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Elizabeth Ruth MacRae

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*'It's like a burden on the head':* Redefining Adequate Menstrual Hygiene Management  
Throughout Women's Life Course in Odisha, India

By

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Master of Public Health

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*'It's like a burden on the head'*: Redefining Adequate Menstrual Hygiene Management  
Throughout Women's Life Course in Odisha, India

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Rollins School of Public Health of Emory University  
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2018

## Abstract

*'It's like a burden on the head'*: Redefining Adequate Menstrual Hygiene Management Throughout Women's Life Course in Odisha, India.

By Elizabeth Ruth MacRae

There has been growing recognition of menstrual hygiene management (MHM) as a significant public health issue. However, research has predominately focused on the experiences of adolescent girls in school settings. This focus neglects the experiences of women and girls beyond the educational setting and in varying life stages. The purpose of this research is to examine detailed accounts of menstruation for women in rural Odisha, India, critique the current definition of adequate MHM as put forth by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), and propose an amended definition of MHM that captures the range of needs and concerns reported by women in rural Odisha, India. Focus group discussions and in-depth interviews were conducted on women's experiences of menstruation across four life stages (unmarried women, recently married women, married women, and older women) in rural Odisha, India and thematic analysis was used to identify menstruation-related challenges and needs. We found women voiced needs that aligned with those articulated in the JMP definition: access to clean materials, privacy for changing materials, soap and water for bathing, and disposal facilities for materials. However, we also found the menstruation-related needs in the JMP definition need modification: beyond access to clean materials, women require comfortable and reliable materials; the need for soap and water extends beyond bathing; privacy is needed for the spectrum of menstruation-related practices; and access to disposal facilities needs to be prioritized. Additionally, we identified needs that extend beyond the existing definition: pain management, social support, and information. Given the limited scope of the current MHM framework, we proposed a revised definition of adequate MHM that more comprehensively captures the needs of women in this population. This definition may prove useful for future research, creating measures of assessment, or guiding interventions and program priorities.

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## **Chapter I: Introduction**

There has been a growing recognition of the challenges associated with menstruation in lower middle-income countries (LMICs), leading to increased research and programmatic focus on menstrual hygiene management (MHM) as a key public health issue (Sommer, Hirsch, Nathanson, & Parker, 2015). Managing menstruation without adequate resources and social support can be challenging and fear-inducing for women and girls and can result in poor social and educational experiences. Women and girls manage menstruation amidst social taboos, restrictions, gendered environments, and inadequate access to water, sanitation, and hygiene (WASH) facilities.

### **Problem Statement**

MHM is a relevant public health issue and has gained attention in recent years, however the predominate focus of research has centered on the experiences of adolescent girls, primarily in school settings. While an important dimension of MHM, this exclusive focus neglects the experiences of women and girls outside of school settings and across life stages. There is limited exploration of the experiences of women throughout the life course and the unique challenges experienced at different life stages.

### **Purpose Statement**

The purpose of this research is to examine detailed accounts of menstruation for women in rural Odisha, India, critique the current definition of adequate MHM as put forth by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), and propose an amended definition of MHM that captures the range of needs and concerns reported by women in rural Odisha, India (JMP, 2012).



## **Research Question and Objectives**

This research seeks to understand women and girls' experiences of menstruation across four life stages in rural Odisha, India. This research relies on data collected from in-depth interviews, utilizing a free-listing interview tool, and focus group discussions with women across four life stages: (1) unmarried women (UMW) living with their parents, (2) women who had recently (past 3 years) married (RMW), (3) women married (MW) over 3 years, and (4) women older than 49 years (OW). Women gave detailed descriptions of menstruation-related practices and concerns, as either accounts of current experiences or reflections from memory since not all women were experiencing menstruation at the time of the study. This qualitative data has been analyzed to:

1. Understand the MHM practices employed by women in various life stages.
2. Understand the breadth of concerns and challenges related to menstruation and MHM across life stages.
3. Evaluate the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) definition for adequate MHM.
4. Propose a revised definition for adequate MHM for women in rural Odisha, India.

## **Significance Statement**

This research may contribute a deeper and broader understanding of women's menstrual hygiene experiences, practices, and concerns in rural Odisha, India, and how these may vary by life stage, marital status, and access to sanitation facilities or hygiene products. These findings can add to the evidence base for MHM research and interventions by providing a broader framework for the range of women's experiences of menstruation.

## Definitions of Terms

Throughout this paper, the following terms will be used in connection to women and girls' experiences and concerns relating to menstruation:

*Menarche* is the first occurrence of menstruation.

*Menstrual Hygiene Management (MHM)* is defined by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) as “Women and adolescent girls using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials” (JMP, 2012).

## **Chapter II: Literature Review**

### **Global Issue of Menstrual Hygiene Management**

The body of MHM literature has grown in recent years, though this has been predominantly among adolescent girls in school settings as gender equity in education and WASH has evolved as a funding and programmatic priority. Historically, MHM was seen as a personal issue to be addressed at an individual or family level, and as a result was not addressed specifically in WASH or family planning and maternal health education programs (Sommer, Hirsch, et al., 2015; Sommer, Sutherland, & Chandra-Mouli, 2015). However, there is a growing recognition that challenges related to MHM can result in poor educational and social outcomes for girls (Sommer, 2010b; Sommer, Caruso, et al., 2016; Sommer, Hirsch, et al., 2015). The formulation of MHM as a public health issue originated over the past ten years as a concern to address the gender gap in education and the improvement of school attendance and educational outcomes for girls (Sommer, Hirsch, et al., 2015). Common issues for girls, across contexts, include insufficient information at the time of menarche and inadequate school facilities to support MHM on site, which may contribute to school absenteeism and poor social experiences (Sommer, Hirsch, et al., 2015). Some NGOs (e.g., Save the Children, WaterAid) have begun to include MHM in projects, and companies (e.g., P&G) have funded research on the topic (Sommer, Hirsch, et al., 2015). These recognitions and actions represented a shift in MHM from a private and individual concern with families as the primary instructors and providers, to an issue with deep structural dimensions that need addressing in social, cultural, economic, political, and environmental ways (Sommer, Hirsch, et al., 2015). MHM permeates both public and private spaces and relies on a myriad of conditions to adequately meet the needs of women and girls (Loughnan, Bain, Rop, Sommer, & Slaymaker, 2016).

## **Impacts of Menstruation**

Poor MHM resources, support, and experiences may have immediate and long-term impacts on girls' educational attainment, social experiences, economic potential, and sexual and reproductive health outcomes (Phillips-Howard et al., 2016). These impacts, however, have been primarily associated with the experiences of girls and not sufficiently documented for women or girls outside of the school setting.

## ***Taboo and Restrictions***

The social stigma surrounding menstruation has adverse consequences for women and girls. Menstruation and blood have been seen as taboo and polluting, leading to the desire to hide menstruation status and manage it in secrecy, which may be challenging in LMICs with limited private spaces to bathe, change, and clean and dispose of materials (Mason et al., 2013; Sommer, Hirsch, et al., 2015). Fear and shame extend from disclosing menarche to managing menstruation at school, where signs of menstruation are possible (e.g., leaks) (McMahon et al., 2011; Sommer, Sutherland, et al., 2015).

Social and religious restrictions may abound during menstruation, often related to the “impure” or “polluted” state of women and girls (Alam et al., 2017; Caruso, Clasen, Hadley, et al., 2017; Hullah et al., 2015; Mahon & Fernandes, 2010; Sahoo et al., 2015; Thakur et al., 2014). Some women and girls are prohibited from household chores, preparing food, and entering certain parts of the house due to the perception of menstruation as unclean or polluting (Khanna, Goyal, & Bhawsar, 2005; McMahon et al., 2011). Restrictions extend to participation in religious practices and spaces, where girls cannot touch religious texts or visit shrines (Kumar & Srivastava, 2011; van Eijk et al., 2016).

Gendered decision-making power in households can impact women's experience of

MHM. Data from 2011-2013 in Odisha, India indicate that 80% of household sanitation decisions were made by men (Routray, Torondel, Clasen, & Schmidt, 2017). These power hierarchies, as well as women's financial dependency, leave women little autonomy for sanitation decision-making (Routray et al., 2017).

### ***Physical Impacts***

There is limited evidence to suggest that poor sanitation, hygiene, and the use of improper menstrual materials may increase the risk of reproductive tract infections (RTIs) and other urogenital infections (Baker et al., 2017; Das et al., 2015; Sumpter & Torondel, 2013). A recent case-control study among women in Odisha, India reported an association between the use of reusable pads and the symptoms or diagnosis of urogenital infection (Das et al., 2015). While a potential risk of infection from menstruation practices represents a serious health concern, more research is needed to substantiate this connection.

### ***Psychosocial Impacts***

Some authors hypothesize that menstruation is related to self-esteem, agency, and bodily autonomy and that menstruation-related challenges have the potential to negatively impact girls' self-perceptions and confidence (Sommer, Sutherland, et al., 2015). Two qualitative studies conducted in rural Kenya identified that feelings of fear and shame are commonly connected with menstruation (Mason et al., 2013; McMahon et al., 2011). Women in Odisha, India describe feelings of frustration, confusion, embarrassment, and injustice connected with menstruation (Caruso, Clasen, Hadley, et al., 2017). Additional evidence has linked inadequate sanitation to psychosocial stress among women in Odisha (Hulland et al., 2015). This stress was predominately related to sanitation restrictions and was most acutely realized for menstruation

(Hulland et al., 2015).

### ***Educational Impacts***

The relationship between menstruation, school attendance, and educational attainment has been widely explored in the literature. Structural barriers persist in school settings in LMICs, where there is often poor and inadequate water supply, disposal facilities, and safe and private spaces for changing and cleaning (Alam et al., 2017; Ellis et al., 2016; Mahon & Fernandes, 2010; Mason et al., 2013; McMahan et al., 2011; Sommer, Ackatia-Armah, Connolly, & Smiles, 2014; Sommer, Hirsch, et al., 2015; Sommer & Sahin, 2013; Sommer, Sutherland, et al., 2015; van Eijk et al., 2016). Data from 2013 indicates that in least-developed countries, water coverage in schools is 52% and sanitation coverage is 51%; in developing countries, water coverage is 70% and sanitation coverage is 67% (UNICEF, 2015a). Girls in Bangladesh, Bolivia, India, and Sierra Leone report skipping school during menstruation, interrupting attendance and participation (Alam et al., 2017; Caruso et al., 2013; J. Long et al., 2013; Mahon & Fernandes, 2010; Sommer & Sahin, 2013; van Eijk et al., 2016). According to a systematic review and meta-analysis of adolescent girls in India, a quarter of girls reported missing school during menstruation (van Eijk et al., 2016). Girls in Indonesia, India, the Philippines, Bolivia, Sierra Leone, Kenya, and Burkina Faso report disruptions in class engagement, fearing leaks, smells, or teasing from classmates (Caruso et al., 2013; Girod, Ellis, Andes, Freeman, & Caruso, 2017; Haver et al., 2013; J. Long et al., 2013; Mason et al., 2013; UNICEF, 2012, 2013, 2014, 2015b, 2016).

## **Requirements for Menstrual Hygiene Management**

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) defines adequate MHM as when women and adolescent girls are “using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials” (JMP, 2012). This definition addresses some physical and structural barriers to proper MHM, particularly sufficient WASH resources and sanitary materials. However, as detailed above, the literature identifies challenges for women and girls that extend beyond this definition.

### ***Menstrual Management Materials***

Women and girls in LMICs may not have access to materials for managing menstruation when needed. At menarche, girls in Bolivia and Sierra Leone were unaware of how to manage menstruation and what materials were available to them (Caruso et al., 2013; J. Long et al., 2013). At other times, girls in school may be unprepared at the onset of menstruation if they did not bring materials with them (Caruso et al., 2013). Commercial, mass-produced menstrual products may be too expensive for families to afford (Farage, Miller, & Davis, 2011; Sommer, Hirsch, et al., 2015). Some evidence indicates girls may engage in transactional sex to obtain menstrual products (Mason et al., 2013; Phillips-Howard et al., 2016; Phillips-Howard et al., 2015). Commercial products may be unavailable altogether and women and girls instead use local and reusable materials, such as cloth, cotton, tissues, toilet paper, or clothing scraps (Farage et al., 2011; Khanna et al., 2005; Kumar & Srivastava, 2011; McMahon et al., 2011; Sommer et al., 2014).

A concern with reusable materials is the extent to which they can be properly cleaned and dried before reuse (Caruso, Clasen, Hadley, et al., 2017). Due to social stigmas, menstrual materials are often left to dry in dark and private places (Joshi, Fawcett, & Mannan, 2011; Mahon & Fernandes, 2010; van Eijk et al., 2016). The timing of drying and seasonal changes may result in the reuse of materials that are not completely clean or dry, which some believe puts women and girls at risk for infection, however no study has demonstrated this relationship (Mahon & Fernandes, 2010). Even with the provision of, or access to, commercial products such as pads, women and girls in LMICs face additional structural barriers for MHM.

