



MENSTRUATION WITHOUT BARRIERS

A STUDY ON

**Menstrual Health and Hygiene Related Issues in the
Plantation Community in Kandy and Nuwara Eliya Districts**

MENSTRUATION WITHOUT BARRIERS

A STUDY ON

**Menstrual Health and Hygiene Related Issues in the
Plantation Community in Kandy and Nuwara Eliya Districts**



**Human Development Organization (HDO)
Sri Lanka**

Menstrual Health and Hygiene Related Issues in the Plantation Community in Kandy and Nuwara Eliya Districts

Report by

**Dr. Nithershini Periyasamy M.B.B.S, M. Sc, MD (Community Medicine)
Consultant Community Physician, Regional Director of Health Services(Kegalle)**

**Dr.P.P Sivapragasam B.Com (Hons), Pg. Dip in Human Rights, M. HR (Col),
Ph.D in Development & Human Rights Studies.
Founder & Advisor, Human Development Organization.**

Edited by

**Dr. Dilini Rupananda
Community Physician, RDHS office Kegalle**

Supported By



In partnership with



Implemented By



Acknowledgement

The production of the study “*Menstrual Health and Hygiene Related Issues in the Plantation Community in Kandy and Nuwara Eliya Districts*” would not have been possible without the generous support and contributions of many individuals and institutions.

The Human Development Organization (HDO) extends its sincere gratitude to Dr. Nithershini Periyasamy, Regional Director of Health Services, for her thoughtful review of the report. We offer special thanks to Dr. P.P. Sivapragasam, Founder and Advisor of HDO, for providing the theoretical and practical framework and supporting the editing process. We also thank Dr. Dilini Rupananda, Consultant Community Physician at the RDHS Office, Kegalle, for her valuable assistance in data analysis.

HDO expresses appreciation to the following individuals and institutions: Dr. Nihal Weerasooriya, Provincial Director of Health Services, Central Province; Dr. Senaka Thalagala and Dr. Asela Perera, Regional Directors of Health Services in Kandy and Nuwara Eliya, respectively. We also acknowledge the estate management of Great Valley Estate (Kandy District) and Mayfield Estate (Nuwara Eliya District) for their critical input and coordination support.

We extend heartfelt thanks to our dedicated staffs particularly Mrs. P. Logeswary, Director of HDO; Mrs. H.J. Farhana, Finance Manager; Ms. Dharshika, Legal Associate; and Ms. V. Shalini, Finance Officer for their collaborative efforts in bringing this study to completion.

We gratefully acknowledge the Family Planning Association of Sri Lanka and the Embassy of France to Sri Lanka and the Maldives for their invaluable technical and financial support. Most importantly, our deepest gratitude goes to the Malaiyaga community, whose lived experiences enriched this research and inspired its development

- *Human Development Organization* -

Preface

Menstrual health and hygiene (MHH) is a fundamental aspect of human dignity, gender equality, and public health. Yet, for many women and girls living in Sri Lanka's plantation communities, managing menstruation remains a daily struggle marked by silence, stigma, and significant barriers. Recognizing this critical and under-addressed issue, the Human Development Organization (HDO) initiated this qualitative study to examine the challenges and realities faced by women and girls aged 15 to 49 years in two selected plantation sectors in Kandy and Nuwara Eliya districts.

This report arises from a deep commitment to empowering marginalized communities, particularly the Malaiyaha Tamil population, whose historical and socio-economic conditions have limited access to basic services, including menstrual hygiene management (MHM). The findings of this study reveal the intersectional impact of poverty, gender inequality, cultural taboos, and inadequate water, sanitation, and hygiene (WASH) infrastructure on menstrual health. Through focus group discussions and key informant interviews, we sought to amplify the voices of plantation women and girls—many of whom experience menstruation in silence, without adequate knowledge, facilities, or support.

The insights gathered not only highlight urgent needs but also provide a roadmap for action. They call for multisectoral collaboration among health, education, and community stakeholders to ensure that menstruation is treated not as a barrier but as a natural, manageable part of life. By centering the lived experiences of the community, this report underscores the importance of participatory and inclusive approaches to social development.

We hope that this study will contribute to policy change, inform targeted interventions, and inspire continued dialogue and advocacy for menstrual equity and dignity.

- *Human Development Organization (HDO)* -

TABLE OF CONTENTS

Acknowledgement	i
Preface	ii
Table of contents	iii-v
List of Tables	vi
List of Annexures	vi
List of Abbreviation	vi

1. Introduction

1.1 Menstrual Health and Hygiene (MHH)	1
1.2 Menstrual Hygiene Management and the Sustainable Development Goals	1-2
1.3 Period poverty	2-3
1.3.1 Challenges of appropriate MHM	3-4
1.4 <i>Malaiyaga</i> (Plantation) Community	4-5
1.5 Justification	5

2. Objectives

2.1 General Objective	6
2.2 Specific objectives	6

3. Methodology

3.1 Study Design	6
3.2 Study Setting	6
3.3 Study Period	7
3.4 Study Population	7
3.5 Sample Size Calculation	7
3.6 Sampling Technique	7
3.7 Study Instrument	7-8
3.8 Data Collection	8
3.9 Data Analysis	8
3.9.1 Quality of Data	8
3.10 Ethical Considerations	8-9

4. Results

4.1 Focus Group Discussions	9-10
4.1.1 Knowledge and Information on Good Practices	10
4.1.2 Facilities Available in Each Setting to Manage the Menstrual Periods	10
4.1.2.1 Menstrual Material	10-11
4.1.2.2 Management of Menstrual Hygiene Products	12
4.1.3 Hygienic Practices and the Availability of Washing and Cleaning Facilities	13-14
4.1.4 Supportive Environment	14-15
4.1.5 Socio-cultural Norms, Perceptions and Beliefs	15-16
4.2 Key Informant Interviews	16-19
4.3 Summary of Findings	19-21

