the pooled estimate included; absorbent cleanliness, adequate change frequency, hygienic washing and drying, and privacy. Criteria for each step were derived from background literature, although existing evidence is sparse. Each criterion was added sequentially and the number of girls considered to have adequate or inadequate MHM at each step reported in results. Absorbents were considered clean if they were AFRipads, new cloth or sanitary pads, with old cloth and other items such as toilet paper, mattress, sponge, or underwear alone considered inadequate. Changing absorbents 3 or more times per 24hrs was required to be considered adequate MHM, consistent with recent work,[6] and guidance.[1] For reusable absorbents, MHM was considered inadequate if not washed with soap. Absorbents were considered to be hygienically dried if dried outside, rather than hung up or hidden inside. Never wearing absorbents damp was also required for adequate MHM. Finally, girls needed to report they were not worried about privacy for washing their absorbents. There were no appropriate items in the survey capturing washing the body or genitals, or items on the ability to change absorbents in privacy, which would have improved the MHM estimate. Whilst disposal methods were reported, there was no consistent guidance on what could be considered an adequate method, so this item was not included in the overall estimate. These aspects were considered the *minimal* requirements for MHM, using best available evidence.

As criteria for MHM could be debated given the lack of evidence, an additional measure of MHM was used for comparison. For this pooled total more *relaxed* criteria were used. Both new and old cloth were considered to be adequate absorbents at step one, with the concession that if washed appropriately old cloth could be considered an adequate absorbent. Girls were only required to change their sanitary protection twice per day, although were still required to wash absorbents with soap and water. To meet criteria as having adequate MHM in the relaxed model girls needed to dry absorbents outside or hung up inside; only those who dried their absorbent hidden away were considered to have poor MHM. The criteria that girls never wear absorbents damp remained unchanged, as did the requirement they felt they had adequate privacy to wash reusable absorbents. Girls were required to meet all relaxed criteria to be considered to have adequate MHM in this model.

Survey measures

Additional survey measures assessed participant characteristics and hypothesised consequences of poor MHM.

Participant characteristics. Girls self-reported their age, grade in school, and how long it took them to walk to school. Data were also collected concerning access to water and soap at home and schools as yes/no responses to items asking “Do you have regular access to (water/soap) at (school/home)?”.

Health. Girls were asked to report if during their *last* period they experienced: skin irritation or rashes in the pelvic area with a yes/no response. They were also asked if since the beginning of the school year they had experienced “any itching or burning in the pelvic area”, or “any white or grey discharge from their [your] vagina” and could report if this was while on their period, at only other times, or both during their period and at other times. All girls reported that this was experienced either only during their period, or during their period and at other times, so only a dichotomous *experienced* response was used. Girls were asked: “Do you worry that other people can smell your menstrual period?” with yes/no responses.

Education. Girls reported if they felt their menstruation ever caused them to miss school or not to do their homework as part of a longer list of activities (including other items such as participating in sports or being around males). Girls were asked: “Do you avoid standing in class to answer questions while on your menstrual period?” and “Do you find it difficult to concentrate at school when you have your menstrual period?” with yes/no options. The latter was followed with a multiple response item capturing the reasons for difficulties concentrating, listed in results tables.

Psychosocial wellbeing. Girls reported if during their *last* period they experienced embarrassment. They also reported if during their menstruation they felt ashamed or insecure or if this was the same as when they were not menstruating. Psychosocial wellbeing was assessed using the total score from the Strengths and Difficulties Questionnaire (SDQ:[27]) . The SDQ consists of 25, 3-point Likert scale items from 0 ‘not true’ to 2 ‘true’, with a midpoint of 1 ‘somewhat true’. The total score (0-40) uses summed scores from the four problem subscales of; hyperactivity (e.g., “I am easily distracted.”), conduct problems (e.g., “I usually do as I am told”), peer problems (e.g., “I would rather be alone than with people of my age”), and emotional problems (e.g., “I have many fears. I am easily scared.”). The total difficulties score can range from 0-40. For 4-17-year-olds, current 4-band categorisation based on a UK survey population are; average (0-14), slightly raised (15-17), high (18-19), very high (20-40). The questionnaire has been well validated and was a secondary outcome in the *Menstruation and the cycle of poverty* trial (see[24]), with norms for different countries available online (www.sdqinfo.com).

School attendance

Attendance data was recorded for girls participating in the *menstruation and the cycle of poverty* trial from baseline. For the present study, only follow-up attendance data was used. Research assistants from the partner NGO collected attendance for the fourth week of each of the three terms in 2014. This was collapsed to create a continuous variable: the percent attendance out of the 15 days recorded. Week four of the school term was selected to avoid very-low attendance periods coinciding with school fee collection at the start of term or agricultural practices, based on advice from site visits and local agents. Girls were not asked to record menstrual cycles, so attendance includes menstruating and non-menstruating days. Attendance was linked to survey responses through participant ID.

Analyses

Analyses were conducted using Stata 14.0.[28] Participant characteristics were detailed using descriptive statistics, as were the prevalence of MHM practices and consequences. Combined measures of MHM were reported using descriptive statistics, including 95% confidence intervals (CI) of the total proportions of those with adequate and inadequate MHM. The chi-square statistic was used to compare the pooled MHM between those using AFRipads and using other existing methods. Bivariate correlations were used to test the overlap of MHM aspects prior to use in multivariable models.

Univariate logistic regressions assessed the relationships between MHM practices and health, education, and psychosocial outcomes. Washing absorbents (with or without soap) was not used as a predictor in these comparisons as almost all girls reported doing so. All of the girls who reported never wearing their absorbent damp had also dried their absorbent outside, so only the location of drying was used as a predictor in the models. All four aspects of MHM were included in multivariable logistic regressions to assess the individual contribution of each to hypothesised consequences. Univariate logistic regressions assessed the relationship between the combined measures of MHM and outcomes. For continuous outcomes of school attendance and total SDQ score, independent samples t-tests were used.

Ethics

Ethical approval for the study was received from the Social Science & Humanities Inter-Divisional Research Ethics Committee at the University of Oxford (Ref: SSD/CUREC1/11-056), the AIDS Support Organisation (TASO) Institutional Review Committee Uganda (TASOIRC/022/14-UG-IRC-009), and the University of Illinois (#12236). To participate in the trial, girls and their

parent/caregiver provided written consent. Schools provided consent for participation throughout the duration of the study. At the start of the survey girls provided verbal consent to participate. No girls declined participation. They were informed that they were free not to answer any question in the survey.

For peer review only

Results

Participant characteristics

A total of 205 menstruating girls were included in this study. 145 (70.7%) had been attending the schools in the trial at baseline. Of the 145 trial girls, 96 (66.2%) had received one of the tested interventions (puberty education alone: 36 (24.8%), pads alone: 40 (27.6%), and education and pads: 27 (18.6%). Of the 60 girls who had not been in the trial schools at baseline, 20 (33.3%) had received pads alone and 1 had received the education intervention. Interventions were identical for all girls, including transfers. Transfer girls received the interventions alongside girls in the trial from baseline to ensure there was no stigmatisation of either group. 81 girls in the full sample had received no intervention, this included girls in the control condition, as well as girls who failed to receive their assigned intervention. Girls in this study were compared according to their self-reported menstrual hygiene practices.

Girls ranged from a self-reported age of 10-19 years (*Mean*=14.20,*SD*=1.12). The average age at menarche was 12.82 years (*SD*=1.28). Table 1 describes the participant characteristics for this study.

Table 1. Participant characteristics (n=205)

	%	N
Grade		
P3	0.5	1
P4	8.3	17
P5	21.5	44
P6	44.9	92
P7	24.9	51
Age		
10	0.5	1
11	0.5	1
12	1.0	2
13	21.5	44
14	44.9	92
15	20.5	42
16	8.8	18
17	1.0	2
18	1.0	2
19	0.5	1
Did you go to the same school last year?		
Yes	94.6	194
No	5.4	11
How long does it take you to get to school?		
10 minutes or less	19.8	33
11-30 minutes	37.7	63
31-60 minutes	37.7	63

>1hr	4.8	8
No answer		38
Do you have regular access to:		
Soap at home (n=200)	94.0	188
Water at home (n=200)	99.0	198
Soap at school? (n=199)	27.1	54
Water at school? (n=199)	44.2	88

Menstrual hygiene management (MHM) practices

Table 2 describes the girls' MHM practices. Four did not report the type of absorbent used, therefore were not asked follow-up questions. Thus the table reports on 201 girls, unless otherwise indicated. Almost 36% of the sample were using AFRIPads received as part of the intervention study as their primary absorbent. Of girls not using AFRIPads, most used cloth as absorbent. Of those using reusable absorbents, almost all reported washing them and using soap for every wash. Half of those who washed absorbents hid them to dry, most commonly under the bed. 23% reported wearing absorbents wet at least once. No girls reported disposing at community rubbish heaps, burning, or burying pads.