### ***Water, Cleaning, and Disposal Facilities***

Comprehensive support for MHM includes adequate information and access to water, sanitation, and disposal facilities that are safe, clean, and private (Sommer, Hirsch, et al., 2015). Inadequate water, soap, and sanitation facilities are key concerns for women and girls managing menses (Sommer et al., 2014; Sommer & Sahin, 2013). Women and girls need water and safe, private, and clean places to change products and practice appropriate hygiene (Haver et al., 2013; Loughnan et al., 2016; UNICEF, 2012, 2013, 2014, 2015b, 2016). Inaccessible or dirty water sources complicate cleaning and bathing while menstruating (Caruso, Clasen, Hadley, et al., 2017; Joshi et al., 2011). Some studies have identified disposal practices and report that menstrual hygiene materials have been placed directly in the latrine or toilet, burned, buried, or discarded in the environment (Loughnan et al., 2016; Mason et al., 2013; van Eijk et al., 2016).

### ***Information and Social Support***

There is an overall lack of sufficient guidance for puberty, menarche, and MHM (Farage et al., 2011; Mason et al., 2013; Phillips-Howard et al., 2016; Sommer, Hirsch, et al., 2015;



Sommer, Sutherland, et al., 2015). Girls report beginning menstruation without adequate information, preparation, or social support, and experiencing fear at the sight of blood (Girod et al., 2017; Khanna et al., 2005; McMahon et al., 2011; Phillips-Howard et al., 2016; Sommer, 2010b; Sommer et al., 2014; Sommer & Sahin, 2013; van Eijk et al., 2016). In India specifically, only half of girls were informed about menstruation prior to the onset of menses (van Eijk et al., 2016). Preparation for menstruation is important as it has been associated with improved perspective and ability to manage menstrual hygiene (Farage et al., 2011). Often families and teachers do not provide adequate guidance on menarche and menstruation, resulting in further shame and secrecy (Farage et al., 2011; Mason et al., 2013; McMahon et al., 2011; Sommer et al., 2014; Sommer, Caruso, et al., 2016; Sommer, Hirsch, et al., 2015).

### **Menstrual Hygiene Management Throughout the Life Course**

Understanding MHM for adolescent girls in school is important in order to address gendered educational disparities. However, the challenges of managing menstruation without adequate facilities, privacy, and information extend beyond adolescence (Sahoo et al., 2015). MHM experiences may vary among older girls, recently married women, and older women, so a broader focus on other segments of the population will help shed light on the unique practices and challenges experienced throughout the life course. For example, research in Odisha demonstrates variability in MHM experiences, as recently married women struggle with disposal of sanitary pads due to unfamiliarity with the environment and restricted mobility (Caruso, Clasen, Hadley, et al., 2017). The increased regulation in lives of recently married women contributes to sanitation-related stress (Sahoo et al., 2015).

Hulland et al. (2015) have reported the variation in sanitation-related psychosocial stress across life stages (e.g., married women, pregnant women) in Odisha. Variation in stress was due

to changes in living situations and family context, cultural traditions and taboos, and physical and social restrictions (Hulland et al., 2015). This may result in adapting menstrual hygiene practices and strategies as women transition to marriage and new households (Hulland et al., 2015). Additionally, sanitation-related financial decision-making can change as women enter new households and this may impact women's ability to procure products for menstruation (Joshi et al., 2011).

### **Strengths and Limitations of Literature**

There is a strong body of literature exploring the impacts of MHM among adolescent girls and in school settings. Much attention has been given to MHM for girls in school, as noted in several conference proceedings and papers advocating for this agenda specifically (Columbia University Mailman School of Public Health & UNICEF, 2014; Phillips-Howard et al., 2016; Sommer, Caruso, et al., 2016; Sommer, Sutherland, et al., 2015; UNICEF, 2012, 2013, 2014, 2015b, 2016). There has been no commensurate effort to prioritize the experiences of women, outside of a few key papers (Sommer, Chandraratna, Cavill, Mahon, & Phillips-Howard, 2016; Sommer et al., 2017). To date, research has focused on gendered school environments, girls' challenges, structural inadequacies, and school absenteeism. This focus of MHM in schools has provided a significant evidence base to include MHM in school-based WASH programs. However, as noted by several authors, an exclusive focus on MHM in school and among adolescents eclipses the effects of MHM throughout the life course (Phillips-Howard et al., 2016).

MHM research has a strong documentation of girls' personal experiences. Qualitative research, and the narratives that emerged from LMICs, have highlighted girls' struggles with MHM (Sommer, Hirsch, et al., 2015). However, MHM research has been limited in terms of

study design and methodology. Much research on MHM relies on data collected primarily through qualitative and participatory methodologies (Sommer, 2010a; Sommer, Hirsch, et al., 2015). Due to the sensitive and personal nature of MHM, qualitative and participatory methods are often the most appropriate, however more quantitative data could strengthen the evidence base for increased research and programmatic funding (Sommer & Sahin, 2013). Future studies could also evaluate cost-effectiveness and efficiency of MHM programs (Sommer & Sahin, 2013). J. L. Long et al. (2015) have even tested board games as a method to prompt rich data from girls in rural Bolivia. In order to develop MHM research, Phillips-Howard et al. (2016) recommends employing broader study designs and methods including intervention trials, observational studies, participatory methods, operational research, and natural experiments, along with standardized outcome measures. Although these methods are presented for use in school settings among adolescent girls, they could be utilized to conduct research among women as well.

There is a dearth of information on the disposal of menstrual materials and its effect on the environment. Literature has noted practices and concerns about private, clean, and physical places to dispose of materials, but there is a lack of exploration on materials disposed in the environment (e.g., outside, in bodies or water), in latrines, and sanitation systems, and how this accumulation can be detrimental to the environment and populations (Crofts & Fisher, 2012; Oduor et al., 2015; Sommer, Kjellén, & Pensulo, 2013).

The evidence is limited on the relationship between MHM practices and the risk of urogenital infections and more studies exploring this association could identify the physical effects of poor menstrual hygiene (Baker et al., 2017; Das et al., 2015; Sumpter & Torondel, 2013). Additionally, few studies explicitly focus on the experience and impact of menstrual pain

(Thakur et al., 2014).

Research on the experience of MHM throughout the life course is deficient. While there is evidence that WASH practices vary by different reproductive life stages, there has been limited exploration of this variation specific to MHM (Baker et al., 2017). Assessments of the psychosocial ramifications of MHM among older populations is sparse (Caruso, Clasen, Hadley, et al., 2017; Hulland et al., 2015; Sahoo et al., 2015). To date, the predominate focus of MHM literature has centered on adolescent girls, particularly in school settings. There is a need for a broader assessment of the experience of MHM and related challenges beyond adolescence. While there are limited studies that focus on the experiences of women, of those that prioritize women beyond adolescence as participants, many have come from India and are particularly informative to this research.

### **Study Relevance**

The experience of women and girls as they transition through life stages could contribute to the understanding and depth of MHM. There has been momentum to address MHM as a key public health issue (Columbia University Mailman School of Public Health & UNICEF, 2014; Sommer, Hirsch, et al., 2015), and this research aims to add to this growth by expanding the literature on MHM to be inclusive of women beyond adolescence and with recognition to challenges at different life course stages.

### **Chapter III: Manuscript**

**Title:** *'It's like a burden on the head'*: Redefining Adequate Menstrual Hygiene Management Throughout Women's Life Course in Odisha, India

**Journal for First Submission:** PLoS ONE

**Contribution of the Student:** Bethany Caruso designed the research project, created the tools, and carried out the data collection with a team in Odisha. Elizabeth MacRae analyzed the data, wrote the following manuscript, and created Table 2 and Figure 1. Caruso provided insights on both the data and topic area, made edits to manuscript drafts, and conceptualized Table 1.

## **Abstract**

There has been growing recognition of menstrual hygiene management (MHM) as a significant public health issue. However, research has predominately focused on the experiences of adolescent girls in school settings. This focus neglects the experiences of women and girls beyond the educational setting and in varying life stages. The purpose of this research is to examine detailed accounts of menstruation for women in rural Odisha, India, critique the current definition of adequate MHM as put forth by the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), and propose an amended definition of MHM that captures the range of needs and concerns reported by women in rural Odisha, India. Focus group discussions and in-depth interviews were conducted on women's experiences of menstruation across four life stages (unmarried women, recently married women, married women, and older women) in rural Odisha, India and thematic analysis was used to identify menstruation-related challenges and needs. We found women voiced needs that aligned with those articulated in the JMP definition: access to clean materials, privacy for changing materials, soap and water for bathing, and disposal facilities for materials. However, we also found the menstruation-related needs in the JMP definition need modification: beyond access to clean materials, women require comfortable and reliable materials; the need for soap and water extends beyond bathing; privacy is needed for the spectrum of menstruation-related practices; and access to disposal facilities needs to be prioritized. Additionally, we identified needs that extend beyond the existing definition: pain management, social support, and information. Given the limited scope of the current MHM framework, we proposed a revised definition of adequate MHM that more comprehensively captures the needs of women in this population. This definition may prove

useful for future research, creating measures of assessment, or guiding interventions and program priorities.

## Introduction

Experiencing menstruation without proper information and support is thought to have lasting consequences, including a decreased sense of agency, self-esteem, confidence, and bodily autonomy, as there is a connection between proper MHM and educational attainment, esteem, and health for women and girls (Alam et al., 2017; Caruso et al., 2013; J. L. Long et al., 2015; Mahon & Fernandes, 2010; Phillips-Howard et al., 2016; Sommer & Sahin, 2013; Sommer, Sutherland, et al., 2015; van Eijk et al., 2016). Given the immediate and lasting impacts of inadequate resources and support for MHM, addressing these needs of women and girls is a public health priority (Sommer, Hirsch, et al., 2015). Women and girls in lower middle-income countries (LMICs) face a multitude of structural and social barriers to menstrual hygiene management (MHM). Structural challenges include inadequate provision of clean water and soap, sanitation infrastructure, private places to clean and change, and disposal facilities (Caruso, Clasen, Hadley, et al., 2017; Columbia University Mailman School of Public Health & UNICEF, 2014; Haver et al., 2013; Joshi et al., 2011; Loughnan et al., 2016; Mason et al., 2013; Sommer et al., 2014; Sommer, Hirsch, et al., 2015; Sommer & Sahin, 2013; UNICEF, 2012, 2013, 2014, 2015b; van Eijk et al., 2016). Commercial menstrual products are often unavailable or too costly, so rural and poor women use local, household, or reusable materials such as cloth, tissue, and cotton (Farage et al., 2011; Khanna et al., 2005; Kumar & Srivastava, 2011; McMahan et al., 2011; Sommer et al., 2014; Sommer, Hirsch, et al., 2015). The absence of sanitary materials can result in the use of potentially dangerous materials or the improper cleaning, drying, and reuse of materials, placing women and girls at risk for discomfort or infection, although more research is needed to substantiate this connection (Baker et al., 2017; Das et al., 2015; Sumpter & Torondel, 2013). In addition to these structural barriers, women and girls face social challenges: girls are



often unprepared, uninformed, and lack adequate support for menarche, menstruation, and puberty, resulting in fear and uncertainty (Farage et al., 2011; Girod et al., 2017; Khanna et al., 2005; Mason et al., 2013; McMahon et al., 2011; Phillips-Howard et al., 2016; Sommer, 2010b; Sommer et al., 2014; Sommer, Caruso, et al., 2016; Sommer, Hirsch, et al., 2015; Sommer & Sahin, 2013; Sommer, Sutherland, et al., 2015; van Eijk et al., 2016). The taboo and stigma around menstruation can lead to secrecy, shame, decreased mobility, and social and religious restrictions (Mason et al., 2013; McMahon et al., 2011; Sommer, Hirsch, et al., 2015; Sommer, Sutherland, et al., 2015).

In recent years, the momentum to address the public health issue of MHM in schools has been articulated in key research, programmatic, and funding priorities (Columbia University Mailman School of Public Health & UNICEF, 2014; Sommer, Hirsch, et al., 2015). As a result, much of the literature on MHM centers on academic attainment and barriers for girls in school, in particular how the experience of menstruation can result in poor educational and social outcomes (Sommer, 2010b; Sommer, Caruso, et al., 2016; Sommer, Hirsch, et al., 2015). These include inadequate facilities in schools for water, sanitation, private changing, and disposal, and gendered and unsupportive school environments, which can lead to school absenteeism and interruptions in academic progress (Alam et al., 2017; Caruso et al., 2013; Ellis et al., 2016; Girod et al., 2017; Haver et al., 2013; J. L. Long et al., 2015; Mahon & Fernandes, 2010; Mason et al., 2013; McMahon et al., 2011; Sommer et al., 2014; Sommer, Hirsch, et al., 2015; Sommer & Sahin, 2013; Sommer, Sutherland, et al., 2015; UNICEF, 2012, 2013, 2014, 2015b; van Eijk et al., 2016).