5. Discussion

5.2 Menstrual Hygiene Management	21
5.2.1 Knowledge of MHM	21-22
5.2.2 Management of Menstrual Material	22-23
5.2.3 Supportive Environment and Infrastructure Facilities	23
5.3 Stigma and discrimination	23-24
5.4 Methodological concerns	24

6. Conclusion & Recommendations

6.1 Recommendations	24
Proposed Activities	24-27

7. Discussion

7. References	27-28
---------------	-------

8. Discussion

8. Annexures	30-34
--------------	-------

LIST OF TABLES

Table No	Description	Page No
1	Characteristics of the study participants are as follows	9
2	Distribution of categories of key informants	16

LIST OF ANNEXURES

Annexure No.	Description	Page No.
I	Focus group discussion guide	7
II	Key informant interview guide	7
III	Approval letter from Provincial Director of Health Services	8
IV	Approval letter from Ethic review committee	9

LIST OF ABBREVIATION

CBO - Community Based Organizations
 CDO - Child Development Officer
 EWO - Estate Welfare Officer
 FDG - Focus Group Discussions
 HDO - Human Development Organization
 KII - Key Informant Interviews
 MHH - Menstrual Health and Hygiene
 MHM - Menstrual hygiene management

PHM - Public Health Midwife
 PI - Principal Investigator
 SDG - Sustainable Development Goals
 UNICEF- United Nations' Children's Fund
 WASH -Water Sanitation and Hygiene
 WHO - World Health Organization
 PI - Principal Investigator
 MoE - Ministry of Education
 MoH - Ministry of Health

Introduction

1.1 Menstrual Health and Hygiene (MHH)

Good menstrual health and hygiene is a key to ensure the well-being and empowerment of women and adolescent girls. It plays a fundamental role in enabling women and girls to reach their full potential. Enhancing opportunities for women to have good menstrual health and hygiene enables them to achieve a good quality of life, and success in their education and career. According to the joint statement by the WHO and UNICEF, adequate menstrual hygiene management is described as “women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required and having access to facilities to dispose of used menstrual management materials” (1).

Menstrual hygiene management (MHM) is how females of reproductive age deal with their menstruation. Good MHM requires appropriate knowledge and understanding of menstruation in order for menstruation to be effectively and hygienically managed. Further, the use of clean materials to absorb or collect menstrual blood, the practice of good personal hygiene, and care during menstruation, the access to facilities to clean one's self, the disposal of used menstrual management materials with dignity and in an environmentally safe and responsible manner, are highlighted as essential components. MHM also needs to address societal myths, beliefs, and taboos that further potentiate poor MHM. Therefore, having appropriate

guidance and support for females in preparation for and during menstruation is another aspect of MHM (2).

Menstrual hygiene management can be particularly challenging for girls and women in developing countries, where clean water and toilet facilities are often inadequate. In addition to this, cultural barriers will also restrict them from having open discussions on menstruation. This limits access to relevant and accurate information about menstruation, directly affecting the health, education, career, and dignity of menstruators. Access to accurate information is a basic human right (3, 4). The need to recognize and address menstrual health as a human right is also highlighted by the WHO, and stresses the need to address the perspective of a life course event before menarche until after menopause in appropriate platforms (1). It should encourage women and girls to fully engage and participate in living, studying, working, and being involved in social activities, considering menstruation as a normal biological phenomenon, not to be ashamed or concealed.

1.2 Menstrual Hygiene Management and the Sustainable Development Goals

In 2015, all member states of the United Nations adopted an agenda for sustainable development by 2030. To achieve this target, 17 Sustainable Development Goals (SDGs) were introduced as an urgent call for action by all developed and developing countries in a global partnership. “Ending poverty, and other deprivations, improving health, and education, reducing inequality, and enhancing economic growth while tackling climate change, and working to preserve the natural environment are the broad areas under the SDGs” (5).

The MHM concept is associated with health and well-being, gender, equality, education, equity, empowerment, and rights which are addressed under different goals of SDGs. Accurate and timely knowledge on

menstruation, availability of safe, and affordable menstrual materials, timely referral and access to necessary professional health care services, sanitation and washing facilities, positive social norms, safe and hygienic disposal, and advocacy and policies help achieve favorable MHH among females (6). Most policies to fulfill favorable MHH are under the key objectives of the Sustainable Development Goals, especially SDG 6 targeted at water and sanitation. “SDG 6.2 acknowledges the right to menstrual health and hygiene, with the explicit aim to achieve access to adequate and equitable sanitation and hygiene for all, and the end of open defecation, paying special attention to the needs of women, and girls and those in vulnerable situations by 2030” (7). Access to gender-specific WASH for safe and dignified menstruation will help achieve this vision for sanitation and hygiene under Goal 6.

Good health and well-being are targeted in SDG 3, by ensuring universal access to sexual and reproductive healthcare services, including information and education. Hence, women and adolescent girls should gain and improve their knowledge on puberty and menstruation to prevent early and unwanted pregnancy, how to avoid stress and shame associated with menstruation, the available hygienic menstrual products, and menstrual health conditions in order to achieve SDG 3.

SDG 4 targets quality education to ensure all girls and boys can complete free, equitable, and quality primary, and secondary education, school absenteeism, or reduced attention in school during menstruation can occur due to many reasons, including the lack of WASH facilities, lack of access to menstrual hygiene products, or lack of support from the school community. All these directly or indirectly will affect their education and hence affect achievement of SDG 4.

SDG 5 is to achieve gender equality, and hence empowering all women, girls, and boys about menstruation is important. Menstrual health

education should be given to all women, girls, and boys to remove the taboos, and myths about menstruation, and enable them to participate freely in social, economic, and political activities, and eliminate all forms of discrimination against women (8).