Table 2. Self-reported menstrual hygiene management practices (n=201)

	%	N
Absorbent		
What do you usually use as menstrual absorbent?		
AFRIpad	35.8	72
New cloth	14.9	30
Old cloth	30.9	62
Sanitary pad	9.0	18
Other (incl. toilet paper, underwear, mattress, sponge)	9.5	19
How frequently do you change your sanitary protection?		
1x per day	6.1	12
2x per day	33.2	65
3x per day	49.0	96
4x per day	9.7	19
5+ times per day	2.0	4
Missing		5
Washing reusable absorbents		
Did you wash the absorbent? (n=158)¹		
Yes	95.7	154
No	1.9	3
No answer/don't know	2.5	4
Did you use soap? (n=154)²		
Never	0	0
Sometimes	1.9	3
Every time	98.1	151
Drying reusable absorbents		
Where did you dry the absorbent? (n=154)²		
Hidden inside (e.g., under bed)	47.4	73
Hung up inside (e.g., girls dorm, bathroom)	11.0	17
Outside	41.6	64
How often did you wear the absorbent damp? (n=154)²		
Never	77.3	119
Sometimes	6.5	10
Usually	16.2	25
Absorbent disposal		
What do you usually do with your used sanitary protection when you have to change at school? (n=158)³		
Throw in latrine	12.3	19
Take home to wash or dispose	85.7	132
Other	12.0	3
What do you usually do with your used sanitary protection when you change at home? (n=199)		
Throw in latrine	11.6	23
Put in trash	0.5	1
Wash and reuse	87.9	175
Privacy		
Do you worry about being observed when washing the absorbent? (n=154)²		
Yes	73.4	113
No	26.6	41

¹ Of girls using reusable menstrual absorbents (AFRIpads, cloth)

² Of girls using reusable menstrual absorbents (AFRIpads, cloth) who reported washing their absorbent

³ Only asked of girls who reported they 'couldn't go whole day at school without changing absorbent'

Prevalence estimate: menstrual hygiene management

By adding each available aspect of MHM assessed, the overall prevalence of MHM was estimated. Table 3 displays the proportion of girls who met criteria at each step. That is, the proportion of girls remaining after the introduction of that requirement for MHM. Each additional aspect of MHM resulted in fewer girls qualifying. There were particularly large drops following the introduction of changing frequency, drying, and privacy. After the inclusion of available aspects, only 9.5% of the sample qualified as having adequate MHM using minimal criteria. The prevalence of inadequate MHM did not differ between those who used AFRIpads (88.6%) and those using existing methods (90.5%), $\chi^2(1)=0.12$, $p=.729$.

As noted previously, there is a lack of evidence for MHM criteria. Thus, more relaxed criteria were applied for comparison (Table 3, right columns). Despite these changes, the overall prevalence of poor MHM remained high and there was no significant difference between those using AFRIpads (80.6%) and those using existing methods (76.7%), $\chi^2(1)=0.20$, $p=.655$.

Table 3. Estimated prevalence of menstrual hygiene management, using minimal and relaxed criteria

	MHM criteria (minimal)		MHM criteria (relaxed)	
	AFRIpad users N=72	Usual practice N=129	AFRIpad users N=72	Usual practice N=129
	application of criteria % (n) retained		application of criteria % (n) retained	
Clean absorbent	(criteria: AFRIpad, new cloth, or sanitary pad) 100 (72) 37.2 (48)		(criteria: AFRIpad, old or new cloth, sanitary pad) 100 (72) 85.3 (110)	
Changed frequently	(criteria: 3 times or more) 66.7 (48) 19.4 (25)		(criteria: 2 times or more) 93.1 (67) 80.6 (104)	
Washed with soap ¹	(criteria: washed absorbent with soap) 65.3 (47) 18.6 (24)		(criteria: washed absorbent with soap) 90.3 (65) 79.1 (102)	
Dried adequately ¹	(criteria: absorbent dried outside) 29.2 (21) 10.1 (13)		(criteria: absorbent dried outside or hung inside) 56.9 (41) 45.7 (59)	
	(criteria: absorbent never worn damp) 29.2 (21) 10.1 (13)		(criteria: absorbent never worn damp) 56.9 (41) 41.1 (53)	
Privacy for washing ¹	(criteria: not worried about being observed washing absorbent) 11.1 (8) 8.5 (11)		(criteria: not worried about being observed washing absorbent) 19.4 (14) 23.3 (30)	
	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)	% [95%CI] (n)
Meet available criteria:	11.1 [5.6-21.0](8)	8.5 [4.7-14.8] (11)	19.4 [11.7-30.5](14)	23.3 [16.7-31.4](30)
Prevalence of poor MHM:	88.9 [79.0-94.4](64)	91.5 [85.2-95.3](118)	80.6 [69.5-88.3](58)	76.7 [68.6-83.3](99)
	Total % [95%CI] (n)		Total % [95%CI] (n)	
Met available criteria:	9.5 [6.1-14.4] (19)		21.9 [16.7-28.2] (44)	
Prevalence of poor MHM:	90.5 [85.6-93.9] (182)		78.1 [71.8-83.3] (157)	

¹If reusable absorbent (AFRIpad, new/old cloth)

While the study aimed to use each aspect of MHM to predict outcomes, almost all girls reported washing absorbents with soap. Thus groups were not large enough for reliable comparison in chi-square or logistic regression so this criterion was dropped from analysis of association with outcomes. As noted in the analysis section, drying criteria were collapsed. The minimal MHM criteria from Table 3 (i.e., new cloth, AFRipad or sanitary pads considered clean absorbent, and outside alone considered adequate drying), were used for comparison with health, education and psychosocial outcomes.

To check for multicollinearity and associations between the different aspects of MHM, bivariate correlations were compared between the clean absorbents (AFRipad, new cloth, sanitary pad), frequency of absorbent change (3+ times), drying adequately (outside), and having adequate privacy. There was only one significant correlation between girls feeling they had adequate privacy to wash absorbents and drying absorbents adequately (outside), $r=0.42$, $p<.001$. All other associations were very low ($r<.08$).

Consequences of poor MHM

Table 4 presents the proportion of girls reporting negative health, education, and psychosocial outcomes. Approximately half of the sample reported discomfort, possibly indicating health consequences. Less than 20% of girls stated that menstruation caused them to miss school, although over half reported not standing in class to answer questions, and finding it difficult to concentrate when menstruating. Discomfort, fear of soiling, and menstrual pain were the most common reasons for difficulty concentrating. Many girls reported embarrassment, shame, and insecurity associated with menstruation.

Table 4. Prevalence of proposed consequences of poor MHM (n=201)

	%	N
Health/comfort		
Skin irritation/rashes in pelvic area during last MP (n=153) ¹	54.3	83
Itching or burning in the pelvic area (since start of the school year) (n=199)	60.3	120
White or green discharge (since start of the school year) (n=199)	47.2	94
Do you worry people can smell your MP? (yes)	70.2	141
Education		
Does your MP ever cause you to: (n=185) ¹		
Miss school	18.4	34
Not do your homework	7.6	14
School attendance at intervention follow-up (n=144) <i>M (SD)</i>	81.06	(18.58)
Do you avoid standing in class to answer questions on your MP (n=198)	64.7	128
Do you find it difficult to concentrate at school when you have your MP? (n=198)	51.0	101
Reasons it is difficult to concentrate during MP (n=101)		
Actual soiling	24.8	25

Fear of soiling	72.3	73
Scent	15.8	16
Discomfort	49.5	50
Actual teasing	4.0	4
Fear of teasing	21.8	22
Cramps	54.5	55
Psychosocial wellbeing		
Strengths & Difficulties Questionnaire (SDQ) total score <i>M (SD)</i>	19.11	(5.31)
Did you experience embarrassment during your last MP (n=153) ¹	45.8	70
During your MP do you feel ashamed?	69.2	139
During your MP do you feel insecure?	69.2	139

¹ n's lower than 201 resulted in part from iPad issues where, in about 40 cases, the appropriate page froze or failed to load, additional missing resulted from girls not providing an answer to the question

Relationships between MHM aspects and proposed consequences

Table 5 displays the univariate and multivariable relationships between MHM aspects, pooled MHM estimates (minimal and relaxed), and health, education, and psychosocial wellbeing.

There were no significant associations with itching or burning, despite a consistently higher rate of report among those with poorer MHM. Drying outside had the reverse relationship to discharge than expected, with less white or green discharge reported amongst those drying inside or hidden. This unexpected direction of effect was also found for girls' fears that others could smell their menses. Unclean absorbents and inadequate privacy were associated with increased concerns about odour in multivariable comparison.

Only one aspect of MHM was associated with school attendance, with those changing 3 times a day or more having a higher attendance rate. Unclean absorbents and privacy were associated with higher odds of avoiding standing in class to answer questions, as were pooled MHM estimates. Only adequate privacy for washing absorbents was associated with difficulties concentrating, although having a clean menstrual absorbent trended towards significance with an almost 10% difference in reports. Drying practices were associated with shame in the opposite direction to that expected. Adequate privacy for washing was associated with shame and insecurity.

Despite very large percentage differences in the reports of consequences between those categorised as having adequate and inadequate MHM, the small number of girls with adequate MHM meant there was insufficient power to demonstrate statistically significant effects. Percent differences should be noted, however, with the potential for large effect sizes to be identified in larger samples.

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Table 5. Univariate and multivariable comparisons of aspects of MHM, combined measures of MHM, and hypothesised consequences.