The principal focus of MHM research has centered on adolescent girls in school settings and considerably less attention has been given to women's experience of MHM throughout the

life course. An inclusive focus of women's experience of menstruation beyond adolescence can shed light on unique challenges at later life stages and identify challenges girls may experience as they enter new roles at those stages. Previous studies in India and Odisha have explored women's MHM challenges, sanitation insecurity, experiences with sanitation-related psychosocial stress, and reproductive tract infections (Caruso, Clasen, Yount, et al., 2017; Caruso, Clasen, Hadley, et al., 2017; Das et al., 2015; Hulland et al., 2015; Sahoo et al., 2015). Sanitation concerns extend beyond adolescence, and women's experiences throughout life stages warrant focused attention (Caruso, Clasen, Yount, et al., 2017; Sahoo et al., 2015).

The WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP) defines adequate MHM as “Women and adolescent girls using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials” (JMP, 2012). This research aims to (1) contribute a deeper and broader understanding of women's menstrual hygiene experiences, practices, and concerns across the life course in rural Odisha, India, (2) demonstrate how MHM needs may extend beyond the JMP definition, and (3) propose a conceptual framework and revised definition for adequate MHM for this population. This exploration of women's needs and experiences of MHM, and how they inform understandings of adequate MHM, can expand the discourse surrounding MHM in LMICs and has the potential to inform future research and programming.

## **Methods**

### ***Study Design***

This data was collected in rural Odisha, India in March-April 2014 as a part of a broader qualitative study to understand women's overall concerns related to sanitation and associated behaviors, including urination, defecation, and menstruation at various life course stages (Caruso, Clasen, Yount, et al., 2017; Caruso, Clasen, Hadley, et al., 2017). This specific paper focuses attention on menstruation, highlighting the breadth of women's experiences and practices, noting how they may vary at different life stages, and identifying a range of concerns related to MHM.

### ***Setting***

Odisha has a population of 42 million people and is one of the poorest districts in India (33% of the population lives in poverty) (WB, 2016a, 2016b). Ninety percent of households do not have piped water and 65% of the population does not use a sanitation facility (IIPS & ICF, 2017). The state has high gender disparities, including less access to economic opportunities for women compared to other low-income states, and in most households, males hold the power for sanitation-related decisions (IIPS & ICF, 2017; Routray et al., 2017; WB, 2016a, 2016b). In Odisha, menstrual hygiene methods vary by level of schooling and religion. For women aged 15-24, 47% use some method of "hygienic menstrual protection" (e.g. locally prepared napkins, sanitary napkins, and tampons) (IIPS & ICF, 2017). Of those, 69% use cloth as menstrual protection, 34% use sanitary napkins, 12% use locally prepared napkins, and 2% use tampons (IIPS & ICF, 2017). It has been reported that the use of hygienic menstrual protection methods increases with levels of schooling (IIPS & ICF, 2017). There is variation in hygienic menstrual

protection use by religion: 41% of Christian women, 47% of Hindu women, and 63% of Muslim women (IIPS & ICF, 2017). According to a systematic review, only half of girls in India reported being informed about menstruation prior to menarche and a quarter of girls reported missing school during menstruation (van Eijk et al., 2016).

### ***Participants***

Participants come from 12 communities, which were previously involved in a cluster randomized trial evaluating the impact of a rural sanitation intervention and were purposively selected for variation in previous intervention status, toilet coverage, water access, and seasonal conditions (Clasen et al., 2012).

Participants were selected from either a community that received the intervention or a community that served as a control. Individuals (min. age of 18) were purposively sampled for variation in life stage: (1) unmarried women (UMW) living with their parents, (2) women who had recently (past 3 years) married (RMW), (3) women married (MW) over 3 years, and (4) women older than 49 years (OW). Sampling across these categories was believed to capture diversity of MHM experience, based on life stage. Recruitment of participants was facilitated through contacts in the communities. This specific study uses data from 68 interviews, from the original 69 collected (one OW was excluded because she did not complete the portion of the interview related to menstruation) and 8 focus group discussions, in which women provided insights on menstruation practices, whether they were current experiences or reflections from memory if not currently experiencing menstruation due to pregnancy, postpartum, or menopausal status.

### ***Data Collection and Preparation***

Data were collected through free-list interviews (FLIs) and focus group discussions (FGDs) by two researchers fluent in English and Oriya and experienced in qualitative methods.

#### *Free-list Interviews*

Interviews utilized a free-listing tool to elicit MHM concerns and understand how those concerns were experienced among a group of participants. Women were asked to list the concerns that “women in this community” experienced while menstruating and the interviewers probed to uncover further variation, such as seasonal influences. Throughout the interviews, the women provided detailed accounts of their MHM practices, including stories and examples. The data for this sub-study emerges from these in-depth descriptions. The target of 64 one-on-one interviews, with two women of each life stage per community, was decided upon due to the recommendation of 30 interviews for free-listing data collection as well as the variability in the sample (Borgatti, 1999). Interviews were conducted in private spaces over a duration of 30 to 90 minutes.

#### *Focus Group Discussions*

FGD tools were developed subsequent to the findings from the free-list interviews. The FGDs were conducted to gather greater detail about women’s concerns and determine if the concerns were normative within the community. A total of eight FGDs were held throughout four communities: four with UMW and four with ever-married women (RMW, MW, OW). The topic of concerns regarding menstruation was discussed for one to two hours. FGDs took place in private spaces, such as schools, temples, or houses.

### ***Data Management and Analysis***

Interviews and FGDs were recorded digitally and directly translated and transcribed into English. Memos were added to the data in MAXQDA to organize the analytic process, develop codes and emerging themes, and capture nuances in the data. A codebook was created using deductive and inductive codes and refined throughout the coding process; codes were applied to the transcripts in MAXQDA. Coded text was retrieved topically and explored by the subgroup of life stage (UMW, RMW, MW, OW). We used thematic analysis to categorize codes and identify themes that emerged from women's lived experiences and challenges with menstruation. The resulting themes and issues were described and presented utilizing the JMP framework and a revised definition for adequate MHM, based on this sample, was proposed (JMP, 2012).

### ***Ethics***

The Emory University Institutional Review Board (Atlanta, Georgia, USA) and KIIT University Ethics Review Committee (Bhubaneswar, India) approved study protocols. Women provided oral consent prior to participation.

## Results

### Participant Characteristics

Data from 68 FLIs (16 UMW, 12 RMW, 22 MW, 18 OW) and 8 FGDs (each group had 5 to 7 participants; 23 UMW, 16 MW, 7 OW) were included in the analysis. In the FLIs, women's ages spanned from 18 to 75, 100% were Hindu, 76% had at least some primary education, 63% had water within their household compound, and 54% had a toilet within their household compound (Table 1). FGD participants were 18 to 70 years old, 98% were Hindu, 98% had at least some primary education, 70% had water within their household compound, and 59% had a toilet within their household compound (Table 1). Recently married women did not participate in the FGDs, as their family members did not give permission.

Fifty-four percent of FLI participants and 51% of FGD participants used cloth during menstruation, 13% (FLIs) and 18% (FGDs) used pads, and 32% (FLIs) and 31% (FGDs) used both pads and cloth (Table 2). Sixty-nine percent of FLI participants and 80% of FGD participants were still experiencing monthly menstruation at the time of the study (Table 2). Of those who were still experiencing menstruation and had a toilet, 66% of FLI participants and 100% of FGD participants reported using it during menstruation (Table 2). Of the 68 interviews, 66 indicated concerns related to menstruation (one MW and one OW reported no concerns related to menstruation).

**Table 1: Demographic information for participants in free-list interviews (N=68) and focus group discussions (N=46)**

	All		1. Unmarried (UMW)		2. Recently Married (RMW)		3. Married (MW)		4. Over 49 (OW)	
<b>Free-List Interview Participants</b>	68		16		12		22		18	
Intervention Community (vs. Control)	27	40%	5	31%	4	33%	9	41%	9	50%
Age <sup>1</sup>	36.1	(18-75)	20.8	(18-27)	23.2	(20-27)	34.0	(24-47)	60.8	(50-75)
Education										
None	16	24%	0	0%	0	0%	4	18%	12	67%
Some Primary	17	25%	1	6%	3	25%	7	32%	6	33%
Some Secondary	28	41%	10	63%	9	75%	9	41%	0	0%
Some Tertiary	7	10%	5	31%	0	0%	2	9%	0	0%
Below Poverty Line Card <sup>2</sup>	55	85%	14	88%	11	100%	15	75%	15	83%
Hindu	68	100%	16	100%	12	100%	22	100%	18	100%
Caste <sup>3</sup>										
Brahmin	4	6%	1	7%	0	0%	2	9%	1	6%
General Caste	44	67%	12	80%	8	73%	12	55%	12	67%
Scheduled Caste (SC)	5	8%	0	0%	0	0%	3	14%	2	11%
Other Backward Caste (OBC)	11	17%	2	13%	3	27%	4	18%	2	11%
Scheduled Tribe	2	3%	0	0%	0	0%	1	5%	1	6%
Water Source Within Compound	43	63%	12	75%	7	58%	13	59%	11	61%
Toilet Within Compound	37	54%	10	63%	9	75%	9	41%	9	50%
<b>Focus Group Discussion Participants</b>	46		23				16		7	
Intervention Community (vs. Control)	22	48%	10	43%			7	44%	5	71%
Age <sup>1</sup>	30.8	(18-70)	19.2	(18-23)			34.8	(20-45)	59.7	(51-70)
Education										
None	1	2%	0	0%			0	0%	1	14%
Some Primary	13	28%	0	0%			8	50%	5	72%
Some Secondary	12	26%	5	22%			6	38%	1	14%
Some Tertiary	20	44%	18	78%			2	12%	0	0%
Below Poverty Line Card <sup>2</sup>	29	67%	16	70%			10	71%	3	50%
Hindu	45	98%	22	96%			16	100%	7	100%
Caste										
Brahmin	1	2%	1	4%			0	0%	0	0%
General Caste	30	65%	12	52%			11	69%	7	100%
Scheduled Caste (SC)	8	17%	5	22%			3	19%	0	0%
Other Backward Caste (OBC)	7	15%	5	22%			2	13%	0	0%
Scheduled Tribe	0	0%	0	0%			0	0%	0	0%
Water Source Within Compound	32	70%	16	70%			11	69%	5	71%
Toilet Within Compound	27	59%	14	61%			8	50%	5	71%

1 Not all women knew their age, some guessed.

2 Missing data for 3 FLI women; Missing data for 3 FGD women.

3 Missing data for 2 FLI women.



**Table 2: Menstruation information for participants in free-list interviews (N=68) and focus group discussions (N=46)**

	FLI Participants										FDG Participants							
	All		1. Unmarried (UMW) (n=16)		2. Recently Married (RMW) (n=12)		3. Married (MW) (n=22)		4. Over 49 (OW) (n=18)		All		1. Unmarried (UMW) (n=23)		3. Married (MW) (n=16)		4. Over 49 (OW) (n=7)	
Experiencing Monthly Menstruation	47	69%	16	100%	12	100%	19	86%	0	0%	37	80%	23	100%	14	88%	0	0%
Materials Used for Menstruation <sup>1</sup>																		
<i>Cloth</i>	37	54%	4	25%	1	8%	15	68%	17	94%	23	51%	3	13%	13	87%	7	100%
<i>Pad</i>	9	13%	2	13%	3	25%	3	14%	1	6%	8	18%	8	35%	0	0%	0	0%
<i>Both Cloth and Pad</i>	22	32%	10	63%	8	67%	4	18%	0	0%	14	31%	12	52%	2	13%	0	0%
<i>Other</i>	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Latrine Used During Menstruation <sup>2</sup>	19	66%	6	60%	8	89%	5	63%	0	0%	21	100%	14	100%	7	100%	0	0%
Latrine Use During Menstruation for Urination <sup>3</sup>																		
<i>Always</i>	1	6%	0	0%	1	13%	0	0%	0	0%	5	24%	3	21%	2	29%	0	0%
<i>Sometimes</i>	0	0%	0	0%	0	0%	0	0%	0	0%	3	14%	3	21%	0	0%	0	0%
<i>Never</i>	15	94%	4	100%	7	88%	4	100%	0	0%	13	62%	8	57%	5	71%	0	0%
Latrine Use During Menstruation for Defecation <sup>3</sup>																		
<i>Always</i>	12	75%	2	50%	8	100%	2	50%	0	0%	18	86%	12	86%	6	86%	0	0%
<i>Sometimes</i>	0	0%	0	0%	0	0%	0	0%	0	0%	3	14%	2	14%	1	14%	0	0%
<i>Never</i>	4	25%	2	50%	0	0%	2	50%	0	0%	0	0%	0	0%	0	0%	0	0%
Latrine Use During Menstruation for Bathing <sup>3</sup>																		
<i>Always</i>	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
<i>Sometimes</i>	1	6%	1	25%	0	0%	0	0%	0	0%	1	5%	1	7%	0	0%	0	0%
<i>Never</i>	15	94%	3	75%	8	100%	4	100%	0	0%	20	95%	13	93%	7	100%	0	0%
Latrine Use During Menstruation for Cleaning Cloth/Pad <sup>4</sup>																		
<i>Always</i>	2	14%	0	0%	1	14%	1	25%	0	0%	1	5%	1	8%	0	0%	0	0%
<i>Sometimes</i>	1	7%	1	33%	0	0%	0	0%	0	0%	6	32%	4	33%	2	29%	0	0%
<i>Never</i>	11	79%	2	67%	6	86%	3	75%	0	0%	12	63%	7	58%	5	71%	0	0%
Latrine Use During Menstruation for Changing Cloth/Pad <sup>5</sup>																		
<i>Always</i>	3	20%	0	0%	2	29%	1	25%	0	0%	2	10%	2	14%	0	0%	0	0%
<i>Sometimes</i>	0	0%	0	0%	0	0%	0	0%	0	0%	4	19%	4	29%	0	0%	0	0%
<i>Never</i>	12	80%	4	100%	5	71%	3	75%	0	0%	15	71%	8	57%	7	100%	0	0%

1 Missing data for 1 FGD woman.

2 39 FLI and 25 FGD women excluded because they had no latrine or were no longer menstruating.