SDG 8 is about achieving full and productive employment and decent work for all women and men. In order to fulfill that, improving female access to education, increasing job availability for females, ensuring gender-equal workplace opportunities and facilitating entrepreneurship, improving menstrual hygiene with menstrual-friendly work settings, and providing access to affordable menstrual materials can help females to contribute to the overall economy. Under SDG 12, “responsible consumption and production”, the failures to develop markets for quality menstrual materials and their sustainable consumption and production patterns needs to be addressed in order to achieve this SDG (5).

1.3 Period Poverty

Period poverty is an economic term that has multiple issues and refers to the inability of women and girls to afford and access menstrual hygiene products, the lack of sanitation and hygiene facilities, and the lack of knowledge and awareness to manage their menstrual health and hygiene (9). Period poverty is a global health issue that affects millions of women and girls globally, especially women and girls living in low- and middle-income countries. Women in these countries face challenges of stigma, unaffordable menstrual hygiene products, and the lack of adequate water and sanitation, leading to period poverty. Many females in underserved settings have reported using materials such as mud, leaves, old paper, cotton, and/or animal skin as absorbents to manage their periods (10). The use of these unhygienic products

and the use of products longer than the intended time can lead to reproductive tract infections, and long-term health issues (11). Despite the known health consequences, period poverty is often overlooked and not discussed due to social and cultural stigmas and taboos (10).

Poor MHM and the lack of access to menstrual hygiene products restrict girls' involvement in educational and social activities (12, 13). Often they do not attend school due to the fear of leaking, shame, embarrassment, period pain or inadequate sanitation facilities that do not allow them to wash or change in privacy (14). As menstrual products bring on a monthly expense that many people cannot afford, period poverty also widely varies based on income and residential locality such as urban and rural residences (15). Knowledge is also critical for girls to feel comfortable with menstruation and to gain a positive awareness of their bodies to overcome period poverty.

1.3.1 Challenges of Appropriate MHM

Globally 663 million people do not have basic access to safe water (16). Around 2.4 billion people lack adequate access to basic sanitary conditions (16). For women and girls, this lack of safe, accessible water, sanitation, and hygiene facilities (WASH) is particularly challenging during menstruation. It has been estimated that half a billion women lacked a place with privacy for MHM, and 75% of them lacked access to soap and water (17).

The onset of menstruation is especially challenging for school-aged girls in low-income settings. In addition to school absenteeism, missed class time, reduced participation, teasing, fear, and shame, there can also be risky adaptive behaviors. (18). Management of menstrual waste is also a big challenge for many sectors in developing countries including schools.

Available environmentally friendly methods are costly and cannot be accommodated in low resource settings in developing countries. Girls' access to water and sanitation at school is only available at 47% of all schools globally. (3) “Often, school toilets for girls are missing bins for menstrual waste collection, and a proper waste management schedule. Menstrual materials are thrown all around the school compound with the unpleasant sight of animals pulling them further out. This pollutes the environment, and causes embarrassment for the school girls (19).

Menstrual hygiene and health depends on the educational, socio-economic, and cultural status of a menstruator's family (20) usually, adolescent girls in marginalized communities have restricted and minimum mobility beyond their living environments. Therefore, they rely on scanty information from their relatives, mothers, or peers and follow what their mothers and other female relatives practice, especially regarding menstrual health. These, sometimes poorly advised socio-cultural practices, and rituals, are continued through multiple generations with significant misinformation.

In many countries, essential components of MHH are included in the school curricula. Teachers are capacitated to address menstruation and associated reproductive health topics, ensuring correct knowledge, and practices on menstrual health are passed on to schooling girls. However, most of the school settings in the marginalized communities have a scarcity of teachers, and the available teachers themselves are ill-equipped to address menstruation, and MHM in the classroom. Ultimately however, adolescent girls themselves also adhere to the culturally accepted, family menstrual practices taught by their elders, instead of getting the appropriate correct knowledge on MHH.

Poor menstrual hygiene practices can result in stress associated with menstruation and various reproductive tract infections. Due to the stigma and

taboo, many girls know little about menstruation when they get their first period, and as a consequence, they fear, worry, and manage their periods inadequately (21).

The unequal access to private, safe, and clean spaces is mainly based on wealth, education, and the infrastructural limitations of the household (22). Most households, and work settings in deprived areas do not have access to a flushable toilet, a place to dispose of menstrual waste and a place to wash hands, which significantly contributes to the inequality of safe and adequate MHM conditions. Many wealth-related inequalities in access to healthy, user-friendly menstrual material, and related products are observed in underserved communities (22). The choice of menstrual material is also influenced by the cultural context. The poor maintenance of reusable menstrual material, limited WASH access due to underdeveloped infrastructure, and associated cultural misbeliefs contributes to inadequate MHM in marginalized communities.

1.4 *Malaiyaga* (Plantation) Community

The *Malaiyaga* (Plantation) Community of Sri Lanka has a history of 200 years, established during the British era. This population are the descendants of South Indian Tamils brought from South India around 200 years ago to work on the plantations, initially in coffee cultivations and then on tea and rubber plantations. They were confined within the structure of the plantation, creating a pool of ‘residential laborers’. They were, and still to an extent are, dependent on the estate management for most aspects of their lives.

Considerable changes have happened within the estate sector since independence, as a result of direct, targeted policies, and as a response to national changes. However, poor geographical accessibility within the estates

makes them a vulnerable population with poor access to many services including education, and healthcare services. Isolation and limited mobility have marginalized the workers in the estates, and they have not received the benefits of development to the same extent as the rest of the country.