	Absorbent type		Absorbent change		Absorbent drying		Privacy (for washing)		MHM (minimal)		MHM (relaxed)	
	Clean	Unclean	3+ times	<3 times	Outside	Inside/hid	No concern	Concern	Adequate	Inadequate	Adequate	Inadequate
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
	OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)		OR (95%CI)	
Health/comfort												
Itching or burning in the pelvic area (since start of the school year)	59.7 (71)	61.3 (49)	60.2 (71)	60.5 (49)	58.6 (58)	62.0 (62)	54.4 (43)	64.2 (77)	52.6 (10)	61.1 (110)	54.6 (24)	61.9 (96)
		1.07		1.01		1.15		1.50		1.41		1.36
		(0.60-1.91)		(0.57-1.81)		(0.65-2.04)		(0.84-2.67)		(0.55-3.65)		(0.69-2.67)
OR _{adj} (95%CI)		1.10		0.98		0.96		1.54				
		(0.61-1.98)		(0.54-1.76)		(0.51-1.82)		(0.80-2.93)				
White or green discharge (since start of the school year)	44.5 (53)	51.3 (41)	48.3 (57)	45.7 (37)	53.5 (53)	41.0 (41)	44.3 (35)	49.2 (59)	31.6 (6)	48.9 (88)	47.7 (21)	47.1 (73)
		1.31		0.90		0.60		1.22		2.07		0.98
		(0.74-2.31)		(0.51-1.59)		(0.34-1.06)		(0.69-2.15)		(0.75-5.69)		(0.50-1.91)
OR _{adj} (95%CI)		1.36		0.80		0.47*		1.78				
		(0.76-2.43)		(0.45-1.44)		(0.24-0.88)		(0.92-3.43)				
Worry people can smell your MP?	65.8 (79)	76.5 (62)	68.9 (82)	73.0 (59)	74.3 (75)	66.0 (66)	58.2 (46)	77.9 (95)	63.2 (12)	70.9 (129)	59.1 (26)	73.3 (115)
		1.69[†]		1.16		0.68		2.52**		1.42		1.90[†]
		(0.90-3.20)		(0.62-2.15)		(0.37-1.24)		(1.36-4.69)		(0.53-3.80)		(0.94-3.81)
OR _{adj} (95%CI)		1.88[†]		0.94		0.34**		4.51***				
		(0.96-3.68)		(0.49-1.81)		(0.16-0.73)		(2.09-9.77)				
Education												
School attendance <i>M</i> (<i>SD</i>) (<i>n</i> =144)	82.10 (18.33)	79.39 (19.04)	84.89 (14.28)	76.40** (22.23)	79.00 (21.54)	83.19 (14.82)	80.12 (21.14)	81.67 (16.86)	86.19 (13.95)	80.51 (18.98)	81.96 (20.07)	80.79 (18.19)
Do you avoid standing in class to answer questions on your MP?	59.3 (70)	72.5 (58)	63.6 (75)	66.3 (53)	59.6 (59)	69.7 (69)	53.2 (42)	72.3 (86)	26.3 (5)	68.7 (123)	45.5 (20)	70.1 (108)
		1.81		1.13		1.56		2.30**		6.15**		2.82**
		(0.98-3.34)		(0.62-2.04)		(0.87-2.81)		(1.26-4.17)		(2.11-17.91)		(1.42-5.60)
OR _{adj} (95%CI)		1.97*		1.05		1.14		2.31*				
		(1.05-3.71)		(0.56-1.95)		(0.58-2.22)		(1.18-4.53)				
Do you find it difficult to concentrate at school when you have your MP? (<i>n</i> =198)	46.6 (55)	57.5 (46)	49.2 (58)	53.8 (43)	52.5 (52)	49.5 (49)	39.2 (31)	58.8 (70)	42.1 (8)	52.0 (93)	31.8 (14)	56.5 (87)
		1.55		1.20		0.89		2.21**		1.49		2.78**
		(0.87-2.75)		(0.68-2.12)		(0.51-1.55)		(1.24-3.95)		(0.57-3.87)		(1.37-5.66)
OR _{adj} (95%CI)		1.69[†]		1.05		0.55		3.03**				
		(0.93-3.05)		(0.58-1.91)		(0.29-1.07)		(1.54-5.99)				

Psychosocial wellbeing

Strengths & Difficulties Questionnaire <i>M(SD)</i>	18.65 (5.24)	19.80 (5.37)	18.75 (5.42)	19.65 (5.13)	18.91 (5.34)	19.32 (5.29)	18.84 (5.42)	19.30 (5.25)	17.11 (6.30)	19.32 (5.17)	18.25 (5.80)	19.36 (5.16)
Did you experience embarrassment during your last MP (n=153)	47.8 (43)	42.9 (27)	46.2 (42)	45.2 (28)	48.8 (39)	42.5 (31)	54.4 (31)	40.6 (39)	50.0 (6)	45.4 (64)	38.7 (12)	47.5 (58)
OR _{adj} (95%CI)		0.82 (0.43-1.57)		0.96 (0.50-1.84)		0.78 (0.41-1.47)		0.57 (0.30-1.11)		0.83 (0.26-2.70)		1.43 (0.64-3.21)
During your MP do you feel ashamed? (n=201)	66.7 (80)	72.8 (59)	69.8 (83)	68.3 (56)	72.3 (73)	66.0 (66)	59.5 (47)	75.4 (92)	52.6 (10)	70.9 (129)	56.8 (25)	72.6 (114)
OR _{adj} (95%CI)		1.34 (0.72-2.49)		0.93 (0.51-1.72)		0.74 (0.41-1.36)		2.09* (1.13-3.84)		2.19 (0.84-5.70)		2.01* (1.01-4.03)
During your MP do you feel insecure?	68.3 (82)	60.4 (57)	69.8 (83)	68.3 (56)	68.3 (69)	70.0 (70)	60.8 (48)	74.6 (91)	63.2 (12)	69.8 (127)	61.4 (27)	71.3 (112)
OR _{adj} (95%CI)		1.10 (0.60-2.03)		0.93 (0.51-1.72)		1.08 (0.59-1.97)		1.90* (1.03-3.48)		1.35 (0.50-3.60)		1.57 (0.78-3.15)
		1.16 (0.62-2.16)		0.86 (0.46-1.60)		0.78 (0.39-1.54)		2.16* (1.09-4.28)				

Adequate absorbent OR=1.00; Changed frequently OR=1.00; Drying outside OR=1.00; Don't worry about privacy OR=1.00; Adequate MHM strict OR=1.00; Adequate MHM relaxed OR=1.00

OR_{adj}: Odds ratio for multivariable models where all aspects of MHM were included in the model.

p*<.05, *p*<.01, ****p*<.001, †*p*<.10

Discussion

Prevalence of poor MHM

This study was the first to provide a prevalence estimate for MHM consistent with the concept definition; “women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.”.[16] 90.5% (95%CI 85.6-93.9%) of the sample had inadequate MHM. This did not differ between those using reusable pads and those using other existing methods (71.3% cloth, 14.0% disposable sanitary pads, 14.7% other methods including toilet paper and underwear alone). Even when more relaxed criteria were used (use of sanitary pad, AFRIpad, old or new cloth, that was changed 2 or more times per day, with absorbents washed with soap and dried hung outside or inside, absorbents never worn damp, and girls reporting they were not worried about being observed washing their absorbent), the prevalence of poor MHM was 78.1% (95%CI 71.8-83.3%), and did not differ for those using reusable pads. By employing the current definition of the concept, this work has shown that reporting individual aspects of MHM alone underestimates the extent of deprivation. Furthermore, when MHM is considered as a whole, girls using reusable sanitary pads provided as part of the intervention trial did not report a lower prevalence of poor MHM. As such, the use of reusable sanitary pads alone may not improve girls’ menstrual hygiene.

MHM behaviours reported by the sample are consistent with the rural context and poverty in the study area. The sample may be more disadvantaged, at least in terms of menstrual hygiene, than some past studies. A higher proportion of girls (who did not use AFRIpads) reported using cloth compared to studies of girls in rural India (pooled prevalence: 63% [12]), and single-study estimates from East Africa (24% in rural Kenya [19]; 56% in Ethiopia [9]). A similarly high rate of cloth use (87%) was recently reported in the Rukungiri district of Uganda.[29] There are far fewer studies with which to compare reports of washing or drying practices. Past studies have also failed to adequately report questions used to capture MHM practices, which limits comparison (see [17]). This study focused on the absorbent girls reported using *most frequently*.

Facilities for MHM were comparable across all study schools. Latrines were gender-separated but had few adequate doors or locks, and no access to water. Girls reported going home to change absorbents, and all stated that they washed and dried reusable absorbents at home, rather than at school. No survey items asked about transporting menstrual absorbents home for cleaning, which may have presented an additional challenge for girls and resulted in anxiety or

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3 stigma. Improvements to facilities for changing and cleaning absorbents at the schools may have
4 improved MHM. While advocates have increasingly focused on the provision of facilities at school
5 for MHM,[23] this was not the focus of the present study and the washing and drying practices
6 reported in this sample were undertaken at home, rather than at school.
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10 Consequences of poor MHM

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12 High rates of negative outcomes were observed. Many girls reported genital irritation,
13 discharge, and concerns about odour. Whilst self-reported symptoms may not be the best predictor
14 of laboratory-confirmed infections,[8] girls' discomfort and symptoms which may cause distress,
15 represent important health outcomes. Over half the sample reported not standing to answer
16 questions and difficulties concentrating in school. 69% of girls reported shame and insecurity during
17 menstruation. High SDQ scores in the sample have been discussed elsewhere (see [24]), in part
18 consistent with high scores reported in low-income contexts, and a possible bias towards affirmative
19 responses.[24] Large percent differences were observed using the pooled MHM measures for all
20 consequences assessed. Unfortunately, the small proportion of girls with adequate hygiene meant
21 there was insufficient power to detect many effects. Nevertheless, findings support the value of
22 considering all aspects of MHM together.
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31 There were few associations between aspects of MHM and health symptoms. As noted
32 above this may reflect the poor validity of girls self-reports.[8] Concerns about odour were
33 associated with absorbent type, drying practices and privacy. AFRIPads provided as part of the
34 *Menstruation and the Cycle of Poverty* trial were approximately 7-8 months old at the time of follow-
35 up survey. As AFRIPads last 12 months, the deterioration of the pads is unlikely to have contributed
36 to outcomes. However, if poorly maintained, the pads may not have been a clean absorbent, or
37 associated with reduced irritation and infection.
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43 Using unclean absorbents was associated with concerns about odour, difficulties in school
44 concentration, and standing to answer questions. Actual soiling or fear of soiling and odour may
45 mediate the identified relationship with school participation, and should be investigated in future
46 work. Drying absorbents adequately was associated in an unanticipated direction with both odour
47 concerns and reports of discharge. There may be multiple explanations for this finding. Firstly, girls
48 drying absorbents outside may place them on unclean surfaces or on the ground, which may
49 increase contamination. Drying outside may provoke concerns that absorbents will be seen, thus
50 they may not be left to dry adequately. Consistency of reports between drying outside and never
51 wearing absorbents damp, however, works against this interpretation. Whilst replication would be
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needed, findings have interesting implications for interventions which encourage outside drying. If conditions outside are unclean, this may cause unintended harm.