3 Missing data for 20 FLI women and not applicable to 32; Not applicable to 25 FGD women.

4 Missing data for 20 FLI women and not applicable to 33; Not applicable to 27 FGD women.

5 Missing data for 20 FLI women and not applicable to 34; Not applicable to 25 FGD women.

## Qualitative Findings

### Requirements for Menstrual Hygiene Management According to the JMP

The qualitative results are presented using the JMP definition for MHM as a framework, specifically documenting women's experiences with clean materials, privacy for changing, soap and water for bathing, and disposal (JMP, 2012). We then explore additional concerns, needs, and experiences with menstruation that emerged from the data and extend beyond the JMP definition.

#### ***“Women and adolescent girls using a clean menstrual management material to absorb or collect menstrual blood”***

According to the JMP, one requirement for MHM is the use of clean menstrual management materials and we found this was a felt need among participants. UMW and RMW expressed preference for pads (referred to as “sanitary napkins” by participants) more than other women. OW reflected on this shift and shared how they used cloth for menstruation and girls today use pads. Generally, women felt cloth was problematic to clean and wanted to use pads instead, which could be disposed of after use. The decision to use pads was often based on availability and accessibility, as many women could not purchase pads nearby or had household level economic restrictions:

*But now I am forced to use cloth. Here, we don't get Stayfree [a brand of sanitary napkins]...To get that, you have to go out 5-6 km. (FLI, UMW, Toilet)*

*We are poor people. So father cannot provide pad. How can we say that we have to bring pad with father's money? We can't say. We bring occasionally during rainy season, other times we adjust. (FLI, UMW, Toilet)*

RMW faced specific barriers to pad access. Due to mobility restrictions, one RMW depended on others to purchase pads and because she felt embarrassed to request them, she used

cloth available at the house. Another RMW had to switch to using cloths after marriage because she moved to a new village that did not sell pads. Additionally, women worried cloth would become dirty between periods and shared practices for storing and checking the cloth before use:

*They have to be washed and then we fold it and keep it in polythene, so that no insects can enter...Or we put in the straw roof. And again when “mens” [menstruation] happens, we shake it a little for the fear that insects may have attacked...We shake it, wring it and after spitting 2-3 times, we wear it...It has to be washed and kept...So again, while wearing, we spit in it, shake it and see if it is clean or not and then wear. (FLI, MW, Toilet)*

***“That can be changed in privacy as often as necessary for the duration of a menstrual period”***

Participants reported the need for privacy to change materials. For women who had access to latrines, the majority (80% for FLI participants and 71% of FGD participants) reported never using this space for changing cloth of pads despite the privacy that may be afforded inside (Table 2). Predominately, women changed materials inside the house. UMW faced difficulties in changing materials due to crowded homes with limited private spaces. Women would actively search for a vacant place to change; one OW recalls changing in the cow shed in the backyard. After defecation, one UMW would hide her used cloth in her underwear to walk home and change.

***“Using soap and water for washing the body as required”***

Women in this population noted challenges related to the use of soap and water for washing the body. A few women mentioned challenges accessing soap: one MW reflected on the absence of soap during menstruation; three other women (one RMW, two MW) expressed financial restrictions related to buying soap.

The main sources of water used for bathing were tube wells, ponds, rivers, and occasionally toilets. A common practice among participants was a ritual bath at the start of

menstruation, in which they had to wash their body and hair. If menstruation began at night, women would either bathe immediately or wait until the morning. Women felt accessing water at night was a challenge because they had to navigate difficult terrain in the dark and rely on others to help them. Women needed others to retrieve water for them because they were not allowed to touch the tap for the tube well. One UMW reported preemptively storing water in anticipation of menstruation starting at night. Additionally, seasons complicated bathing practices. In the winter, bathing at nighttime was very cold. During monsoons, women got wet while finding a location to bathe and even after bathing, felt dirty due to the water and mud outside. In the summers, ponds dried up and left women with fewer places to bathe.

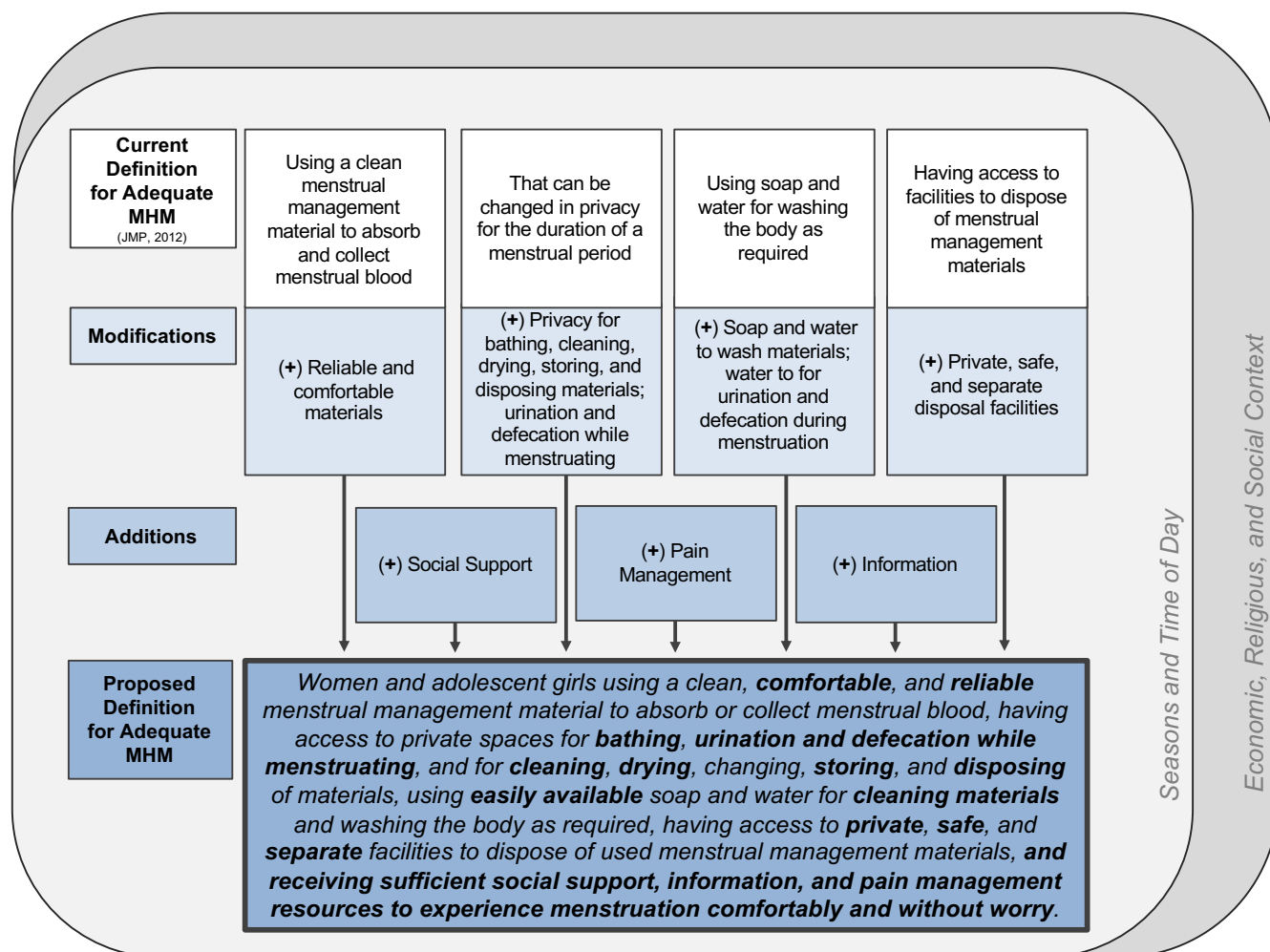
***“Having access to facilities to dispose of used menstrual management materials”***

Women in this study did not report accessing specific facilities for disposal and rather, disposed of their menstrual materials in a variety of places: outside of the home and in the surrounding environment, including the pond, river, jungle, or buried in the ground. MW shared that they disposed of cloth after two to three months of use and buried it in the swampy area of the pond. A few women disposed of their materials in the toilet:

*So, I dispose them [pads] in the latrine...(laughs), where would I drop them otherwise? I drop them in the latrine and put water. (FLI, RMW, Toilet)*

**Concerns Extending Beyond JMP Definition**

In addition to the needs for MHM explored above, practices and concerns emerged from the data that extend beyond the requirements codified in the JMP definition. These additional concerns are discussed below and visualized in Figure 1 as both modifications to portions of the existing definition and further additions to it.



**Figure 1.** Conceptual Framework of proposed definition for adequate menstrual hygiene management for women in Odisha, India.

## **Modifications to Existing JMP Definition for Adequate Menstrual Hygiene Management**

### ***Needs and Concerns for Materials Beyond Cleanliness and Absorbency***

Women had significant concerns outside of availability and cleanliness of menstrual materials. While the JMP definition indicates that materials should collect and absorb blood, there is no consideration for how reliable, comfortable, or compatible these materials are with women's lives. Women worried cloth would change positions, fall out of their underwear, or become saturated while moving or sleeping, causing stains on clothes and bedding. Women expressed concern and embarrassment about others seeing any menstrual leaks. To address this, some tied a string to the cloth and then tied the string tightly around their waists to keep the cloth from falling. UMW would repeatedly look at their backs to see if there were any stains.

Materials impacted women's management of other needs, frustrating the processes of urinating and defecating. Women had to remove cloth from their underwear and either hold it in their hands or risk it falling out of their underwear:

*If we would be urinating and wear a cloth, if someone comes and we suddenly get up, as it would be placed on the panty if we get up it might fall, so if someone gets to see. (FGD, UMW)*

### ***Privacy Needs and Concerns for Behaviors Beyond Changing***

Beyond the need for privacy to change materials, women articulated the desire for privacy for bathing, urination and defecation, and washing, drying, storing, and disposing of materials.

#### ***Bathing and Washing, Drying, and Storing Cloth***

Women were cognizant of the best times (which some felt were at night) to bathe at the pond when other people, particularly men and boys, were not around. Women were careful to

wait until the area was empty prior to washing. This waiting was an additional challenge for women with children, as they had to leave home for an extended period of time:

*At times it happens that we must have gone to wash clothes, and we would be standing, people would be there and we would be waiting with the cloth...We would keep standing and waiting. There would be people we cannot wash in front of them. (FGD, UMW)*

*That males do not get to see, that is our method, and in doing that method there is inconvenience, sometimes we are seen, that is the thing...No there is no isolated place. Whatever we will do, we will do in the open. (FGD, MW)*

Some women adapted to the absence of privacy for washing their cloths by pouring water on the ground around the tube well to hide any remaining signs of blood. If other people were using the tube well, some MW reported hiding their used cloth in dirty places to wash at a later time:

*Participant 3: Will take it out and keep it separately, cannot keep it inside the house.*

*Participant 4: It has to be kept at a separate place, be it amidst cow dung heaps or in the firewood accumulated for lighting stove. Is that easy? (FGD, MW)*

While washing her cloth at the tube well, one UMW hid her cloth behind a bucket, behind her back, or under her foot if her father or brother walked by; one MW would avoid using the tube well to wash her cloth altogether because her father-in-law was nearby. Women expressed concern about bathing in public twice in one day, as that would indicate they had started menstruating. To hide their menstrual status, a few women would justify the additional bathing by telling others they had stepped in dog feces.