As a vulnerable population in Sri Lanka, their healthcare system is also unique and different from that of the rest of the country. The plantation community partially utilizes the national health services. Curative health services existing in the estate sector are provided through the estate management in most estates. The existing health system in the plantation sector has evolved through various legal enactments, but still needs further reforms to standardize the healthcare services for this community. Even today, the plantation sector consistently lags in access to public services and in attainment of a variety of social development indicators, scoring higher poverty rates with a poverty headcount rate of 8.8% against the national average of 4.1%, higher malnutrition rates among children and women (32% of stunting is seen among children under 5 in this community against the national average of 17%), and short stature of women below 145 cm is three times more prevalent in the estate sector than in other areas(18). There is also a lower contraceptive prevalence rate (58.9% against the national average of 65%) and the neonatal mortality rate in the estate sector is 8 per 100,000 live births compared the national average is 7 per 100,000 live births according to the data available in 2014 (23).

Crowded 'line-rooms' without partitions, public toilets situated far away from the houses, public water sources, lack of available pipe-borne water, lack of finances, lack of comprehensive education, cultural discriminations and misinformation, and unfavorable weather conditions that restrict the drying of reusable material, have become challenges to maintaining favorable menstrual hygiene amongst the women and girls of this community.

Most of the estate-working females are involved in harvesting and tapping in the fields with minimum sanitary facilities available. Therefore, housing conditions and sanitation facilities available in the estate sector significantly limit any improvement to menstrual health and hygiene.

HDO's field reports and group discussions in the plantation sector found that many girls are unable to manage their menses and associated hygiene with ease and dignity. This deprivation is even more detrimental for girls, and women in an emergency. The girls and women in the plantations cannot practice good menstrual health, and hygiene at home, at school, at work, or in other public settings, due to discriminatory social environments, significant misinformation, poor water, and sanitation facilities, and limited choice, access, and availability of safe menstrual hygiene materials. In addition, myths, and taboos often promote a high level of secrecy about even the most basic menstruation facts leading to the development of taboos, stigma, shame, and exclusion for women and girls, and the continuation of period poverty in this community.

In this context, HDO strongly believe, that the access to safe and dignified menstruation is a fundamental right for all women and girls. As quoted by UNICEF, "Meeting the hygiene needs of all adolescent girls and women in all settings enables human rights, dignity, and public health"(2).

1.5 Justification

The availability and accessibility of quality menstrual hygiene products, education on menstrual hygiene, health promotion including addressing cultural misbeliefs, and the availability of menstruation - friendly toilets and bathing facilities with appropriate disposal methods are vital to ensure sustainable MHM in the community. According to the literature, many

marginalized communities with underdeveloped infrastructure and sanitary facilities have had challenges implementing quality facilities in MHM (20). The estate sector in Sri Lanka has been identified as a vulnerable poor setting with a lack of facilities to provide quality MHM and care. The living environment, school, and occupational setting do not produce conducive environments for good MHM practices, and this is further aggravated by their daily wage status, duty hours, and workplace setting.

The application of qualitative methods to explore the issues related to MHM in the estate sector will enable access to accurate data concerning the real-life situation of menstrual health and hygiene management in the estate sector. Further, this topic is not well addressed within the estate sector in Sri Lanka. The findings of this study can assist preparation of guidelines to help improve infrastructure facilities, and knowledge, and practices on proper MHM for women, and girls in the estate sector.

Objectives

2.1 General Objective

The overall objective of this study is to conduct a situation assessment of the status of MHM amongst 15- 49-year-old females in the estates of selected Medical Officer of Health (MOH) areas in the districts of Kandy and Nuwara Eliya in Sri Lanka.

2.2 Specific Objectives

1. To obtain baseline information on the socioeconomic situation of MHM by females in the 15 - 49 years age group in the estate sector in the two selected MOH divisions
2. To obtain common menstrual health issues encountered by females in 15 - 49 years age group in the estate sector in the two selected MOH divisions
3. To determine the prevalence of inadequate WASH facilities in the sample study area chosen

Methodology

3.1 Study Design

A community- based qualitative study consisting of Key Informant Interviews (KII) and Focus Group Discussions (FDG) was conducted to determine the current situation of MHM among the 15 – 49 aged females in the estate sector, to identify the common issues encountered by them concerning their MHM, and to determine the prevalence of inadequate WASH facilities in the estate sector. Accordingly, the number of FGDs done was 10 (five in each district) each consisting of 6-8 participants, and 12 KII were interviewed in this study.

3.2 Study Setting

The study was conducted in two estate settings in two selected Medical Officer of Health (MOH) divisions in the Kandy and Nuwara Eliya districts of the Central Province of Sri Lanka. The central province has a significant proportion of tea plantations in Sri Lanka. In the Kandy district, the estate sector population constitutes 6.2% of the total population, with a total of 98,048 people residing in the estate sector in 8 MOH areas out of 23 MOH areas of the Kandy district. Nuwara Eliya district has a significant estate population (53.6%) distributed in 11 MOH divisions, with 437,076 people residing. One MOH division from each district was selected randomly out of all MOH divisions that had a significant estate community (more than 50% of the total population). The MOH Galaha and MOH Kotagala were selected as the study setting. Within each MOH division, one estate setting was selected based on the feasibility of accessing the inhabitants, and the success of communication with the administrative, and other supportive staff in the

setting. Great valley estate in MOH Galaha and Mayfield estate in Kotagala MOH area were the selected estates.

3.3 Study Period

This qualitative study was conducted from May 2024 to December 2024 (seven months), including the time taken for relevant administrative and ethical approval.

3.4 Study Population

This qualitative study was conducted using two methods. FDGs were mainly used on females in the estate community and KII were conducted to strengthen the information gathered from the females in the estate community further. FGDs in each estate setting were organized to be conducted among females aged 15 – 49 years who were schooling, school leavers, and those who worked in the estate setting. KII was planned to be conducted among a group of participants including estate superintendents, field supervisors (Kankani), school principals, school teachers, Estate Welfare Officers (EWO) and Public Health Midwives (PHM).