Concerns about privacy for washing absorbents were associated with many consequences including shame, insecurity, and disengagement at school. The privacy item captured worry about privacy for washing absorbents, so associations may have been driven by girls' trait anxiety. However, it would be difficult to measure privacy more objectively, as adequacy is in many ways subjective.[7] Girls' feelings of safety are likely to reflect some individual differences. In interpreting the associations between privacy for washing and outcomes, one explanation may be that girls who felt they were likely to be observed did not wash absorbents as well as those without this pressure. As noted above, high rates of reported washing with soap 'always' are likely to be misleading. This also did not capture the quality of washing. Those washing absorbents quickly may have been unable to get them clean and properly prepared for future use and minimal odour. More research is needed to investigate the validity and reliability of these measures, and provide recommendations on criteria for adequate washing for health and odour prevention. Reports of perceived privacy for changing and drying absorbents represent important parts of the MHM concept definition which were not able to be captured by available measures in this study.

Only the frequency of absorbent change was significantly associated with school attendance, although the sample size was limited. Consistent with guidelines for MHM, girls changing their absorbents 3 or more times per day had a greater percentage of school days attended. This may be due to a lower rate of soiling, or concerns about soiling, amongst these girls as they used a fresh absorbent more often. This group of girls may feel more confident to change their absorbents at school, leading to greater attendance. Past literature (e.g., [30]) and reports from local agents in the field in this study suggest many girls go home to change their absorbents. Interventions proposing to improve the quality of facilities for changing at school may therefore be effective in improving attendance for more girls. It should be noted that in order for girls to change three or more times per day they must have access to sufficient absorbents (cloth or pads) to do so, thus this may represent a more advantaged group and this study was unable to adjust for such sociodemographic confounds.

Strengths and limitations

The present study was undertaken in a difficult-to-reach population of adolescent girls in rural Uganda. The use of local research assistants and language improved access to the population and facilitated comfort with the interviewers. The prevalences of MHM behaviours are heavily dependent on the reliability of girls' reports and questions used, an issue that pervades MHM

studies. The study found almost universal washing with soap. Whilst girls report that soap and water is available to them at home, qualitative interviews, site reports, and reports from the field suggest always washing absorbents with soap to be unlikely. Social desirability is likely to have influenced self-reported behaviours, urogenital symptoms, and the impact of menstruation on schooling. Interviewers were from the local NGO, well known in the area, with a recent campaign focused on girls' education (<https://plan-international.org/what-we-do/because-i-am-girl>). In addition, many had been involved in delivering the AFRIPads to the girls. It is unclear if written surveys would have reduced social-desirability in responses, and may have introduced other biases given the low levels of literacy in the area. Additionally, this would have required costly translation of surveys and girls' responses.

The use of an objective measure of school attendance meant this was not subject to girls' self-reports, however, means this data reflects attendance across all days including both menstruating and non-menstruating days. This means effect sizes are limited, and the impact of confounds on attendance which pervade across non-menstrual days may have a greater influence than if only menstruating school days were compared. Future studies of menstrual-specific absence would provide a more specific measurement of menstrual and MHM-related absenteeism, but may be difficult to obtain as they are reliant on receiving girls' self-reports of their cycle. The distribution of AFRIPads and education in the sample mean that the prevalences of MHM behaviours and consequences reported may not reflect practices prior to the interventions. As noted previously, a proportion of girls (n=60) not included in the *Menstruation and the Cycle of Poverty* trial results were included in this study. While these girls were not included in the trial sample, many had been attending the study schools from very near the baseline assessment, and were comparable to girls in the trial, with many also receiving the interventions alongside the trial girls. This study used best available evidence to guide criteria for MHM estimates and predictive models; however, as noted, there is a dearth of literature to guide hygiene recommendations and research.

The cross-sectional and correlational nature of the research precludes causal inference. With regard to the prevalence of menstrual hygiene, this study compared girls who reported using AFRIPads provided in the trial as their primary absorbent to those using other methods when calculating MHM prevalence. While this presents a cross-sectional assessment of menstrual hygiene when using a reusable product, it does not reflect the effectiveness of providing reusable pads in an intervention. Girls' were not compared across the intervention arms, rather across the primary absorbent used. Those in the reusable pad arms who may have received AFRIPads but not used them, were grouped according to the absorbent they used most often. Cross-sectional relationships between MHM and health, education, and psychosocial wellbeing outcomes are limited by the

inability to adjust for socio-demographic confounds. It is likely that greater access to resources is associated both with better MHM, and proposed consequences. Girls with greater access to resources are likely to have better health outcomes, family support for school attendance, fewer other challenges to psychosocial wellbeing. Thus, the study would have been greatly improved by the ability to adjust for socio-demographic factors such as parental education and poverty.[12] The small sample size further limited these analysis. As this work was exploratory, and the first to estimate a combined measure of MHM and assess multiple aspects of MHM and their relationship to outcomes, there was very limited literature on which to base α -priori power analyses and none were undertaken. This study provides some indication of expected effect sizes to enable power analyses in future studies.

The nature of, and need for, a pooled estimate of MHM could be questioned. As argued in the background to this paper, this is useful for establishing the state of MHM in different populations and advocating for attention. It also promotes use of the MHM term consistent with its definition, and provides greater clarity around what should be considered predictors and consequences of MHM, rather than aspects of it. This highlights the need for alternate terminology capturing other factors such as menstrual taboos that impact on girls' menstrual management but are not MHM. Until evidenced-guidelines are developed, and comparable measures of MHM have been tested and used across studies, it is not advised to present only pooled estimates. The individual aspects that make up MHM will always be important individual factors, as indicated by the differential relationships with outcomes identified in this work. This paper presents a worked example of how the MHM concept could be operationalised. The aspects of the definition, placing equal value on each of these, and the cut off points used in this work could all be debated. More work is needed to guide research and practice.

Finally, the individual items available to appraise MHM in this study could be improved. MHM literature has paid insufficient attention to measurement issues and there are presently no validated questionnaires for assessing practices such as absorbent washing and drying.[17] The measures in the present study could be improved upon in future work. Questions often asked about how girls '*usually*' dry or dispose of absorbents which may result in greater social desirability in responses than asking about the last menstrual period. Response options for drying items need improvement. Field work in the study found that girls drying absorbents outside would often do so under another piece of fabric which may reduce the UV benefits of drying outside. Drying pads '*hidden*' lacks specificity which could be improved on in future work.

Implications for research and practice

Recent calls for action on MHM state the need for a strong quantitative evidence base.[23] This cannot be achieved without consistent reporting of MHM as defined. Prevalence estimates are needed to advocate effectively for action, establish hypothesised consequences, and measure improvements in intervention trials. Slow movement to address MHM deficits to date may reflect the present absence of quantitative prevalence figures and links to consequences. Confusion between what represents a predictor or aspect of poor MHM will continue without guidance and tools for measuring MHM as defined. This delays the development of a detailed, and quantitatively supported, problem theory of MHM. There is an urgent need for guidelines detailing the MHM concept, and criteria for adequacy in each aspect, as well as research guidance to establish a rigorous primary evidence base in this field.

Minimal correlations between aspects of MHM, and differential associations between aspects and consequences in multivariable models demonstrate unique impact of each facet. Findings suggest all MHM aspects must be considered in testing links with hypothesised consequences. Null results, particularly for psychosocial consequences, suggest more predictors may need to be considered. Hygiene management is not the only menstruation related challenge facing girls in low income contexts. Fear around menstruation due to lack of understanding, taboos and stigma may contribute to these outcomes. Whilst properly defining and measuring aspects of MHM, future studies must also investigate these other contributors to outcomes.

The present study suggests that using AFRIpads was not associated with a higher prevalence of adequate MHM. Whilst this study does not compare intervention conditions, findings suggest that improving only one aspect of MHM, the absorbent used, may not improve MHM overall. The *Menstruation and the Cycle of Poverty* trial did find that across conditions the provision of AFRIpads was effective in improving school attendance.[24]. Thus, it may be that addressing only one aspects of MHM is sufficient to improve outcomes, as suggested by differential associations in this study, but is insufficient to provide girls with their full right to MHM.[7] The provision of a reusable product may have a negligible impact on MHM due to their dependency on washing, drying and privacy facilities which are unaffected by product-provision interventions. In the present study it may be that girls needed additional training in AFRIpad use beyond what was provided, to improve cleaning practices. Providing disposable pads which do not require washing or drying, and may be quicker to change, might have a larger impact on MHM. This should be investigated in future work. Inserted products including menstrual cups and tampons were not considered culturally appropriate in this population, but may present another alternative to reusable pads for future studies.[26 31-35] In interpreting the primary trial results, which found improvements in school attendance following reusable pad provision,[24] it is likely that improvements to unmeasured aspects of menstrual

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management such as improving teachers’ awareness of girls’ needs or improved social support by prompting girls to discuss menstruation, may have contributed to these effects. More quantitative epidemiological studies and in-depth analysis of trial results, such as mediation analyses, are needed to fully understand the pathways of effect in interventions and maximise their future effectiveness.