A predominate challenge for women across life stages was drying cloth after washing. This extended from fears of others seeing their cloth to concerns about infection from using wet cloth. Women wanted to hide their cloth out of sight of men and felt they had inadequate spaces to do so:

*There is no facility to dry the cloth. There is no place to wash and dry it. That when I would be hanging it to dry, elder and younger brothers-in-law, father-in-law may be around. Will I not feel shy? Where will I take it to a secluded place and dry it[?] So we face a lot of problem. (FLI, MW, Toilet)*

*Participant 5: ...When we hang it to dry outside, the dust falls on it and whether someone will see and we will feel ashamed so we have to dry it elsewhere.*

*Participant 4: Just because people will get to see, we dry it in a dirty place.*

*Participant 5: Are there germs in it or not...Hide and dry. (FGD, MW).*

This desire to hide drying cloth led women to do so on the roof, tied to a rope, in bamboo bushes, in the cow shed, in dark places inside, and underneath other clothing. Women believed drying cloth in the sunlight prevented germs that could result in infection from developing in the cloth. Additionally, women had concerns about ants, scorpions, and other creatures getting in the cloth while it was drying and then entering their bodies:

*Participant 5: Germs means if we use the dirty cloth, if I dry it there, on the ground, we do not dry it at home, would dry it near the coconut tree.*

*Facilitator: Meaning you dried it in the dirty place.*

*Participant 5: Yes forced to, there would be insects, there would red and black millipedes, there are many insects and then would take that and use it. (FGD, MW)*

Seasons further complicated private drying practices. Women were concerned about drying materials during monsoons because there was no sunlight, limited places to dry cloth, and it could be dirtied outside. Wearing wet materials felt dirty and uncomfortable, so some women would use pads during monsoons. However, women found drying cloth during the summers to be much easier, as it would dry quickly and allow for more regular washing:

*But is it not difficult for drying? Does it dry instantly in monsoon? When the wind blows, it may fly away and fall somewhere. Is it not a concern? While in summer you can dry it and fold and keep. (FLI, MW, Toilet)*

Between periods, some women shared their practices for privately hiding menstrual materials, which included wrapping their cloth in plastic and placing it in the straw roof.

### *Disposal*

Beyond the absence of specific disposal facilities, women perceived harms connected to their lack of privacy for disposal and took specific steps to mitigate those harms. One MW



worried her disposal practices would identify her because she was the only one using pads in her household. Materials were disposed of in places no one would see them, such as wrapped in paper in the jungle or in the muddy part of the pond:

*The big pond that we have... We throw it there. There is too much sludge... If we take a stick and press it there, it will go that side. (FLI, RMW, No toilet)*

Although disposing pads in bodies of water was a common practice, women felt dirty seeing them resting on the pond or river banks:

*In our village all those who are using sanitary napkins are throwing it in the river. They are not burying it anywhere, there is no particular place to bury. (FGD, UMW)*

Women feared germs from the pads would enter the water and cause infections. A few women (UMW, MW) were told not to throw pads outside because animals may smell it, causing increased bleeding or infection. Another MW believed if a snake touched her cloth, she would be unable to have a child. This fear of animals accessing menstrual materials was shared; an UMW threw materials in the pond so dogs could not access them:

*Even for disposing we need a space, there would be people and if dogs will drag it somewhere we will have inconvenience, so have to worry, have to look for a place to dispose. (FGD, UMW)*

### *Urination and Defecation*

Women desired private locations to urinate and defecate while menstruating because they needed to remove their cloth and may have visible signs of blood on their hands and legs.

Women brought extra water to urinate and defecate during menstruation in order to rinse away any blood that remained on the ground. A few MW demonstrated how they would rub the ground with their feet to obscure the blood. Women worried others would see the blood or become infected by touching it.

### ***Soap and Water Needs and Concerns Beyond Bathing***

The JMP specifically articulates the need for soap and water for washing the body during menstruation, however we found the need for soap and water extends to washing clothing, bedding, and materials, and managing urination and defecation while menstruating. For those who used a tube well to wash their cloth, some felt it was dirty to wash near where people fetched drinking water, so they would carry water to a different location. Some women washed their cloth in the toilet or bathroom; one RMW would dispose of cleaning water in the toilet. The distance to the pond was a concern for washing cloth, given the amount of times women had to travel there each day:

*Isn't washing cloths a problem[?]. 3-4 times a day, we have to go [to the pond]...Isn't travelling a problem? (FLI, MW, No toilet)*

For women who washed their cloth outside, one UMW preferred the flowing water of rivers because she could clean herself, her cloth, and urinate at the same time; one RMW found washing cloth was easier in the monsoons because the ponds were full of water.

Women often felt dirty from washing their cloth. One UMW felt she polluted the pond and was concerned for others who used the same water. Others did not like touching the cloth with their hands and felt dirty even after washing with soap. In the absence of soap, one MW used her hands or dirt to clean her cloth.

### **Additions to JMP Definition for Adequate Menstrual Hygiene Management**

In addition to our proposed modifications to existing JMP definition, we identified notable needs and concerns not captured in the JMP framework. Concerns surrounding physical pain, the need for social support, and menstruation-related information were expressed by women in this study and are presented below as additions to the definition for adequate MHM.

### ***Additional Concerns: Menstrual Pain***

The JMP definition does not address pain and discomfort during menstruation, however a general sense of discomfort was frequently expressed by women in this study and led to mobility, nutritional, and social restrictions. Women across life stages gave accounts of bodily pain during menstruation including stomach aches, headaches, vomiting, and pain in the legs, hands, and back. Some women expressed how this pain negatively affected their ability to complete regular household tasks (e.g., cook, harvest crops), maintain healthy behaviors such as eating and sleeping, move normally, and care for their children:

*No, if food and sleep are a problem, then it is a tension. And if you can't work then that is a tension. "My waist is paining and I can't go to work. Then what will my kids eat, how will they live?" That is a tension. (FLI, OW, Toilet)*

*Participant 3: Cannot ride as I have pain in stomach*

*Participant 1: Stomach pain increases when you ride the bicycle, on the bumpy road. (FGD, UMW)*

UMW worried their expressions of pain would disclose their menstruation status to other family members:

*When you have these stomach cramps everyone will come to know. All in the family will know, isn't that embarrassing? That is a big concern. (FGD, UMW)*

For some, feelings of pain and discomfort led to isolation:

*At that time I don't go anywhere. I don't mix with anyone and at that time I don't have any friends. (FLI, OW, No toilet)*

*Participant 2: In normal times we can roam about freely, we can go wherever we want. But when we have our periods we don't feel like going anywhere.*

*Participant 1: Do not feel like going anywhere...Awkward.*

*Participant 5: Meaning there is a different feeling.*

*Participant 3: It's like a burden on the head. (FGD, UMW)*

While the experiences of women in school were not widely explored in this research, some women explained how pain challenges their academic requirements:

*I am not able to attend my classes. I don't feel comfortable so I don't go for my classes, in fact I avoid going out anywhere. (FLI, UMW, Toilet)*

### ***Additional Concerns: Pain and Discomfort from Materials***

The articulation of clean and absorbent materials in the JMP definition does not account for the ways in which materials can cause pain or impede women's ability to move and carry out work. Women experienced discomfort using a cloth – it smelled and felt thick and heavy in their underwear – making sitting and standing difficult. The edges of cloth rubbed the sides of women's legs causing swelling, rashes, and wounds:

*In these summers I get scratches as edges of dry cloth rubs with my body. I feel why is this badi pada [cursed thing] happening always, I am getting scratches. And the thread that we wear on the waist to tie the cloth, becomes very tight and I get scars and become red in colour. (FLI, MW, No toilet)*

This pain was felt more acutely during the summers, when heat and sweat exacerbated the rubbing and sensitivity. Some mentioned pain restricted mobility and productivity, as the rubbing was exacerbated by movement:

*If we cycle it is very difficult and if we walk and go also both sides get scratched and we have wounds. (FGD, UMW)*

*It will hurt. The edges of the dry cloth will rub with my body and then I would be sweating. I will have to do all household work and it would be hurting. (FLI, OW, No toilet).*

### ***Additional Concerns: The Need for Social Support***

Women of all life stages required the support and physical assistance of others during menstruation, which is not accounted for by the JMP definition:

*Participant 1: We are at the mercy of others.*

*Participant 6: We have to depend on others, is there an option? (FGD, MW)*

Women relied on mothers, mothers-in-law, sisters, sisters-in-law, and children to retrieve water from the tube wells, as they were restricted from touching the pump while menstruating. RMW had additional mobility restrictions that contributed to their need for others during menstruation:

*For water...Being a recently married woman I can't go out. I have to depend on someone to fetch water and provide me so that I can wash my clothes or clean myself or bathe. So we are dependent on others. (FLI, RMW, Toilet)*

At the onset of menstruation, women did not touch their clothing until after bathing, so another person carried their clothes for them. At night, women needed accompaniment to the pond or tube well to bathe. Women shared fears about ghosts, dogs, snakes, darkness, and other people at night, and asking others to join mitigated this fear. Women, particularly UMW and RMW, felt badly if they woke sleeping family members for assistance. At times, family members were resistant to help, so women waited outside until morning to bathe. Some women reported feeling shy asking for this help, as it alerted others to their menstruation status.

Reliance on others extended beyond washing and bathing. Women were restricted from entering the kitchen, preparing food, and touching utensils while menstruating, so others in the household completed this work:

*Problem is cooking. You can't cook. So, mother-in-law has to cook. You can't go into kitchen or puja room. (FLI, MW, No toilet)*

Additionally, women were restricted from participating in worship (puja) during menstruation and relied on others to perform it on their behalf:

*During that time you have to go around pleading people...To perform the Puja at home...Early in the morning I have to go and request someone, may be a girl in our neighbourhood to perform the puja... (FLI, UMW, Toilet)*

### ***Additional Concerns: The Need for Information***

The need for information before menarche and during menstruation is not captured in the JMP definition, yet women in this study worried about pain and menstrual irregularity, thought something might be wrong with their bodies, and wanted clarity about these concerns. Women did not have information as to why their period might be late, at times even asking the interviewer for information:

*If it does not happen on date then is it a problem? (FLI, UMW, Toilet)*

### **Proposed Definition for Adequate Menstrual Hygiene Management**

Based on the accounts of women in this study and the limited scope of the JMP framework, we propose an amended definition for adequate MHM that reflects the breadth of women's experiences and challenges:

*Women and adolescent girls using a clean, comfortable, and reliable menstrual management material to absorb or collect menstrual blood, having access to private spaces for bathing, urination and defecation while menstruating, and for cleaning, drying, changing, storing, and disposing of materials, using easily available soap and water for cleaning materials and washing the body as required, having access to private, safe, and separate facilities to dispose of used menstrual management materials, and receiving sufficient social support, information, and pain management resources to experience menstruation comfortably and without worry.*

## **Discussion**

The findings from this research indicate that women's menstruation-related needs extend beyond the elements codified in the JMP definition for adequate MHM: clean menstrual management material to absorb or collect menstrual blood, privacy for changing as often as necessary for the duration of a menstrual period, soap and water for washing the body as required, and access to facilities to dispose of used menstrual management materials (JMP, 2012). Through analysis of interviews and FGDs with women in Odisha, India, a revised definition of adequate MHM was presented that accounts for the broader range of menstruation-related concerns that emerged from the data. Beyond clean and available materials, women articulated the need for materials that are comfortable, reliable, and compatible with their responsibilities and movements. The need for privacy throughout menstruation, not simply for changing, was a felt need among this population. Soap and water were needed for a spectrum of MHM needs, including washing menstrual materials, and not solely for washing the body. Women in the study did not have access to formal disposal facilities for menstrual materials and consequently, disposed of materials in latrines or the surrounding environment. Still, these spaces also needed to be private and safe. Additionally, social support, resources for pain management, and information about menstruation and menstrual pain were identified as needs for this population. Given our findings, we have offered an expanded definition for adequate MHM, specific to the context and participants in this study.