Those who were living in the estate temporarily (less than 6 months), and those who were resident outside the estate sector were excluded from the study population.

3.5 Sample Size Calculation

No specific calculation was used for sample size calculation. Therefore, the relevant respondents identified as key informants were interviewed until the necessary details were gained under the subtopics of the interviewer guide (Annexure I). The number of FGDs needed was decided based on the quality and quantity of data collected. Participants for the FGDs were selected separately as schooling girls, school leavers, and estate working

females. Cessation of FGDs was decided at the point of saturation, where the same information appeared during discussions.

3.6 Sampling Technique

All the participants and possible respondents were selected purposively to get the maximum output of their knowledge, experiences, and perceptions. The Principal Investigator (PI) personally visited the study settings before the commencement of data collection, and explained the importance of the study, and the future benefit of improving menstrual health and hygiene in the estate sector. Those who were included voluntarily agreed to participate for the FGDs and were enrolled in data collection. Key Informants were informed about the importance of the study, and its future benefits in improving the productivity of the estate sector, the quality of life of females, and the educational achievements of girls.

3.7 Study Instrument

A KII guide (Annexure II), and a guide for FGDs were prepared by the research team referring to literature and obtaining consensus from experts via personal communication. Experts consulted were in different fields related to the study objectives. A sociologist, zonal education director, Consultant Psychiatrist, Consultant Obstetric and Gynecologist, and specialist in public health were communicated with to improve the quality of the questions in the guides. Interview, and discussion guides were developed in English and translated into Tamil. Most of the questions were close-ended questions, open-ended questions were included to allow the respondents to express their thoughts freely. Cultural acceptability of the words used was confirmed with expert opinion. Prepared guides were pre-tested among five females in an informal work setting to identify any areas of improvement, and to determine

the clarity in understanding, acceptability in the local setting, and comprehension of each question.

3.8 Data Collection

Permission from the administrative authorities were obtained prior to data collection from the Provincial Director of Health Services, Central Province (Annexure III), and the estate administration of each estate. A convenient time and date was scheduled with the study population to minimize the disturbance in their routine daily activities, occupation, and schoolwork. The PI visited the setting and obtained written, informed consent before starting the discussions. In both Kandy and Nuwara Eliya, five different focus group discussions (FGDs) were conducted among the, target groups, with each FGD having 6 to 8 participants from each target group. Therefore, a total of 10 FGDs were conducted. The PI acted as moderator and the discussions were audio-recorded with prior permission from the participants. A volunteer attended every session as an assistant to take down notes, monitor the recordings, and debrief at the end of each discussion, all with confidentiality. Due to the sensitive nature of some discussions, those who wanted to express their views personally were allowed to do so at the end of each discussion. Recruitment for interviews was stopped at the point of data saturation.

3.9 Data Analysis

Discussions including the notes were transcribed verbatim by the PI on the same day of the interview. Thematic analysis method was used to analyze the data obtained following FGDs and KIIs by repeatedly going through the dataset, giving equal attention to all the data. The initial codes were developed for the emerging themes. After reviewing, the themes were named, and the thematic map was developed.

3.9.1 Quality of Data

Measures were taken to improve the quality of data both at the design stage and implementation stage of the study. All the FGDs were conducted by the PI, who is fluent in the Tamil language, communicating via verbal and non-verbal communication to minimize interviewer bias. Once the interviews and discussions were completed, the PI transcribed all the recordings from the Tamil Language into English.

3.10 Ethical Considerations

Throughout the process of development and during implementation of the study, the research team strictly adhered to the ethical aspects of the study. Information sheets were prepared in a simple language with adequate information regarding the objectives and the procedure of the study. As the participants of the study included a vulnerable community, consent from the participants was obtained before the study. Participants were allowed to clarify details regarding the study and allowed to withdraw from the study at any time without fear of penalty. Information obtained from the participants was kept confidential.

Discussion with the participants following the research questions was composed of a few aspects that were beneficial in improving their knowledge, attitudes, perceptions, and behavior related to MHH. Following the interviews conducted with key persons related to the estates, school administration, and work place of the study participants, the research team had the opportunity to convince them of the importance of MHH. Ethical approval for the study was obtained from the Ethic Review Committee, Faculty of Medicine, University of Peradeniya ERC No. 2024/EC/33 (Annexure IV).

Results

4.1 Focus Group Discussions

Five FDGs were conducted in the Great Valley, and Dunali (Private small holders' estate) in the Galaha MOH division from Kandy district, and the Mayfield estate in the Kotagala MOH divisions from the Nuwara Eliya district, of the selected estates at the scheduled time. Seventy participants were included in the predetermined age range. All the participants were origins of South Indian Tamils, who lived in selected estate settings. Except for four of them who were working outside part time while working in the estate all the others worked on the estate, attended schools in the estate sector, and spent their day within the estate.

Table 1: Characteristics of the Study Participants are as follows

Characteristic		No	%
Age	<= 18 years	23	32.85
	19- 25 years	22	31.42
	26- 49 years	25	35.73
Marital status	Married	41	58.57
	Unmarried	27	38.58
	Widow/ separated/ divorced	2	2.85
Religion	Hindu	64	91.42
	Catholic	4	5.73

	Muslim	2	2.85
Target population	School girls	25	35.73
	School leaver	10	14.27
	Estate worker	35	50.00

With the guidance of the guide, the FGD consisted of asking questions on the management of menstrual periods and their hygiene during menstruation. Discussion was continued until the exposure of the current situation and problems encountered in their daily life. MHH and its management by the participants could be described under the following broad categories.