For peer review only

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Author contributions

Conceived and designed the experiments: JH PM CD LS. Performed the experiments: PM CD MW LS. Analysed the data: JH. Wrote the paper: JH PM. Commented on the paper: CD MW LS.

All authors have read and approved the final manuscript.

Conflicts of interest

All authors declare that there are no conflicts of interest.

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Data sharing statement

No additional data available.

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Intervention Survey Oct 2014

Introduction

You may remember that we came here last year and interviewed you about your MP for a study meant to find out how best to help girls manage their MP while they are in school. If you choose to participate in the study again today, we will ask you similar questions about your menstruation. The questions will take about 30 minutes. We will never reveal your identity to anyone. In fact, all your answers will be kept secret and we are not going to tell anyone. You may choose to participate or not and may quit at any time. Would you like to continue? Your name will not be associated with the picture and will only be used in academic presentations, lectures and/or publications associated with this project.

Interview consent:*

[RA: TICK THE APPROPRIATE 'YES' BOX IF CONSENT HAS BEEN EXPLAINED AND RESPONDENT HAS AGREED. IF CONSENT HAS NOT BEEN OBTAINED, DO NOT CONTINUE AND CONTACT YOUR SUPERVISOR FOR INSTRUCTIONS]

☐ Yes, consent obtained

☐ No (consent NOT obtained)

Study ID:*

General Demographics Information

Logic: Show/hide trigger exists.

Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]*

☐ Girl consented to interview. - *This will enable more questions below.*

☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Okay, here is the first question. How old are you?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW ENTER DK] [IF NO ANSWER ENTER 999]

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

What class in school are you?*

☐ P3

☐ P4

☐ P5

☐ P6

☐ P7

☐ NONE OF THESE/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Did you go to the same school last year?*

- ☐ Yes
☐ No (trigger)
☐ No answer

Logic: Hidden unless: Question "Did you go to the same school last year?" #3 is one of the following answers ("No (trigger)")

Which school did you go to?*

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Are you repeating this class?*

- ☐ Yes
☐ No
☐ No answer

Logic: Hidden unless: Question "Page 2 - [RA: PLEASE SELECT AN INTERVIEW DISPOSITION.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you ever repeated any other class?*

- ☐ Yes
☐ No
☐ No answer
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Empowerment

Logic: Show/hide trigger exists.

Page 3 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - *This will enable more questions below*
☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

[READ] Now, I am going to ask you for your own opinions on some things. For each question, please tell me the answer that comes closest to your own view.

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

What do you think is the biggest factor in determining your future? Do you think it is...[READ]*

- ☐ Your own hard work

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- ☐ Your family
- ☐ Your future husband
- ☐ Your community
- ☐ Your education
- ☐ Your government
- ☐ Or something else? (specify): _____ *
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think education will increase your opportunities in life a little? A lot? Or not at all?*

- ☐ Increase my opportunities a little
- ☐ Increase my opportunities a lot
- ☐ Not increase my opportunities at all
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be going to secondary school?*

- ☐ Will go
- ☐ Probably won't go (trigger)
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be going to secondary school?" #9 is one of the following answers ("Probably won't go (trigger)")

Why do you think you won't be going to secondary school?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below")

Do you think you will be able to finish primary school?*

- ☐ Think I will stay through the end of P7
- ☐ Think I will likely leave (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you think you will be able to finish primary school?" #11 is one of the following answers ("Think I will likely leave (trigger)")

Why do you think you will likely leave?

[CHECK ALL THAT APPLY]*

- ☐ I was not a good enough student
- ☐ Parents refuse to pay for it
- ☐ I have to work hard to sustain myself for food and clothes
- ☐ Marriage
- ☐ I might get pregnant
- ☐ I won't perform well on the exam
- ☐ No one wants me to go or encourages me
- ☐ I just don't want to go
- ☐ Other (specify): _____*
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

Do you like going to school?*

- ☐ Like going to school
- ☐ Would rather not go to school
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 3 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below*")

Going to school is more important for boys? Or girls? Or is it the same for both?*

- ☐ Boys
- ☐ Girls
- ☐ The same for both
- ☐ DON'T KNOW/NO ANSWER

Subjective Well-being

Logic: Show/hide trigger exists.

Page 4 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - *This will enable more questions below.*
- ☐ Consent was not obtained.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

[READ] Now, I want you to think about your life over the past six months. I am going to read some sentences. For each one, please tell me if it is not true, sometimes true, or true about you.

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Here is the first sentence: I try to be nice to other people. I care about their feelings. Is that...[READ]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am restless. I cannot stay still for long. Is that...[READ]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get a lot of headaches, stomach aches, or sickness. Is that...[READ]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually share with others, for example, games, food. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I get very angry and often lose my temper. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I would rather be alone than with people of my age. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I usually do as I am told. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am helpful if someone is hurt, upset or feeling ill. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I have one good friend or more. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I fight a lot. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I can make other people do what I want. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often unhappy, depressed, or tearful. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other people my age generally like me. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am easily distracted. I find it difficult to concentrate. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am nervous in new situations. I can easily lose confidence. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am kind to younger children. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I am often accused of lying or cheating. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Other children or young people pick on or bully me. [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

I often offer to help others (parents, teachers, children). [READ IF NECESSARY]*
☐ Not true
☐ Sometimes true
☐ True
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I think before I do things. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I take things that are not mine from home, school or elsewhere. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I get along better with adults than with people my own age. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I have many fears. I am easily scared. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 4 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - This will enable more questions below.")

I finish the work I'm doing. My attention is good. [READ IF NECESSARY]*

- ☐ Not true
- ☐ Sometimes true
- ☐ True
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Menstruation and Reproductive Health

Logic: Show/hide trigger exists.

Page 5 - [RA: Please select an interview disposition.]*

- ☐ Girl consented to interview. - This will enable more questions below.
- ☐ Consent was not obtained.

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Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

[READ] Now, I am going to ask you some questions about women's health and how you understand it. Please remember that we will not tell anyone else your answers.

Logic: Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Can you describe to me what MP is?*
[ENSURE GIRL GIVES AT LEAST TWO ITEMS ABOUT MP, BLOOD, PREGNANCY, PUBERTY ITEMS SUCH AS BREASTS]
☐ Yes, respondent understands
☐ No, respondent does not understand
☐ No answer

Logic: Show/hide trigger exists. Hidden unless: Question "Page 5 - [RA: Please select an interview disposition.]" is one of the following answers ("Girl consented to interview. - *This will enable more questions below.*")

Have you started your MP?*
☐ Yes - *This will enable more questions below.*
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

When did you first start your MP?*
[ENTER YEAR] [IF EXACT MONTH NOT KNOWN, PROBE FOR ESTIMATED MONTH.] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Show/hide trigger exists. Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - *This will enable more questions below.*")

Did you know about MP before it happened to you?*
☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you know about MP before it happened to you?" #42 is one of the following answers ("Yes (trigger)")

Who first told you about it?*
[IF GIRL SAYS SCHOOL. ASK QUESTIONS TO DELINEATE PLAN/STRAIGHT TALK VS. ANOTHER SCHOOL PROGRAM].
☐ Mother
☐ Girl own age
☐ Aunt/Grandmother
☐ School/School program
☐ PLAN/straight talk education program
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Have you started your MP?" #40 is one of the following answers ("Yes - This will enable more questions below.")

Did you experience ANY of the following during your last MP? [READ]

[CHECK ALL THAT APPLY]*

- ☐ Skin irritation / rashes in the pelvic area
- ☐ Fear of panty soiling
- ☐ Odour
- ☐ Outside garment soiling
- ☐ Embarrassment
- ☐ Irritability/moodiness/depression/sadness
- ☐ Insecurity
- ☐ Fear that sanitary protection would fall out of underwear
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Sanitary Protection Method

Logic: Show/hide trigger exists.

Page 6 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Show/hide trigger exists. Hidden unless: Question "Page 6 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP?