### ***Findings Consistent with JMP Definition***

Women voiced needs that were consistent with the JMP definition: access to clean materials, privacy for changing, soap and water for bathing, and disposal facilities. Women in this study primarily used cloth to manage menstruation and some faced barriers to pad access

including economic, mobility, and commercial restrictions. These findings align with other research conducted in India (Caruso, Clasen, Hadley, et al., 2017; van Eijk et al., 2016). Specific restrictions for RMW add to pad access challenges and are noted elsewhere as well (Sahoo et al., 2015). The need for privacy for changing materials was a felt need for participants. Other research suggests that, in addition to privacy, the characteristics of changing locations may have an impact on health as women experience stress as well as distance from home and water sources (Das et al., 2015). Some women faced financial barriers to accessing soap, emphasizing the need for this component of the MHM definition. Tube wells or bodies of water were common locations for bathing, however the time of day, seasonal impacts, and religious restrictions added challenges to the bathing process. Time of day and seasonal variations were significant contributors to water access challenges, yet they are not captured in the JMP definition and only noted by a few (Caruso, Clasen, Hadley, et al., 2017). No women reported disposing of menstrual materials in specific facilities and instead would dispose of them in bodies of water, the jungle, the mud, or in the latrine, consistent with studies of rural women in India and other low-income countries (Crofts & Fisher, 2012; Sommer et al., 2013; van Eijk et al., 2016). Our findings contribute detailed accounts of disposal practices and further demonstrate the need for access to proper disposal facilities (Loughnan et al., 2016; Mason et al., 2013; van Eijk et al., 2016). However, as more women transition to commercial and non-biodegradable products for managing menstruation, latrine fill up and environmental accumulation will require specific attention (Crofts & Fisher, 2012; Oduor et al., 2015; Sommer et al., 2013; van Eijk et al., 2016).

### ***Modifications to JMP Definition***

We propose modifications to the four existing components of the JMP definition since they did not capture the breadth of MHM needs uncovered in this study. Several of these



concerns have been noted elsewhere, suggesting these modifications may be applicable to other contexts. Even if women had materials to manage menstruation, concerns centered on the reliability of materials (e.g. fear of leaks and stains) and compatibility with other daily needs such as urination and defecation. Concerns about the reliability of materials have been explored elsewhere, however the research has primarily centered on the experiences of girls in school (Caruso et al., 2013; Mason et al., 2013).

Women expressed the need for privacy for bathing, urination and defecation while menstruating, and washing, drying, and storing cloth. Women's worry about privacy during menstruation has been noted elsewhere (Caruso, Clasen, Hadley, et al., 2017; Hulland et al., 2015; Sahoo et al., 2015; van Eijk et al., 2016). The desire to hide their menstrual status from family members, men, and boys led to increased waiting times for water sources, drying cloth in dark and dirty places, disposing cloth in hidden places outside where no one could see or come in contact with them, and urinating and defecating with additional concerns of menstrual blood being seen. Another study in India found that hiding signs of menstruation from men made washing cloth difficult for women (Thakur et al., 2014). Additionally, women needed water and soap to manage urination and defecation and wash their cloths while menstruating, both of which are outside of the scope of the JMP definition, but are noted by others (Loughnan et al., 2016).

Women in this study worried about infection resulting from drying cloth in hidden and dark places, which is consistent with findings reported elsewhere (Caruso, Clasen, Hadley, et al., 2017; Joshi et al., 2011; Mahon & Fernandes, 2010; Sommer et al., 2014; van Eijk et al., 2016). Studies have explored the connection between the type and condition of materials with urogenital infections, and while this relationship has not been substantiated, the effects of this

idea were felt among participants and warrant further exploration (Baker et al., 2017; Das et al., 2015; Mahon & Fernandes, 2010; Sumpter & Torondel, 2013).

Beyond access and utilization, there were specific characteristics of disposal facilities that would contribute to more comprehensive MHM in this population. A focus on private, safe, and separate disposal facilities or even informal spaces, where materials are confined and out of view of others, may reduce concerns about animals accessing menstrual materials, contamination through contact, or identification by disposal practices. Girls in Ghana reported similar concerns about infertility as a result of animals touching their pads (Sommer et al., 2014). We recommend further research be carried out to identify solutions for disposal that both account for women's needs and are environmentally conscious.

### ***Additions to JMP Definition***

In addition to revising the existing components of the JMP definition, we proposed three additional needs for MHM that emerged from the data: pain management, social support, and information. This research contributes detailed accounts of physical pain during menstruation, both menstrual pain and pain from uncomfortable materials, which affected women's ability to move, work, and eat normally. The impacts of menstrual and material-induced pain have yet to be widely explored, apart from a few studies that highlight menstrual pain among a range of concerns for girls (Mason et al., 2013; Thakur et al., 2014). Given the pervasiveness of this concern among participants, further exploration is warranted. Additionally, the nutritional impacts of menstrual pain may have serious health implications and should be explored further.

Women in this study experienced a range of restrictions during menstruation and relied on others to manage their household and menstruation-related obligations. Religious restrictions, physical separation, and inability to touch food during menstruation were consistent with

findings among other women in India and schoolgirls in Kenya (Hulland et al., 2015; McMahon et al., 2011; van Eijk et al., 2016)

Many researchers have explored girls' fear and confusion at menarche due to insufficient information and preparation (Caruso et al., 2013; Farage et al., 2011; J. Long et al., 2013; Mason et al., 2013; Sommer et al., 2014; Trinies, Caruso, Sogoré, Toubkiss, & Freeman, 2015).

However, our findings present another dimension of inadequate information about menstruation, specifically regarding irregularity and menstrual pain, both of which led to fear and worry for women in this study. Knowledge about the process of menstruation that includes information beyond the most typical patterns and how to manage menstrual pain could help improve women's experience of MHM.

### ***Strengths and Limitations***

A key strength of this study is its reliance on two methods of qualitative data collection: individual interviews and FGDs. The FGDs took place following the FLIs and corroborated findings from the interviews, contributing to the study's validity. The inclusion of women from different life stages (UMW, RMW, MW, OW), marital status, and latrine access (toilet vs. open defecation) allowed for variation in the data. This study engaged rural women in Odisha exclusively and the findings are limited to this population, however the diversity captured in the sample provides a broad range of experiences of women at different ages, marital statuses, latrine and water access, and castes. RMW did not participate in FGDs, however they are represented in the FLI sampling frame (12 interviews with RMW), so we do not believe this exclusion impacted our findings. The FGDs had mixed-caste groups, which may have affected the openness to which participants expressed their thoughts. For each life stage, not all caste categories were represented, which may limit the breadth of the results.

## **Conclusion**

Outside of a few key papers that prioritize the experiences of women, experiences of menstruation beyond adolescence and school settings remains underexplored (Sommer, Chandraratna, et al., 2016; Sommer et al., 2017). This study contributes the lived experiences of women across life stages in Odisha, India and their practices and challenges related to menstruation. Our research confirmed that women need tangible support to manage menstruation, however we uncovered needs for MHM that extend beyond those identified in the JMP definition. Concerns connected to psychosocial support, agency, gendered environments, and social norms persist even if menstrual management needs are met (Hulland et al., 2015; Sahoo et al., 2015). Experiences of shame, restrictions, and fear may be hard to capture in a definition, however are integral to women's experience of menstruation as well as their overall health and well-being and need to be explored further.

Our expanded definition for adequate MHM can inform monitoring efforts and program priorities to account for the scope of menstrual management needs women may have. Since many of our modifications and additions have been previously identified in studies from various locations, the likelihood of our definition proving useful in other contexts is strong. However, the definition needs to be verified, so we recommend additional research evaluate this new definition in different contexts to discern its validity or determine if it needs amending based on the population and sample. Given our findings, we posit that a broader definition for MHM may better capture the range of menstruation-related needs of women and further the discourse on MHM in the sector.

## Chapter IV: Conclusion and Recommendations

This research explored the lived experiences of women in Odisha, India, and found that menstruation-related needs across life stages extend beyond the JMP recommendations for adequate MHM. In its current iteration, the JMP definition does not capture the range of menstruation-related needs identified by the women in this study: beyond access to clean materials, women need comfortable materials they can rely on to meet their activity needs, soap and water are needed for more sanitation and hygiene practices than exclusively for washing the body, and privacy is needed for the spectrum of menstrual needs, including washing, drying, storing, and disposing materials. Additionally, the JMP definition does not account for restrictions due to menstrual status, social norms, or seasonal or time of day variation, all of which were drivers of challenges, behaviors, and worries for the women in this study. A revised definition of adequate MHM has been proposed that better accounts for the breadth of menstrual management needs of women in rural Odisha, India:

*Women and adolescent girls using a clean, comfortable, and reliable menstrual management material to absorb or collect menstrual blood, having access to private spaces for bathing, urination and defecation while menstruating, and for cleaning, drying, changing, storing, and disposing of materials, using easily available soap and water for cleaning materials and washing the body as required, having access to private, safe, and separate facilities to dispose of used menstrual management materials, and receiving sufficient social support, information, and pain management resources to experience menstruation comfortably and without worry.*

### Public Health Implications

MHM has been identified as a key public health issue with structural components that extend beyond individual experiences and as such, requires a multi-sectoral approach (Sommer, Hirsch, et al., 2015). Appropriate and comfortable MHM requires social, cultural, economic, political, and environmental conditions that facilitate safe resources and experiences for women

and girls (Loughnan et al., 2016; Sommer, Hirsch, et al., 2015). Some elements for adequate MHM are represented in six of the United Nations' seventeen Sustainable Development Goals (SDGs) for 2015 to 2030, furthering a commitment to address MHM as a public health issue (SIMAVI, PATH, & WASH United, 2018; Sommer, Hirsch, et al., 2015). SDG-3 is intended to “ensure healthy lives and promote well-being for all at all ages” (United Nations, 2018). Women and girls need resources and information to appropriately manage menstruation, free of fear and shame, unnecessary pain, and scarcity of materials. This research presented experiences of insufficient information, materials, and resources for safe and comfortable MHM and proposed a more comprehensive framework for monitoring progress to this end.

SDG-4 aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations, 2018). The experiences of girls managing menstruation in resource-poor school settings and the resulting impact on school attendance and performance has been widely documented. While not the focus of this research, the resulting inequity in education from barriers for managing MHM at school needs to be broadly addressed.

SDG-5 seeks to “achieve gender equality and empower all women and girls”, which involves addressing taboos, social norms, and gendered environments that isolate and discriminate against women and girls due to menstrual status. Women in this study gave accounts of hiding menstrual status from others, attempting to manage menstruation in secrecy, religious and household restrictions, and overall feelings of isolation and exclusion due to menstruation. While the JMP definition for adequate MHM serves as a monitoring framework and may not capture all dimensions of MHM, more critical engagement is needed around the social norms and taboos that adversely affect women and girls.

SDG-6 reads, “ensure availability and sustainable management of water and sanitation

for all” (United Nations, 2018). This pertains significantly to the need for women and girls to have sufficient supplies of clean water and soap to wash their materials and bodies during menstruation, which was identified as a challenge for women in this study. WASH programming and infrastructure development in schools and elsewhere need to take into account the specific needs of menstruating women and girls – specifically how to create spaces that are private, separate, comfortable, and easy to use.

“Promot(ing) sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all” is the aim of SDG-8 (United Nations, 2018). Some have explored the unique challenges for menstruating women in the workplace, however these challenges need to be explored further and addressed as part of both reducing inequity in economic opportunities and taking into account menstruation-related challenges beyond adolescence (Sommer, Chandraratna, et al., 2016). Finally, SDG-12 states, “ensure sustainable consumption and production patterns” (United Nations, 2018). This connects to the use and disposal of menstrual products and will continue to be relevant as more women transition to commercially-produced products. Women in this study did not dispose of menstrual materials in designated facilities, but rather discarded them in the environment. The disposal of menstrual products needs focused attention, as materials will accumulate in sanitation systems and the environment and may have impacts on population health.

In order to achieve the aspirational SDG goals by 2030, the needs of menstruating women must be prioritized. The findings from this study reveal that women, across life stages, have a broad range of concerns related to menstruation that have the potential to affect one’s physical, social, and environmental health.

## **Recommendations for Future Research**

MHM research has relied heavily on qualitative methodologies and as a result, has strong documentation of personal experiences, this study included. However, limited study designs and methodologies may preclude a broader evidence base for MHM research and programming. Quantitative research, intervention trials, observational studies, participatory methods, operational research, natural experiments, and standardized outcome measures could be considered for future research (Phillips-Howard et al., 2016; Sommer & Sahin, 2013).

This study contributes detailed accounts of menstruation for women across life stages and continued research centered on the experiences of women is recommended. MHM research primarily focuses on the experiences of adolescent girls in school settings and, while recent studies have centered on the experiences of women, this is a population that is largely overlooked in MHM programs, funding, and research.

Finally, further research should engage the value of the proposed definition for adequate MHM. The revised definition was developed from the results of this specific sample and should be tested in other populations to evaluate its validity. If the definition proves to have broad utility, it can inform program development, monitoring, and evaluation efforts as it is more inclusive of the scope of women's concerns and needs than the existing JMP definition.