1. Knowledge and information on good practices
2. Facilities available in each setting to manage menstrual periods
3. Supportive environments
4. Socio-cultural norms, perceptions and beliefs

4.1.1 Knowledge and Information on Good Practices

Knowledge of menstrual periods and the biological process for their occurrence was asked from all the participants. Except for a few who described the physiological basis of ovulation, and menstruation, others had different thoughts, ideas, and perceptions.

Tea Plucker - *“Menstruation is a way of passing bad blood from our body which helps to keep the body clean and healthy”*

Estate worker – *“Menstruation means the removal of bad blood from the body as a waste”*

School leaver – *“It is a change in the female body which happens monthly”*

Student 1– *“It is a cycle of hormones in the body, happens once in 28 days, egg passes out. If it goes beyond 6 days of bleeding, it is a problem”*

Student 2– *“For a woman to become pregnant, eggs are created in their body and the egg will break and pass out as the menstruation. It happens monthly.”*

Student 3 – *“After a girl child attained her age, then onwards after a month or two, due to hormonal change, there is bleeding happening. It is called the period”*

Except for two students, other study participants did not have the correct idea and appropriate knowledge of what menstruation is, the cause of menstruation, the organ from where menstrual blood comes, the average menstruation duration, and the interval between two menstrual cycles in days. The majority of participants did not know any information before their first menstruation (menarche). They were not informed by their parents or other older relatives. Many females explained that they were excited on that day but some of them cried a lot due to the unexpected menarche.

According to the participants’ information, the majority of the females received knowledge on menstrual periods, and how to manage their menstrual period from their community. The details on practices which they should do, and not to do during their menstrual periods was passed down to them from their mothers, grandmothers, aunties and sometimes from their elder siblings and peers. A few of them mentioned that they were taught about reproductive health in their school curriculum, but it was not comprehensive. None of them mentioned the school-based sexual and reproductive health awareness programs as a source of information on menstrual health.

4.1.2 Facilities Available in Each Setting to Manage the Menstrual Periods

In this section, the participants' details of absorbent material used, management of menstrual material when changing, storage, disposal, procedures done to reuse the material, availability of washing and cleaning facilities, hand washing, privacy, and the ability to buy absorbent material were described.

4.1.2.1 Menstrual Material

Almost all the school girls mentioned that they used menstrual pads as their preferred choice of menstrual hygiene product during menstruation. Except for two, all the schoolgirls in the study used menstrual pads when attending school. Two of students mentioned that they used separate old clothes when schooling. Some students mentioned that they used menstrual pads when schooling, and old clothes as menstrual materials when they were at home. Estate workers reported using both menstrual pads, and old clothes while working during their menstruation. One estate worker said that she used menstrual pads and clothes together, because of the fear of leaking. Most of the students mentioned they did not have separate undergarments to use during their menstrual periods. A few described that they used black colour undergarments during their periods to avoid staining.

None of them reported using menstrual cups, reusable pads, tampons and/or menstrual panties. Some of them had never heard about the other menstrual hygiene product, and some disclosed a fear of using such products. Estate worker 10 about the menstrual cup *"I am scared of using it, even by hearing it, I feel that using such thing would harm the birth passage of the girl child"*.

Estate worker 15 *“I had seen this item in an awareness program, but I am scared to use it.”*

One school leaver *“I saw this on Facebook, but didn’t know how to use it. I feared that it might go inside the body”*

Some women mentioned that they did not have the facilities to buy, maintain, and use menstrual pads during menstruation in their living environment. None of them expressed using any different unhealthy material other than menstrual pads, and clean old cloths as absorbents during menstruation.

Access to menstrual hygiene products, and challenges encountered were discussed in depth.

Student 6 - *“We need to buy them, it is very difficult these days, but somehow, we need to buy them. Sometimes we received a voucher worth 600 rupees from the school. But it was not regular. We didn’t get it for this month. That voucher really helped us.”*

Estate worker 5 - *“It is very difficult these days to buy them, many times we borrow money from the neighbors and repay them later. Sometimes we need to borrow from the nearby shop and pay later. Children used old cloths when they are at home.”*

Estate worker 20 - *“We got the vouchers from the school children. So, we bought the menstrual pads with those vouchers and shared between us (mother and her schooling girls)”*

Student 7 - *“Sometimes mother borrows them from the neighboring house, a friend of mine. Her mother is working in abroad. She had a stock of menstrual pads in her home.”*

Estate worker 15 - *“We struggle most of the time with difficulties buying pads, when we did not have adequate money, we bought a small packet with two pads”*

School leaver 1 - *“I used to write the monthly grocery list and include two packets of menstrual pads”*

Student 10 - *“My mother is in abroad. She every monthly sends money for me to buy daily needs including menstrual pads”*

The school leavers and the schooling girls mentioned that their parents bought the menstrual pads for them. Some estate workers said that their husbands would bring for them. Some got a voucher from the school to buy them, although this was not regular. Sometimes they borrowed money to buy pads, borrowed pads themselves, or bought them on demand. However, most of them did not have a habit of stocking menstrual pads at home or including it in their monthly grocery list.

4.1.2.2 Management of Menstrual Hygiene Products

Storage, disposal washing, and drying of reusable menstrual hygiene material among participants was discussed. They practiced different methods at home, in school, and in the work environment.

Student 11 - *“I used to wrap the menstrual pads in paper, collect them all, and burn them in the back yard of the house at the time of burning other garbage collected at home.”*

Estate worker 7- *“I used to bury them, because there would be a bad smell and black smoke comes out of it. I heard that it is not good for the health, especially for small children. I dug a hole and buried them. We didn’t have any other option or opportunity.”*

Estate worker 35 - *“I threw it into the toilet and flushed water. Then it would go. Sometimes I happened to flush more water to make it go.”*

Student 19 *“I broke it into small pieces, threw it into the toilet, and flushed it.”*

School lever 7 “During rainy days, toilets might get blocked, so, we collect them, and burn in the backyard”

School lever 8 “We would wrap it in paper; I didn’t use a shopping bag. I wrapped them in paper and kept them under the bed, and I buried them at the end of the day. It would not decay if I wrapped it in shopping bags.”