[This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]*

- ☐ AFRIPAD
- ☐ Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]
- ☐ Toilet roll
- ☐ Sanitary pad
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Who USUALLY provides you with the CLOTH that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]*

- ☐ Obtain it myself (trigger)
- ☐ Mother (trigger)
- ☐ Other family member (trigger)
- ☐ Non-related household member (trigger)
- ☐ Friend (trigger)
- ☐ Boyfriend (trigger)

- ☐ Teacher (trigger)
- ☐ Other (specify) (trigger): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Mother (trigger)","Other family member (trigger)","Non-related household member (trigger)","Friend (trigger)","Boyfriend (trigger)","Teacher (trigger)","Other (specify) (trigger)"

- Where does this person USUALLY get the CLOTH?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the CLOTH that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE CLOTH?]" #46 is one of the following answers ("Obtain it myself (trigger)"

- Where do you USUALLY get the CLOTH you use when you're on your MP?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ I reuse material.
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

[CLOTH] How many pieces do you have?*
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]"

[CLOTH] How many do you use a day?*
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

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6 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
7 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
8 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
9 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
10 **CLOTH NOT AFRIPAD]")**

11 **[CLOTH] Do you share cloth with anyone else in your household?***

- 12 ☐ Yes
13 ☐ No
14 ☐ DON'T KNOW/NO ANSWER
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18 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
19 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
20 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
21 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
22 **CLOTH NOT AFRIPAD]")**

23 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
24 **soiling when you have to:**

25 **Walk a long distance***

- 26 ☐ Yes
27 ☐ No
28 ☐ NOT APPLICABLE
29 ☐ DON'T KNOW/NO ANSWER
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33 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
34 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
35 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
36 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
37 **CLOTH NOT AFRIPAD]")**

38 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
39 **soiling when you have to:**

40 **Be gone from home for a long time***

- 41 ☐ Yes
42 ☐ No
43 ☐ NOT APPLICABLE
44 ☐ DON'T KNOW/NO ANSWER
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48 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
49 **USUALLY use to catch/absorb your MP? [This question will enable more questions below.]**
50 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
51 **USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF**
52 **CLOTH NOT AFRIPAD]")**

53 **[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from**
54 **soiling when you have to:**

55 **Move quickly or strenuously***

- 56 ☐ Yes
57 ☐ No
58 ☐ NOT APPLICABLE
59 ☐ DON'T KNOW/NO ANSWER
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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]* **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")**

[CLOTH] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]* **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")**

How much of a problem is leaking while using CLOTH? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]* **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")**

Does ANYONE else in your household use cloth?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]")

Did you ever try to wash the CLOTH?*

- ☐ Yes (trigger)
- ☐ No (trigger)
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("No (trigger)")

Why didn't you try to wash the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Had trouble getting water
- ☐ Could not afford soap

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- ☐ Could afford soap but just didn't have any
- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use soap...[READ]***
- ☐ Every time,
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #64 is one of the following answers ("Sometimes, or", "Never?")

- Why didn't you use soap?**
[CHECK ALL THAT APPLY]*
- ☐ Often don't have soap
 - ☐ Don't need soap to get it clean
 - ☐ Don't care to use soap
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you use hot water or cold water?***
- ☐ Hot water
 - ☐ Cold water
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Was the water clean or dirty?***
- ☐ Clean
 - ☐ Dirty
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you feel disgusted by washing the CLOTH?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

- Did you worry about being observed washing the CLOTH?***

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

Did you try to dry the CLOTH?*

- ☐ Yes (trigger)
☐ No (trigger)
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("No (trigger)")

Why didn't you try to dry the CLOTH?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
☐ Decided not to use it again
☐ Did not have enough privacy
☐ It was disgusting
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Did you worry about drying the CLOTH?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

Where did you hang the CLOTH to dry?

[CHECK ALL THAT APPLY]*

- ☐ Dried pad under bed
☐ Dried pad outdoors
☐ Dried pad in dorm where other girls could see, such as on a peg
☐ Dried pad in another secret place
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the CLOTH?" #70 is one of the following answers ("Yes (trigger)")

How many hours did it take to dry the CLOTH completely?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Did you ever try to wash the CLOTH?" #62 is one of the following answers ("Yes (trigger)")

How often did you wear the CLOTH damp? Would you say...[READ]*

- ☐ Usually

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- ☐ Sometimes, or
- ☐ Never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]*
☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the TOILET ROLL?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the TOILET ROLL that you use during your MP?
[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE TOILET ROLL?]" #76 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the TOILET ROLL you use when you're on your MP?*
☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Walk a long distance

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be gone from home for a long time

*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Move quickly or strenuously*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

[TOILET ROLL] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the market*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

How much of a problem is leaking while using TOILET ROLL? Is it...[READ]*

- ☐ Not a problem at all,
☐ A little bit of a problem, or
☐ A big problem?
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Toilet roll")

Does anyone else in your household use toilet roll?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

Who USUALLY provides you with the SANITARY PADS that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]*

- ☐ Obtain it myself (trigger)
☐ Mother (trigger)
☐ Other family member (trigger)
☐ Non-related household member (trigger)
☐ Friend (trigger)
☐ Boyfriend (trigger)
☐ Teacher (trigger)
☐ Other (specify) (trigger): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Mother (trigger)", "Other family member (trigger)", "Non-related household member (trigger)", "Friend (trigger)", "Boyfriend (trigger)", "Teacher (trigger)", "Other (specify) (trigger)")

Where does this person USUALLY get the SANITARY PADS?*

- ☐ Shop
☐ Market
☐ School
☐ Rubbish
☐ From other females
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Who USUALLY provides you with the SANITARY PADS that you use during your MP?

[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU THE SANITARY PAD?]" #89 is one of the following answers ("Obtain it myself (trigger)")

Where do you USUALLY get the SANITARY PADS?*

- ☐ Shop
- ☐ Market
- ☐ School
- ☐ Rubbish
- ☐ From other females
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- [SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:**
Sit for a long time*
- ☐ Yes

- ☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

[SANITARY PAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- How much of a problem is leaking while using SANITARY PAD? Is it...[READ]***
- ☐ Not a problem at all,
 - ☐ A little bit of a problem, or
 - ☐ A big problem?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Sanitary pad")

- Does anyone else in your household use sanitary pads?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

- [OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]***
- ☐ Obtain it myself (trigger)
 - ☐ Mother (trigger)
 - ☐ Other family member (trigger)
 - ☐ Non-related household member (trigger)
 - ☐ Friend (trigger)
 - ☐ Boyfriend (trigger)
 - ☐ Teacher (trigger)
 - ☐ Other (specify) (trigger): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material that you use during your MP? [IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU WITH THE MATERIAL?]" #102 is one of the following answers ("Mother (trigger)","Other family member (trigger)","Non-related household member (trigger)","Friend (trigger)","Boyfriend (trigger)","Teacher (trigger)","Other (specify) (trigger)")

- [OTHER] Where does this person USUALLY get the material?***
- ☐ Old cloth
 - ☐ Shop
 - ☐ Market
 - ☐ School
 - ☐ Rubbish
 - ☐ From other females
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

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5 **Logic: Hidden unless: Question "[OTHER] Who USUALLY provides you with the material**
6 **that you use during your MP?**

7 **[IF GIRL STATES MORE THAN ONE ASK, WHO MOST FREQUENTLY PROVIDES YOU**
8 **WITH THE MATERIAL?]" #102 is one of the following answers ("Obtain it myself (trigger)")**

9
10 **[OTHER] Where do you USUALLY get the material you use when you're on your MP?***

11 ☐ Old cloth

12 ☐ Shop

13 ☐ Market

14 ☐ School

15 ☐ Rubbish

16 ☐ From other females

17 ☐ *I reuse material.*

18 ☐ Other (specify): _____ *

19 ☐ DON'T KNOW/NO ANSWER
20
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22 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
23 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

24 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
25 **USE?]" #45 is one of the following answers ("Other (specify)")**
26

27 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
28 **soiling when you have to:**

29 **Walk a long distance***

30 ☐ Yes

31 ☐ No

32 ☐ NOT APPLICABLE

33 ☐ DON'T KNOW/NO ANSWER
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36 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
37 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

38 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
39 **USE?]" #45 is one of the following answers ("Other (specify)")**
40

41 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
42 **soiling when you have to:**

43 **Be gone from home for a long time***

44 ☐ Yes

45 ☐ No

46 ☐ NOT APPLICABLE

47 ☐ DON'T KNOW/NO ANSWER
48
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50 **Logic: Hidden unless: Question "Since the beginning of this school year, what do you**
51 **USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]**

52 **[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY**
53 **USE?]" #45 is one of the following answers ("Other (specify)")**
54

55 **[OTHER] When you're on your MP, do you think you can rely on this method to keep you from**
56 **soiling when you have to:**

57 **Move quickly or strenuously***

58 ☐ Yes

59 ☐ No

60 ☐ NOT APPLICABLE

☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Sit for a long time*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Be around males*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to the farm away from home*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:
Go to school*
☐ Yes
☐ No
☐ NOT APPLICABLE
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] How much of a problem is leaking while using this material? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Other (specify)")

[OTHER] Does anyone else in your household use this material?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Logic: Show/hide trigger exists. Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*]

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("Cloth [VERIFY GIRL MEANS PIECES OF CLOTH NOT AFRIPAD]", "Toilet roll", "Sanitary pad", "Other (specify)", "DON'T KNOW/NO ANSWER")

Were you given a pack of AFRIPADs since we came last year?*

- ☐ Yes (trigger)
- ☐ No
- ☐ No answer

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Logic: Show/hide trigger exists. Hidden unless: Question "Were you given a pack of AFRIPADS since we came last year?" #115 is one of the following answers ("Yes (trigger)")

- Did you...[READ]***
- ☐ Never use them?
 - ☐ Use them only once?
 - ☐ Use them more than once and are still using them? Or
 - ☐ Use them more than once but stop using them?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Which of the following are reasons you decided not to try the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not look like they would work well?
 - ☐ You were afraid the AFRIPAD would smell?
 - ☐ You were afraid the AFRIPAD would show through clothing?
 - ☐ You were afraid the AFRIPAD would leak?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Never use them?")