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## Appendices

### Appendix A: Free-list Interview Tool

PART A. To Be filled out by RA at start of Activity			
A010.	Community Name: _____	A015.	Community ID#: _____
A020.	Activity Start time: ____ : ____ pm / am	A025.	Activity End time: ____ : ____ pm / am
A030.	RA Initials: _____	A040.	Consent Provided: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
A050.	HH ID#: _____ (from list/map)		
A060.	Participant Type: <input type="checkbox"/> 1. Over 18, unmarried, living with parents <input type="checkbox"/> 2. Recently married (three years or less) <input type="checkbox"/> 3. Married over 3 years with children <input type="checkbox"/> 4. Older woman (older than 49 years)		

PART B. To be asked of and answered by participant				
B010.	Age: _____ RA: Explain if participant's age seems erroneously reported: _____			
B011.	Education: <input type="checkbox"/> 1. None <span style="float: right;"><input type="checkbox"/> 5. Secondary Completed</span> <input type="checkbox"/> 2. Some Primary School <span style="float: right;"><input type="checkbox"/> 6. Some Tertiary / University</span> <input type="checkbox"/> 3. Primary Completed <span style="float: right;"><input type="checkbox"/> 7. Tertiary / University Completed</span> <input type="checkbox"/> 4. Some Secondary			
B020.	Number of years living in community: _____ years			
B021.	Religion: _____	B022.	Caste: _____	
B023:	Has BPL Card: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No			
B030.	Marital Status (check one): <input type="checkbox"/> 1. Unmarried <input type="checkbox"/> 2. Married → B031. If Married, number of years married: _____ <input type="checkbox"/> 3. Divorced → B032. If Divorced, number of years divorced: _____ <input type="checkbox"/> 4. Separated → B033. If Separated, number of years separated: _____ <input type="checkbox"/> 5. Widowed → B034. If Separated, number of years widowed: _____			
B040.	Who do you live with?: <input type="checkbox"/> 1. Parents <input type="checkbox"/> 2. In-Laws <input type="checkbox"/> 3. Husband <input type="checkbox"/> 4. Children <input type="checkbox"/> 5. Other, please explain _____			
B050.	Number of People in the Household: _____			
B060.	Do you have any children? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No → If No, SKIP to B070			
B060.	→ If the participant has children			
	1	Age: ____ <input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	2	Age: ____ <input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	3	Age: ____ <input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	4	Age: ____ <input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	5	Age: ____ <input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N

	6	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	7	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	8	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	9	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
	10	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
B070.	Pregnancy Status: <input type="checkbox"/> 1. Not Pregnant <input type="checkbox"/> 2. Pregnant. → B071. If Pregnant, Number of Months: _____				

PART C. Free listing, page 1																															
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2.	Please list the concerns or difficulties do you or women like you in this community face?																														
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PART C. Free listing, page 2		
3.	Please list the concerns or difficulties do you or women like you in this community face related to <u>WATER</u> :	
	<b>Concerns/ Difficulties</b>	<b>Positive Reflections</b>
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	<b>PROBE: Please list the concerns or difficulties related to <u>WATER WHEN PREGNANT</u>.</b>	
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5.	Please list the concerns or difficulties do you or women like you in this community face related to <u>DEFECATION</u> :																																
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10.	10.
<b>PROBE: Please list the concerns or difficulties related to <u>DEFECATION WHEN PREGNANT</u>.</b>	
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.

<b>PART C. Free listing, page 5</b>	
<b>6.</b>	<b>Please list the concerns or difficulties do you or women like you in this community face related to <u>MENSTRUATION</u>:</b>
	<b>Concerns/ Difficulties</b>
	<b>Positive Reflections</b>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.
10.	10.
11.	11.
12.	12.
13.	13.
14.	14.
15.	15.
<b>PROBE: Please list the concerns or difficulties related to <u>MENSTRUATION AT NIGHT</u>.</b>	
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
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9.	9.
<b>PROBE: Please list the concerns or difficulties related to <u>MENSTRUATION DURING MONSOON</u>.</b>	
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PART C. Free listing, page 6																																	
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10.	10.

<b>PART D. Closing Questions</b>	
B080.	How old were you when you had your first period? _____ years
B081.	Do you continue to experience monthly periods? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B082. IF NO, how long ago did you stop?</b> _____
B085.	What do you use to manage your menstruation? <input type="checkbox"/> 1. Cloth <input type="checkbox"/> 2. Pad <input type="checkbox"/> 3. Both cloth and pad <input type="checkbox"/> 4. Other, Please explain _____
B090.	Do you have a electricity within your household compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
B091.	Do you have a water source within your household compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B092. IF NO, how long ago did you stop?</b> _____
B093.	Do you have a latrine within your home compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>[IF NO→ END]</b>
B094.	If you have a latrine, how long have you had it? _____ Years
B095.	If you have a latrine, do you use it for urination? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
B096.	If you have a latrine, do you use it for defecation? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
B097.	If you have a latrine, do you use it during menstruation? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No  If yes, please explain how you use it:
<b>ASK if Participant has any questions</b>	
<b>THANK PARTICPANT</b>	

**Appendix B: Focus Group Discussion Guide (Unmarried Women)**

Focus Group Discussion Guide			
A010.	Community Name: _____	A015.	Community ID#: _____
A020.	Activity Start time: ___ : ___ pm / am	A025.	Activity End time: ___ : ___ pm / am
A055.	Date: (y/d/m) _____ / ___ / ___	A040.	Consent Provided by All: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
A045.	Recorder ID: _____	A046.	Recording # _____
A030.	Facilitator: _____	A035.	Note Taker: _____
Introduction			
<p>We are gathering today because we are interested in learning more about concerns women like you have. We are specifically interested in learning about concerns that women have related to urination, defecation, and menstruation. We are going to talk about each of these topics. To make you more comfortable, you do not need to share what you experience specifically. You can discuss what you know may be concerns for other women like you.</p> <p style="text-align: center;"><b><u>GROUND RULES / GUIDELINES</u></b></p> <ol style="list-style-type: none"> <li>1. Please respect what others say. Everyone deserves a chance to speak. Please do not interrupt when someone else is talking. If people speak over each other, we will have an interference in recording.</li> <li>2. If you begin talking when another is speaking, I will ask you to wait or I may hold up my hand to tell you to stop. But, I will get back to you when the person is finished.</li> <li>3. Please do not carry on private conversations with those next to you as it will interfere with the recording.</li> <li>4. This is a discussion, so please listen to what others are saying so that you can add your thoughts.</li> </ol>			
Warm-up			
<p><i>This question is designed to get everyone talking right at the beginning. If you feel people are still shy, we can have them go around and share something more.</i></p>			
<p><b><u>1. WARM UP</u></b>  First, we would like to start by having everyone share something about yourself. You do not need to say your name. Please go around and share. You can tell us who is in your family, what village you come from, or anything you like.</p>			

## Key Questions

Thank you all for sharing. We will now start talking about urination...

## 1. URINATION

SHARE ANY CONCERNS you think women like you may have when there is an urge to URINATE.

1. **ASK ABOUT CONCERNS.**
2. **PROBE:** Night, Monsoon, Pregnancy, and Dependents.
3. **ASK TO EXPLAIN LISTED CONCERNS. Ask WHY these are concerns. Get to the root.**
4. **Ask about any concerns NOT YET MENTIONED.**

<u>Said by Participants</u>	<u>Explained by Participants</u>	<u>CONCERN</u>	<u>Brought Up by Facilitator</u>
		1. People Around	
		2. <b>Have to Hold It / Wait</b>	
		3. Have No Proper Space	
		4. <b>Infection</b>	
		5. Feel Unclean	
		6. Have to Go Far	
		7. Need to Stop and Stand If Others Come	
		8. <b>Stop Drinking / Withhold Water</b>	
		9. <b>Need Company</b>	
		10. Fear Darkness/ Ghost/ Animals/Insects	
		11. <b>Fear People/ Men</b>	
		12. Hold At Night	
		13. Have Trouble Finding Space in Rains	
		14. Get Muddy	
		15. Get Wet	
		16. <b>Caring for Others when there is an Urge</b>	
		17. Care for Others' Urination Needs	
		18.	
		19.	
		20.	
		21.	
		22.	
		23.	
		24.	

Thank you all for sharing. We will now start talking about DEFECATION...

<b>2. DEFECATION</b>			
SHARE ANY CONCERNS you think women like you may have when there is an urge to DEFECATE.			
<ol style="list-style-type: none"> <li>1. <b>ASK ABOUT CONCERNS.</b></li> <li>2. <b>PROBE:</b> Night, Monsoon, Pregnancy, and Dependents.</li> <li>3. <b>ASK TO EXPLAIN LISTED CONCERNS. Ask WHY these are concerns. Get to the root.</b></li> <li>4. <b>Ask about any concerns NOT YET MENTIONED.</b></li> </ol>			
<u>Said by Participants</u>	<u>Explained by Participants</u>	<u>CONCERN</u>	<u>Brought Up by Facilitator</u>
		1. People Around	
		2. <b>Have to Hold It / Wait</b>	
		3. Have No Proper Space	
		4. <b>Infection</b>	
		5. Feel Unclean	
		6. Have to Go Far	
		7. Need to Stop and Stand If Others Come	
		8. <b>Avoid Food to Not Have Urge</b>	
		9. <b>Consumes More Time</b>	
		10. <b>Need to Fetch / Carry Water</b>	
		11. <b>Need to Go at Specific Time</b>	
		12. <b>No Place to go if Sudden Urge/Emergency</b>	
		13. <b>Need Company</b>	
		14. Fear Darkness/ Ghost/ Animals/Insects	
		15. <b>Fear People/ Men</b>	
		16. Hold At Night/ Avoid Going At Night	
		17. Have Trouble Finding Space in Rains	
		18. Get Muddy	
		19. Get Wet	
		20. <b>Caring for Others when There is an Urge</b>	
		21. Care for Others' Defecation Needs	
		22.	
		23.	
		24.	
		25.	
		26.	
		27.	
		28.	
		29.	
		30.	

Thank you all for sharing. We will now start talking about MENSTRUATION...



### 3. MENSTRUATION

SHARE ANY CONCERNS you think women like you may have during MENSTRUATION.

1. **ASK ABOUT CONCERNS.**
2. **PROBE:** *Night, Monsoon*
3. **ASK TO EXPLAIN LISTED CONCERNS.** *Ask WHY these are concerns. Get to the root.*
4. *Ask about any concerns NOT YET MENTIONED.*

<u>Said by Participants</u>	<u>Explained by Participants</u>	<u>CONCERN</u>	<u>Brought Up by Facilitator</u>
		1. Pain / Weakness	
		2. Need Privacy	
		3. <b>Infection</b>	
		4. <b>Scratches / Rashes</b>	
		5. Wearing Cloth / Pad	
		6. Changing Cloth / Pad	
		7. <b>Washing Cloth / Pad</b>	
		8. <b>Drying Cloth</b>	
		9. <b>Disposing Cloth/Pad</b>	
		10. Work Related to Menstruation	
		11. Need More Water	
		12. Have Restrictions	
		13. Depend on Others	
		14. Bathing	
		15. Feel Unclean	
		16. Concern When Not Home	
		17. <b>Urination More Difficult</b>	
		18. <b>Defecation More Difficult</b>	
		19. <b>Harm from Men</b>	
		20.	
		21.	
		22.	
		23.	
		24.	
		25.	

**Final Questions****1. COMPARED TO BOYS:**

How do you think boys' concerns compare to those of women during:

- Urination?
- Defecation?

**2. HOUSEHOLD WHEN MARRIED:** How would you feel if the house you went to when married:

- Did NOT have a latrine?
- DID HAVE a latrine?

*Only if girls do not want to use a latrine:*

- How would you feel if you were FORCED TO USE?

**3. PRIORITY: *Ask each person individually.***

Given what we have discussed, what CONCERN is the most important to address?

**4. QUESTIONS:** Do you have any questions for us?

**Thank You for your time**

## Appendix C: Focus Group Discussion Guide (Married Women)

Focus Group Discussion Guide			
A010.	Community Name: _____	A015.	Community ID#: _____
A020.	Activity Start time: ___ : ___ pm / am	A025.	Activity End time: ___ : ___ pm / am
A055.	Date: (y/d/m) _____ / ___ / ___	A040.	Consent Provided by All: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
A045.	Recorder ID: _____	A046.	Recording # _____
A030.	Facilitator: _____	A035.	Note Taker: _____
Introduction			
<p>We are gathering today because we are interested in learning more about concerns women like you have. We are specifically interested in learning about concerns that women have related to urination, defecation, and menstruation. We are going to talk about each of these topics. To make you more comfortable, you do not need to share what you experience specifically. You can discuss what you know may be concerns for other women like you.</p>			
<p><b><u>GROUND RULES / GUIDELINES</u></b></p>			
<ol style="list-style-type: none"> <li>5. Please respect what others say. Everyone deserves a chance to speak. Please do not interrupt when someone else is talking. If people speak over each other, we will have an interference in recording.</li> <li>6. If you begin talking when another is speaking, I will ask you to wait or I may hold up my hand to tell you to stop. But, I will get back to you when the person is finished.</li> <li>7. Please do not carry on private conversations with those next to you as it will interfere with the recording.</li> <li>8. This is a discussion, so please listen to what others are saying so that you can add your thoughts.</li> </ol>			
Warm-up			
<p><i>This question is designed to get everyone talking right at the beginning. If you feel people are still shy, we can have them go around and share something more.</i></p>			
<p><b><u>1. WARM UP</u></b></p> <p>First, we would like to start by having everyone share something about yourself. You do not need to say your name. Please go around and share. You can tell us who is in your family, what village you come from, or anything you like.</p>			

## Key Questions

Thank you all for sharing. We will now start talking about urination...