They used different disposal methods such as burying, burning, and disposing it into the toilet. There is no local government garbage collection system functioning in the estate setting. Most menstruators wrap the used menstrual material in paper, they collect it, and dispose at the end of the day. However, most females used polythene bags to wrap it even though they knew that it was non-biodegradable, and therefore harmful to the environment.

Disposal of used menstrual pads is a challenge in the school environment. Students described that they hardly change their menstrual material when at school and if they do have to dispose of it, they flush it off in the toilet or sometimes bring it back home. They were not allowed to dispose of the menstrual material in the school dustbin. One student mentioned “Usually, teachers do not know that we are flushing the used menstrual pads into the school toilet. If they got to know, they would punish us”

Almost all the estate workers in the study group mentioned that they were unable to change their menstrual product whilst working in the estate field.

Some female estate workers and a few students mentioned that they used cloths as an absorbent material. Students used them mainly at home. They prepared old sarongs, bed sheets and cut pieces of textiles to wear during their menstrual periods as menstrual materials. Usually, thin cotton materials were selected. All the participants mentioned that they washed them separately, usually inside the toilet first, and then in the washing area later. Detergent and soap (washing powder, Dettol solution and comfort) were used to wash them.

The majority dried the cloth on a separate cloth rope in the backyard of the house or inside the bathroom or on the side of their house. It might take two to three days to completely dry the product due to the limited sunlight in the 'Line rooms' (usually, single room, barrack type residential units (10-15 units together, each unit for a family)). With other dresses they are comfortable to dry the undergarments outside. Most of the women and girls mentioned that they covered the reusable menstrual cloths with another cloth or dress such as a shawl (chuddi) when drying. They felt shy to dry them openly, and fear of harming the male members in the family. None mentioned ironing the material before reusing it.

Females stored the dried pieces of reusable menstrual clothes in a cupboard, or a suitcase, where they store their other cloths.

4.1.3 Hygienic Practices and the Availability of Washing and Cleaning Facilities

Routine practices of changing menstrual material, hand washing and having a body shower or a bath, washing the genital region, and adherence to other hygienic practices were discussed with the participants. Further, the availability of infrastructure facilities to strengthen hygiene, such as separate spaces, availability of soap, and other detergents, and availability of a water supply, at a household level, school level, and in the work environment, was discussed in-depth with the participants.

Estate worker 13 - mentioned *"We always washed our hands after going to the washroom, even for ourselves, we felt that it was not good otherwise as we cook at home and serve food to small children. So, we washed hands thoroughly after using the toilets"*

School leavers “I used to feel bad if I didn’t wash the genital area with soap, so I used ‘Lifebouy’ soap to wash my genitals. If I don’t wash it, I get itching in that area.”

Estate worker 16 - “I didn’t have specific soap. But I used to wash the genitals with soap while bathing.”

Estate worker 17 - “Whenever I go to the washroom, I used to wash the genitals, but not with soap”

All washed their hands with soap and water after changing the used menstrual materials and all the participants washed their genital region with soap and water when they had their body wash. All the participants said that they had their usual body wash or bath even during menstrual periods. Some school leavers mentioned that they kept a separate soap in a separate container to use during menstruation. This was a common practice of all the participants.

Discussion on changing the menstrual material among participants found wide variation in their practices, challenges and issues with their environment.

School girl 14 - “I continued to change every 6 hours. But it was not possible always. When we wore it in the morning, we used to change it in the evening only. But now after various awareness programs, we were scared of infections and change every 6 hours.”

School leaver 8 - “I had more bleeding, so I changed it in every 3 – 4 hours. Even when I go out, I go prepared and find a washroom”

School leaver 10 - “When I am at home, I used to change it every 4 – 6 hours, if I go out, I might take a spare menstrual pad. If it is uncomfortable, I used to change otherwise not.”

School girl 18 - “Mostly twice a day, since, we have evening classes in the school, they instructed us not to change the menstrual pads inside the school. So, I used to change after coming home in the evening”

Estate worker 35 - “We wore in the morning 7.30am and used to come back home around 12.30pm-1pm and have a bath, change and go back to work. I might finish work by 5.30 pm, and come back home.”

A separate bathing and washing area was available for each family for most participants. They used it for washing, cleaning, and bathing during menstrual periods. Some of them mentioned that they washed in the toilet and then had their usual body wash or bath in the bathroom. Four out of all study participants (two students and two ladies) said that they used a water stream close by for washing and cleaning during their menstrual periods alone.

The majority of the students said that they wore the menstrual pad in the morning and went home around 2 pm to 2.30 pm and changed the material after having their usual body wash. Therefore, they did not need to change while at school. Most of them also complained th they did not have adequate water supply, and facilities at schools for changing their sanitary pads. Only two students mentioned that they had adequate pipe borne water in their schools.

Estate workers who worked in the tea estates mentioned that there were no toilets on the hillside, so they usually come home midway of working or they finish their work and come back home for their changing, cleaning and washing purposes when menstruating. One lady mentioned that there is a toilet at the site of tea leaves weighing, but it is far away from their tea plucking sites.

4.1.4 Supportive Environment

The environment at home, school, and the work where females manage menstruation was discussed.

Almost all participants expressed that they had a separate toilet for their family with adequate water supply through a pipeline at home ‘line rooms’.