- Are there any other reasons you decided not to use the AFRIPAD?***
- ☐ Yes (specify): _____ *
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

- Which of the following are reasons you decided to stop using the AFRIPAD? Because...[READ]**
[CHECK ALL THAT APPLY]*
- ☐ You had enough money for regular pads?
 - ☐ You trusted regular pads more?
 - ☐ Other girls told you the AFRIPADS were no good?
 - ☐ The AFRIPADS did not work well?
 - ☐ The AFRIPADS smelled?
 - ☐ The AFRIPADS showed through clothing?
 - ☐ The AFRIPADS leaked?
 - ☐ You did not know how to dispose of the AFRIPAD?
 - ☐ You did not have any way to clean the AFRIPAD?
 - ☐ You did not have any way to dry the AFRIPAD?
 - ☐ You were too disgusted to wash your own blood?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once but stop using them?")

Are there any other reasons you decided to stop using the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you given a pack of AFRIPADs since we came last year?" #115 is one of the following answers ("Yes (trigger)")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Did you sell any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") OR Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER"))

Did you share any part of your AFRIPAD pack?*

- ☐ Yes (trigger)
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("Yes (trigger)")

Who did you share with?

[CHECK ALL THAT APPLY]*

- ☐ Family
- ☐ Friends
- ☐ Other girls at school
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

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- ☐ Yes, the whole thing?
- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #121 is one of the following answers ("Yes, part of the pack? Or") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you sell any part of your AFRIPAD pack? Would you say...[READ]" #122 is one of the following answers ("Yes, part of the pack? Or", "No, none of it?", "[DO NOT READ] DON'T KNOW/NO ANSWER") AND Question "Did you share any part of your AFRIPAD pack?" #123 is one of the following answers ("No", "DON'T KNOW/NO ANSWER"))

Did you give away any part of your AFRIPAD pack? Would you say...[READ]*

- ☐ Yes, part of the pack? Or
- ☐ No, none of it?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: ((Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #125 is one of the following answers ("Yes, the whole thing?", "Yes, part of the pack? Or") OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #126 is one of the following answers ("Yes, part of the pack? Or")) OR Question "Did you give away any part of your AFRIPAD pack? Would you say...[READ]" #127 is one of the following answers ("Yes, part of the pack? Or"))

Who did you give it to?

[CHECK ALL THAT APPLY]*

- ☐ Family
- ☐ Friends
- ☐ Other girls at school
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you **USUALLY** use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

How much did you like or dislike the AFRIPAD? Did you...[READ]*

- ☐ Like it very much
- ☐ Like it a little
- ☐ Dislike it a little, or
- ☐ Dislike it very much?
- ☐ [IF VOLUNTEERED] Neither
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

During the day, how many hours did you usually wear the AFRIPAD before you had to change it?*

[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Did you ever wear it for longer than 8 hours? Would you say...[READ]*

- ☐ Yes, usually
- ☐ Yes, but only on light days or at night, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]*

- ☐ Yes, always
- ☐ Yes, on some days, but not others, depending on the flow, or
- ☐ No, never?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Were you able to go to school for a full day with only one AFRIPAD? Would you say...[READ]" #132 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

How much of a problem is it to change your AFRIPAD at school? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

How much of a problem is leaking while using an AFRIPAD? Is it...[READ]*

- ☐ Not a problem at all,
- ☐ A little bit of a problem, or
- ☐ A big problem?
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Walk a long distance*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Be gone from home for a long time*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

- Move quickly or strenuously*
- ☐ Yes
 - ☐ No
 - ☐ NOT APPLICABLE
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this

school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Sit for a long time*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Be around males*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the farm away from home*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? *[This question will enable more questions below.]*

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to school*

- ☐ Yes
- ☐ No
- ☐ NOT APPLICABLE

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() DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

[AFRIPAD] When you're on your MP, do you think you can rely on this method to keep you from soiling when you have to:

Go to the market*

- () Yes
() No
() NOT APPLICABLE
() DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [*This question will enable more questions below.*])
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

Did you ever wash the AFRIPAD?*

- () Yes (trigger)
() No (trigger)
() DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("No (trigger)")

Why didn't you try to wash the AFRIPAD?

[CHECK ALL THAT APPLY]*

- [] Had trouble getting water
[] Could not afford soap
[] Could afford soap but just didn't have any
[] Did not have enough time
[] Decided not to use it again
[] Did not have enough privacy
[] It was disgusting
[] Other (specify): _____*
[] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use soap...[READ]*

- () Every time,
() Sometimes, or
() Never?
() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you use soap...[READ]" #145 is one of the following answers ("Sometimes, or", "Never?")

Why didn't you use soap?

[CHECK ALL THAT APPLY]*

☐ Often don't have soap

☐ Don't need soap to get it clean

☐ Don't care to use soap

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you use hot water or cold water?*

☐ Hot water

☐ Cold water

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Was the water clean or dirty?*

☐ Clean

☐ Dirty

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you feel disgusted by washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you worry about being observed washing the pad?*

☐ Yes

☐ No

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

Did you try to dry the pad?*

☐ Yes (trigger)

☐ No (trigger)

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("No (trigger)")

Why didn't you try to dry the pad?

[CHECK ALL THAT APPLY]*

- ☐ Did not have enough time
- ☐ Decided not to use it again
- ☐ Did not have enough privacy
- ☐ It was disgusting
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Where did you hang the pad to dry?**
[CHECK ALL THAT APPLY]*
- ☐ Dried pad under bed
 - ☐ Dried pad outdoors
 - ☐ Dried pad in dorm where other girls could see, such as on a peg
 - ☐ Dried pad in another secret place
 - ☐ Other (specify): _____ *
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- How many hours did it take to dry the pad completely?***
[ENTER NUMBER] [IF GIRL DOES NOT KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]
- _____

Logic: Hidden unless: Question "Did you try to dry the pad?" #151 is one of the following answers ("Yes (trigger)")

- Did you worry about drying the pad?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Did you ever wash the AFRIPAD?" #143 is one of the following answers ("Yes (trigger)")

- How often did you wear the pad damp? Would you say...[READ]***
- ☐ Usually
 - ☐ Sometimes, or
 - ☐ Never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]
[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

- If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?***
- ☐ Yes, would choose AFRIPADS
 - ☐ No, would choose other methods
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "If cost was not an issue, would you choose AFRIPADS over other methods of sanitary care?" #157 is one of the following answers ("No, would choose other methods")

What would you choose instead of AFRIPADS?*

- ☐ Sanitary pads
- ☐ Cloth from home
- ☐ Another manufactured cloth pad
- ☐ Toilet roll
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

AFRIPADS cost 15 thousand shillings and last for about a year. Would you be able to afford them if you wanted to buy them?*

- ☐ Yes
- ☐ No
- ☐ Maybe
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Did you...[READ]" #116 is one of the following answers ("Use them more than once and are still using them? Or", "Use them more than once but stop using them?") OR Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD"))

If you had 15 thousand shillings, how likely would you be to buy the AFRIPADS?...[READ]*

- ☐ Not at all likely
- ☐ Slightly likely
- ☐ Moderately likely
- ☐ Very likely
- ☐ Extremely likely
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: (Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.] [IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD") OR Question "Did you...[READ]" #116 is one of the following answers ("Use them only once?", "Use them more than once and are still using them? Or", "Use them more than once but stop using them?"))

Do you have any suggestions for improving the AFRIPAD?*

- ☐ Yes (specify): _____ *
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the beginning of this school year, what do you USUALLY use to catch/absorb your MP? [This question will enable more questions below.]

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[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY USE?]" #45 is one of the following answers ("AFRIPAD")

Since we came last year, did you use any other sanitary products for your MP other than the AFRIPADS? If so, what?
[CHECK ALL THAT APPLY]*
☐ Bought sanitary pads from shops
☐ Cloth
☐ Other (specify): _____*
☐ I used nothing else.
☐ DON'T KNOW/NO ANSWER

Menstrual Practices

Logic: Show/hide trigger exists.

Page 7 - [RA: INTERVIEW DISPOSITION]*
☐ Consent obtained and MP
☐ Consent obtained but NO MP
☐ No consent

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Now, I'm going to ask you some more questions about your MP.

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]*
☐ 1 time a day
☐ 2 times a day
☐ 3 times a day
☐ 4 times a day
☐ Over 5 times a day
☐ Never change protection
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "How frequently do you change your sanitary protection (either pad/cloth/toilet roll/other?)
[RA: DAY = 24 hrs]" #163 is one of the following answers ("1 time a day", "2 times a day", "3 times a day", "4 times a day", "Over 5 times a day", "DON'T KNOW/NO ANSWER")

When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]*
☐ Immediately go home to change?
☐ Wait until you are back home to change? Or
☐ Change while away from home?
☐ [DO NOT READ]DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Immediately go home to change?", "Wait until you are back home to change? Or")

Why do you change at home?**[CHECK ALL THAT APPLY]***

- ☐ Do not carry extra sanitary protection with me
- ☐ Do not have enough privacy
- ☐ Do not know where to dispose of sanitary protection away from home
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "When you are not at home or school and need to change your sanitary protection, what do you usually do? Do you...[READ]" #164 is one of the following answers ("Change while away from home?")

What do you USUALLY do with your used sanitary protection when you have to change away from home or school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AWAY FROM HOME OR SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

How many minutes does it usually take for you to change your sanitary protection?*
[ENTER NUMBER OF MINUTES] [IF GIRL DOESN'T KNOW, INPUT DK] [IF NO ANSWER, INPUT 999]

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you bathe more often when you are on your MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to soap at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you have regular access to water at home?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

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Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you have regular access to soap at school?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you have regular access to water at school?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you have underwear?***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you have underwear?" #173 is one of the following answers ("Yes (trigger)")

- Do you usually wear underwear with your sanitary protection?***
- ☐ Yes
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]***
- ☐ Yes, always
 - ☐ Yes, on some days, but not others, depending on the flow, or
 - ☐ No, never?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

- How much of a problem is it to change your sanitary protection at school? Is it...[READ]***
- ☐ Not a problem at all
 - ☐ A little bit of a problem, or
 - ☐ A big problem?
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you do when you need to change your sanitary protection at school?*

- ☐ Ask permission from teacher
- ☐ Leave without permission
- ☐ Sit and wait until others are gone
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are you able to go to school for a full day without changing your sanitary protection? Would you say...[READ]" #175 is one of the following answers ("Yes, on some days, but not others, depending on the flow, or", "No, never?")