## 1. URINATION

SHARE ANY CONCERNS you think women like you may have when there is an urge to URINATE.

1. **ASK ABOUT CONCERNS.**
2. **PROBE:** Night, Monsoon, Pregnancy, and Dependents.
3. **ASK TO EXPLAIN LISTED CONCERNS. Ask WHY these are concerns. Get to the root.**
4. **Ask about any concerns NOT YET MENTIONED.**

<u>Said by Participants</u>	<u>Explained by Participants</u>	<u>CONCERN</u>	<u>Brought Up by Facilitator</u>
		25. People Around	
		<b>26. Have to Hold It / Wait</b>	
		27. Have No Proper Space	
		<b>28. Infection</b>	
		29. Feel Unclean	
		30. Have to Go Far	
		31. Need to Stop and Stand If Others Come	
		<b>32. Stop Drinking / Withhold Water</b>	
		<b>33. Need Company</b>	
		34. Fear Darkness/ Ghost/ Animals/Insects	
		<b>35. Fear People/ Men</b>	
		36. Hold At Night	
		37. Have Trouble Finding Space in Rains	
		38. Get Muddy	
		39. Get Wet	
		<b>40. Difficult Squatting When Pregnant</b>	
		41. Difficult Walking / Moving When Pregnant	
		<b>42. Caring for Others when there is an Urge</b>	
		43. Care for Others' Urination Needs	
		<b>44.</b>	
		<b>45.</b>	
		<b>46.</b>	
		<b>47.</b>	
		<b>48.</b>	

Thank you all for sharing. We will now start talking about DEFECATION...

<b>2. DEFECATION</b>			
SHARE ANY CONCERNS you think women like you may have when there is an urge to DEFECATE.			
<ol style="list-style-type: none"> <li>1. <b>ASK ABOUT CONCERNS.</b></li> <li>2. <b>PROBE:</b> Night, Monsoon, Pregnancy, and Dependents.</li> <li>3. <b>ASK TO EXPLAIN LISTED CONCERNS.</b> Ask <b>WHY</b> these are concerns. Get to the root.</li> <li>4. Ask about any concerns <b>NOT YET MENTIONED.</b></li> </ol>			
<b>Said by Participants</b>	<b>Explained by Participants</b>	<b>CONCERN</b>	<b>Brought Up by Facilitator</b>
		31. People Around	
		<b>32. Have to Hold It / Wait</b>	
		33. Have No Proper Space	
		<b>34. Infection</b>	
		35. Feel Unclean	
		36. Have to Go Far	
		37. Need to Stop and Stand If Others Come	
		<b>38. Avoid Food to Not Have Urge</b>	
		<b>39. Consumes More Time</b>	
		<b>40. Need to Fetch / Carry Water</b>	
		<b>41. Need to Go at Specific Time</b>	
		<b>42. No Place to go if Sudden Urge/Emergency</b>	
		<b>43. Need Company</b>	
		44. Fear Darkness/ Ghost/ Animals/Insects	
		<b>45. Fear People/ Men</b>	
		46. Hold At Night/ Avoid Going At Night	
		47. Have Trouble Finding Space in Rains	
		48. Get Muddy	
		49. Get Wet	
		<b>50. Difficult Squatting When Pregnant</b>	
		51. Difficult Walking / Moving When Pregnant	
		<b>52. Caring for Others when There is an Urge</b>	
		53. Care for Others' Defecation Needs	
		<b>54.</b>	
		<b>55.</b>	
		<b>56.</b>	
		<b>57.</b>	
		<b>58.</b>	
		<b>59.</b>	
		<b>60.</b>	

Thank you all for sharing. We will now start talking about MENSTRUATION...

### 3. MENSTRUATION

SHARE ANY CONCERNS you think women like you may have during MENSTRUATION.

1. *ASK ABOUT CONCERNS.*
2. *PROBE: Night, Monsoon*
3. *ASK TO EXPLAIN LISTED CONCERNS. Ask WHY these are concerns. Get to the root.*
4. *Ask about any concerns NOT YET MENTIONED.*

<u>Said by Participants</u>	<u>Explained by Participants</u>	<u>CONCERN</u>	<u>Brought Up by Facilitator</u>
		26. Pain / Weakness	
		27. Need Privacy	
		<b>28. Infection</b>	
		<b>29. Scratches / Rashes</b>	
		30. Wearing Cloth / Pad	
		31. Changing Cloth / Pad	
		<b>32. Washing Cloth / Pad</b>	
		<b>33. Drying Cloth</b>	
		<b>34. Disposing Cloth/Pad</b>	
		35. Work Related to Menstruation	
		36. Need More Water	
		37. Have Restrictions	
		38. Depend on Others	
		39. Bathing	
		40. Feel Unclean	
		41. Concern When Not Home	
		<b>42. Urination More Difficult</b>	
		<b>43. Defecation More Difficult</b>	
		<b>44. Harm from Men</b>	
		45.	
		46.	
		47.	
		48.	
		49.	
		50.	

**Final Questions****1. COMPARED TO MEN:**

How do you think Mens' concerns compare to those of women during:

- Urination?
- Defecation?

**2. LATRINE WORK:** Who is responsible for:

- Bringing water to the latrine?
- Cleaning latrine?
- Do women have concerns about this work?

**3. PRIORITY:** *Ask each person individually.*

Given what we have discussed, what CONCERN is the most important to you?

**4. QUESTIONS:** Do you have any questions for us?

**Thank You for your time**

## Appendix D: Demographic Tool

PART A. To Be filled out by RA at start of Activity			
<b>A010.</b>	Community Name: _____	<b>A015.</b>	Community ID#: _____
<b>A017.</b>	Hamlet?: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>A030.</b>	RA Initials: _____	<b>A055.</b>	Date: (y/d/m) ____ / ____ / ____
<b>A051.</b>	Participant ID#: _____ (Assigned: Give number card.)		
<b>A060.</b>	Participant Type: <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. Over 18, unmarried, living with parents</li> <li><input type="checkbox"/> 2. Recently married (three years or less)</li> <li><input type="checkbox"/> 3. Married over 3 years with children</li> <li><input type="checkbox"/> 4. Older woman (older than 49 years)</li> </ul>		
PART B. To be asked of and answered by participant			
<b>B010.</b>	Age: _____ → <b>B010_1: RA:</b> Explain if participant's age seems erroneously reported: _____		
<b>B011.</b>	Education: <ul style="list-style-type: none"> <li style="width: 50%;"><input type="checkbox"/> 1. None</li> <li style="width: 50%;"><input type="checkbox"/> 5. Secondary Completed</li> <li style="width: 50%;"><input type="checkbox"/> 2. Some Primary School</li> <li style="width: 50%;"><input type="checkbox"/> 6. Some Tertiary / University</li> <li style="width: 50%;"><input type="checkbox"/> 3. Primary Completed</li> <li style="width: 50%;"><input type="checkbox"/> 7. Tertiary / University Completed</li> <li style="width: 50%;"><input type="checkbox"/> 4. Some Secondary</li> </ul>		
<b>B020.</b>	Number of years living in community: _____	<b>B021.</b>	Religion: _____
<b>B022.</b>	Caste: _____	<b>B023.</b>	Has BPL Card: <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
<b>B030.</b>	Marital Status (check one): <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. Unmarried</li> <li><input type="checkbox"/> 2. Married → <b>B030_2. If Married</b>, number of years married: _____</li> <li style="padding-left: 20px;">→ <b>B031. If Married</b>, do you live with your husband               <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. Yes, live with husband</li> <li><input type="checkbox"/> 2. No, husband works outside the home</li> </ul> </li> <li><input type="checkbox"/> 3. No, Divorced → <b>B030_3. If Divorced</b>, # of years divorced: _____</li> <li><input type="checkbox"/> 4. No, Separated → <b>B030_4. If Separated</b>, # of years separated: _____</li> <li><input type="checkbox"/> 5. No, Widowed → <b>B030_5. If Widowed</b>, # of years widowed: _____</li> </ul>		
<b>B035.</b>	Number of People in the HH: _____	<b>B036.</b>	Is it a joint family? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No
<b>B040.</b>	Who do you live with:		
	<b>B040_11.</b> Mother	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	<b>B040_12.</b> Father	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	<b>B040_13.</b> Brother / Cousin	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	→ If YES, how many BROTHERS live with you ____? COUSINS ____?		
	<b>B040_14.</b> Sister / Cousin	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	→ If YES, how many SISTERS live with you ____? COUSINS ____?		
	<b>B040_21.</b> Mother In-Law	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	<b>B040_22.</b> Father in Law	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	<b>B040_23.</b> Brother in-law	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	→ If YES, how many brothers-in-law live with you _____		
	<b>B040_24.</b> Co-Sister in-law (married to brother in law)	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	→ If YES, how many sisters-in-law live with you _____		
	<b>B040_24.</b> Sister in-law (Husband's sister)	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No	
	→ If YES, how many sisters-in-law live with you _____		



	<b>B040_33.</b> Daughter in Law <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ If YES, how many daughters-in-law live with you _____</b>			
	<b>B040_88.</b> Other <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B040_51 If yes, please explain who and number _____</b>			
<b>B050.</b>	Do you have any children? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ If No, SKIP to B070</b>			
<b>B060.</b>	<b>→ If the participant has children</b>			
<b>1</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>2</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>3</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>4</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>5</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>6</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>7</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>8</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>9</b>	Age: ____	<input type="checkbox"/> 1. M <input type="checkbox"/> 2. F	Alive? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N	Living w/participant? <input type="checkbox"/> 1. Y <input type="checkbox"/> 2. N
<b>B070.</b>	Pregnancy Status: <input type="checkbox"/> 1. Pregnant <input type="checkbox"/> 2. NOT Pregnant. <b>→ B070_01.</b> If Pregnant, Number of Months: _____			
<b>D080.</b>	How old were you when you had your first period? _____ years			
<b>D081.</b>	Do you continue to experience monthly periods? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B081_1.</b> IF NO, how long ago did you stop? _____			
<b>D085.</b>	What do you use to manage your menstruation? <input type="checkbox"/> 1. Cloth <input type="checkbox"/> 2. Pad <input type="checkbox"/> 3. Both cloth and pad <input type="checkbox"/> 88. Other <b>→ B085_1.</b> If OTHER, Please explain _____			
<b>D090.</b>	Do you have electricity within your household compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No			
<b>D091.</b>	Do you have a water source within your household compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B091_1.</b> If yes, what kind of water source? _____ <b>→ B091_2.</b> If no, where do you get your water? _____			
<b>D092.</b>	Do you have an enclosed bathing area within your home compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No			
<b>D093.</b>	Do you have a latrine within your home compound? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>[IF NO→ END]</b>			
<b>D093_1.</b>	If you have a latrine, is it functional? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <b>→ B093_2.</b> If no, how long has it been broken? _____			
<b>D094.</b>	If you have a latrine, how long have you had it? _____ Years			
<b>D095_1.</b>	If you have a latrine, do you use it for urination? <input type="checkbox"/> 1. Always <input type="checkbox"/> 2. Sometimes <input type="checkbox"/> 2. Never			
<b>D096.</b>	If you have a latrine, do you use it for defecation? <input type="checkbox"/> 1. Always <input type="checkbox"/> 2. Sometimes <input type="checkbox"/> 2. Never			
<b>D097.</b>	If you have a latrine, do you use it during menstruation:			
	<b>D097_1.</b> For Urination	<input type="checkbox"/> 1. Always	<input type="checkbox"/> 2. Sometimes	<input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A
	<b>D097_2.</b> For Defecation	<input type="checkbox"/> 1. Always	<input type="checkbox"/> 2. Sometimes	<input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A
	<b>D097_3.</b> For Bathing	<input type="checkbox"/> 1. Always	<input type="checkbox"/> 2. Sometimes	<input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A
	<b>D097_4.</b> For Cleaning Cloth	<input type="checkbox"/> 1. Always	<input type="checkbox"/> 2. Sometimes	<input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A

	D097_5. For Changing Cloth/Pad <input type="checkbox"/> 1. Always <input type="checkbox"/> 2. Sometimes <input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A
	D097_6. For Disposing Cloth/Pad <input type="checkbox"/> 1. Always <input type="checkbox"/> 2. Sometimes <input type="checkbox"/> 3. Never <input type="checkbox"/> 99. N/A
<b>ASK if Participant has any questions OR any thing else to ADD</b>	
<b>THANK PARTICPANT</b>	