What do you USUALLY do with your used sanitary protection when you have to change at school?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT SCHOOL?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Carry back home and wash and reuse
- ☐ Carry back home and dispose there
- ☐ Dispose at community rubbish heap
- ☐ Bury
- ☐ Go home to change
- ☐ Don't go to school if need to change
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 7 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

What do you USUALLY do with your used sanitary protection when you change at home?

[IF GIRL STATES MORE THAN ONE ASK, WHAT DO YOU MOST FREQUENTLY DO WITH YOUR USED SANITARY PROTECTION AT HOME?]*

- ☐ Throw in latrine
- ☐ Throw in bush
- ☐ Put in trash at home
- ☐ Dispose at community rubbish heap
- ☐ Wash at home and reuse
- ☐ Bury
- ☐ Burn
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Health, School, and Activities

Logic: Show/hide trigger exists.

Page 8 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

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Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Have you ever used a sanitary pad?***
- ☐ Yes
 - ☐ No
 - ☐ Not Applicable
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month.***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever experienced any itching or burning in the pelvic area? This could be when you are on your MP or at other times during the month." #181 is one of the following answers ("Yes (trigger)")

- Did you experience the itching or burning while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Since the start of the school year, have you ever had any white or green discharge from your vagina?***
- ☐ Yes (trigger)
 - ☐ No
 - ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Since the start of the school year, have you ever had any white or green discharge from your vagina?" #183 is one of the following answers ("Yes (trigger)")

- Did you experience the discharge while on your MP? At other times? Or both?***
- ☐ While on MP
 - ☐ At other times
 - ☐ Both
 - ☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How often do you worry about odor during your MP? Would you say...[READ]***
- ☐ Never,
 - ☐ Rarely,
 - ☐ Sometimes,
 - ☐ Often, or
 - ☐ All the time?

() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How often do you worry about odor during your MP? Would you say...[READ]" #185 is one of the following answers ("Rarely," "Sometimes," "Often, or", "All the time?")

In what situations do you worry about odor?

[CHECK ALL THAT APPLY]*

☐ At school

☐ Around males

☐ In other social environments (on the bus, at church, at the market, etc.)

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Does your MP ever cause you to...[READ]

[CHECK ALL THAT APPLY]*

☐ Miss school

☐ Not do your homework

☐ Miss work in the field/gardens

☐ Be unable to play with other children

☐ Avoid physical sports/exercise

☐ Stay indoors

☐ Avoid being around males

☐ Avoid chores

☐ Avoid sex

☐ Anything else? (specify): _____ *

☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

How many days of school do you miss during your MP?*

[ENTER NUMBER] [IF GIRL DOESN'T KNOW, ENTER DK] [IF NO ANSWER, ENTER 999]

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Why did you miss school?

[CHECK ALL THAT APPLY]*

☐ Cramps/bad physical feelings

☐ Fear of leaking

☐ Don't have (lost)/can't afford pads

☐ Other (specify): _____ *

☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Does your MP ever cause you to...[READ] [CHECK ALL THAT APPLY]" #187 is one of the following answers ("Miss school")

Which of the following causes you to miss school the most?...[READ]*

() Physical pain,

() Fear of soiling, or

() Not having any sanitary protection?

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() [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- What reasons besides your MP cause you to miss school? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Being ill for other reasons
 - ☐ Household duties
 - ☐ Helping on the farm
 - ☐ Tending to others who are sick
 - ☐ Bad weather
 - ☐ Earning money for the household
 - ☐ Too far
 - ☐ No uniform
 - ☐ No supplies
 - ☐ Caring for smaller children
 - ☐ Lack of school dues
 - ☐ Problems with children at school teasing/bullying
 - ☐ Problems with teachers at school
 - ☐ Any other reasons? (specify): _____ *
 - ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- How many minutes does it take you to get to school?***
- () [ENTER MINUTES]: _____ *
 - () Boards at school
 - () DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "How many minutes does it take you to get to school?" #192 is one of the following answers ("[ENTER MINUTES]", "DON'T KNOW/NO ANSWER")

- How do you usually get to school?***
- () Walk
 - () Ride the bus
 - () Other (specify): _____ *
 - () DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

- Do you find it difficult to concentrate at school when you have your MP?***
- () Yes (trigger)
 - () No
 - () DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Do you find it difficult to concentrate at school when you have your MP?" #194 is one of the following answers ("Yes (trigger)")

- Why? [READ IF NECESSARY]**
[CHECK ALL THAT APPLY]*
- ☐ Actual soiling
 - ☐ Fear of soiling
 - ☐ Scent

- ☐ Discomfort
☐ Actual teasing
☐ Fear of teasing
☐ Cramps
☐ Any other reasons? (specify): _____*
☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you avoid standing in class to answer questions during your MP?*

- ☐ Yes
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities that are forbidden to you while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities that are forbidden to you while you are on your MP?" #197 is one of the following answers ("Yes (trigger)")

What activities are forbidden to you while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Fetching water
☐ Serving food and beverages to men
☐ Cooking
☐ Being in a sacred space
☐ Other (specify): _____*
☐ DON'T KNOW/NO ANSWER

Logic: Show/hide trigger exists. Hidden unless: Question "Page 8 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Are there activities or settings you avoid while you are on your MP?*

- ☐ Yes (trigger)
☐ No
☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Are there activities or settings you avoid while you are on your MP?" #199 is one of the following answers ("Yes (trigger)")

What activities or settings do you avoid while you are on your MP?

[CHECK ALL THAT APPLY]*

- ☐ Serving food and beverages to guests
☐ Being around males
☐ Fetching water
☐ Cooking
☐ Being in a sacred space
☐ Physical sports/exercise
☐ Playing with other children

- ☐ Working in the field/garden
- ☐ Going to school
- ☐ Doing homework
- ☐ Other (specify): _____ *
- ☐ DON'T KNOW/NO ANSWER

Menstrual Knowledge and Beliefs

Logic: Show/hidden trigger exists.

Page 9 - [RA: INTERVIEW DISPOSITION]*

- ☐ Consent obtained and MP
- ☐ Consent obtained but NO MP
- ☐ No consent

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel ashamed? Or do you feel about the same as when you are not on your MP?*

- ☐ Feel ashamed
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do you worry that other people can smell your MP? Or are you not worried about this?*

- ☐ Worry that others can smell MP
- ☐ Not worried about this
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Do the boys you know tease girls about their MP?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

During your MP, do you feel insecure? Or do you feel about the same?*

- ☐ Feel insecure
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you ever worry about getting pregnant?*

- ☐ Yes
- ☐ No
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect any of the following changes from you?

[READ]

[CHECK ALL THAT APPLY]*

- ☐ Finding a job
- ☐ Leaving school
- ☐ Getting married soon
- ☐ [DO NOT READ] DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family expect you to do more housework? Less housework? Or about the same amount of housework?*

- ☐ More housework
- ☐ Less housework
- ☐ About the same amount of housework
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, does your family give you more money? Less money? Or about the same amount of money?*

- ☐ More money
- ☐ Less money
- ☐ About the same amount of money
- ☐ My parents never gave me any money
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do you feel more LIKE A WOMAN? Or do you feel about the same?*

- ☐ Feel more like a woman
- ☐ Feel about the same
- ☐ DON'T KNOW/NO ANSWER

Logic: Hidden unless: Question "Page 9 - [RA: INTERVIEW DISPOSITION]" is one of the following answers ("Consent obtained and MP")

Since you started your MP, do others treat you more LIKE A WOMAN? Or do they treat you the same?*

- ☐ Treat you more like a woman
- ☐ Treat you about the same
- ☐ DON'T KNOW/NO ANSWER

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Admin

[RA: ENTER YOUR NAME]*

[ENTER INTERVIEW DATE (DD/MM/YYYY)]*

[RA DO YOU HAVE ANY COMMENTS YOU WOULD LIKE TO ADD FOR THIS GIRL'S RESPONSES OR OTHER CONDITIONS RELATED TO THIS GIRL]

Thank You!

Thank you for taking our survey. Your response is very important to us.

STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	Title page
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	3	State specific objectives, including any prespecified hypotheses	7
Methods			
Study design	4	Present key elements of study design early in the paper	6-7, abstract
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6-8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6-7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7-11
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-11
Bias	9	Describe any efforts to address potential sources of bias	9-11
Study size	10	Explain how the study size was arrived at	6-7, 12
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	9-11
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	10-11
		(b) Describe any methods used to examine subgroups and interactions	NA
		(c) Explain how missing data were addressed	11
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	7,12
		(b) Give reasons for non-participation at each stage	12
		(c) Consider use of a flow diagram	Reference to primary paper provided
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	12
		(b) Indicate number of participants with missing data for each variable of interest	12-20
Outcome data	15*	Report numbers of outcome events or summary measures	12-20
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12-20
		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	21-22
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	22-23
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	23-25
Generalisability	21	Discuss the generalisability (external validity) of the study results	23-25
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	26

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.