Almost all of them hid or closed the undergarments and menstrual cloths with a thin cloth. Reasons mentioned included that men and boys also shared the same bathroom, and it was not nice, and they were also scared that something bad would happen to the men if they saw the menstrual materials. Two school leavers and few estate workers mentioned that they did not cover the reusable menstrual material when drying outside as they had privacy in their house due the location of their line rooms, at the corner and non-exposed to outsiders. The cloth that was used for menstruation would not dry well during rainy seasons; therefore, they would need to dry again in direct sunlight.

Student 12: mentioned *"Since there is no adequate water supply in the school, myself and other students couldn't change pads during the school time. Mostly we didn't use toilets until we came back home"*

Student 6: *"Both male and female students had separate toilets in the school. We had facilities to wash our hands in the school. If there was no water, we used water from our water bottle for washing our hands"*

Student 9: *"They (teachers) didn't allow us to dispose of the menstrual pads in the school dustbin, so, I used to change after I go home after school"*

Student 5: *"Since the students threw the used sanitary pads everywhere in the toilets, from last month onwards, the school authority informed us not to change menstrual pads in school."*

Student 10: *"I found it difficult to walk during those days. I felt like staying at home without going to school. Because we always needed to be aware about our white dress, whether it would stain or not. So, every time I used to check when I sat in the classroom. Fear of leaking menstrual blood was the main concern I had during those days. If such a thing happens, boys might laugh at us and we will be bullied. It might be very uncomfortable."*

Student 1 - "I used to feel like going home quickly. It was very stressful having the pain. My mother would help me a lot during those days."

Student 12 - "I walked to the school for a long distance by foot. So, it was tiring and difficult during a menstrual period, so I used to stay at home"

Student 19 - "I happened to change once in three hours as I used to have heavy bleeding. Even at school I go prepared and tell the teacher or sir before leaving the classroom. Even my sir understood the situation and allowed me to go to the washroom to change. If I did not have a sanitary pad, he used to give one from the stock in the classroom."

Estate worker 33 - "I used to get angry during menstrual periods. Family members did not understand this. If someone asked me to do even a small work or a task, I might get angry, and shout at them. Therefore, there would be arguments and fights with others."

Estate worker 27- "I didn't have any other thoughts, and did not think of anything. I only concentrate on work, because we must pluck 30kg of leaves to earn one thousand rupees per day."

Estate worker 29 - "Even if we have pain or any discomfort, we need to forget it, ignore it, and do the work to complete the target. We take two tablets of 'Panadol' and work. We need to ignore the body pain."

Estate worker 22 - "When we go to work, whether it was unexpected or unplanned, it was very difficult, we had to continue to work with wet panties. At the time of tea or during lunch break, we rush to the nearby line room and borrow pads from friends."

Estate worker 34 - "I am working in the tea hills. It is difficult during menstrual periods to climb up and down, the hills. During that period, we couldn't change pads. So, I used to regret being born as a female?!"

Estate worker 30 - "I need to change two times per day during my menstrual periods. If I go to the factory at 10 pm, there is no place there to change. So, I

come home at 8.30 am the next day and clean myself. We can use the toilet in the factory. But we couldn't change there, because the boys also use the same toilet."

Estate worker 32 "Very recently, on the top of the hillside they built a toilet. But there was no water supply. We hardly use that toilet, because we pluck one week on the hillside, and one week on the downside. Because there was no water supply in the bathroom, we didn't use it. Those who were going for firewood collection and other men hanging around there also used the same toilet. So, it was not clean for regular use."

Estate worker 31 - "At hills, if we have periods, we feel scared to tell the 'Kangani' If it was a female 'Kangani, we would tell her and go home, change and clean ourselves and come back for work"

'Kangani' - supervisor of the estate workers.

4.1.5 Socio-cultural Norms, Perceptions and Beliefs

Practices and perceptions on menstrual hygiene management among participants were extracted revealing many experiences from the estate community. Restrictions and rituals during menstrual periods are listed as follows:

- Not going to the temple/Kovil was mentioned by almost all Hindus except Christians and Muslims. (Two Muslim females mentioned that they do not have such restrictions, but they do not visit the Mosque frequently for prayers).
- Should not go to the pooja (prayer) room for seven day and should not light the oil lamp in the Pooja room (Prayer room) or touch any pooja material.
- Should not go near God's pictures (Swami padam) and should not do any spiritual rituals, or apply ashes on the forehead.

- Should not visit or touch newborn babies, as if they do so, the baby will not sleep well and cry continuously.
- Should not have intercourse when menstruating.
- After the periods end, they should clean the entire house before starting the rituals and prayers at home.
- Should not touch plants especially the Holy Basil (Thulasi) plant, Jasmine plant and vegetable plants. They should not water the vegetable garden or pluck vegetables, as those things were owned by the God. However, all mentioned that they can pluck the tea leaves.
- Should not go near the cattle shed, as if they do so, the cattle would get ticks and might become ill. they should not touch pets.
- Should not eat beetroot, eggs, dried fish and non-vegetarian food to avoid bad smell in the menstrual blood
- Should not have a bath on the first day of menstruation
- Should not lift heavy weights, but it was expressed “However, we need to carry 20 kg of plucked tea leaves from the hill to the tea- weighing site down!!”

However, few participants mentioned that they did not have any restrictions on food. They were allowed to have nutritious food, adequate water, and rest when menstruating. In addition to that many expressed their individual experiences and practices during menstruation.

“My mother, and grandmother do not allow me to go near the males in the family including my father, brother, and my own sons, They believe that something bad could happen to them, if I touch the male family members even accidentally”.

This was expressed by many women (plantation workers) and girls (school girls, and school leavers) who participated in the study, they were even not allowed to go near their male classmates in the school.

“I worked in a tea factory, and during menstrual periods, they would not allow me to go near or touch certain type of machinery. We ourselves will not go near them. We were not allowed to go outside the home alone in the night during menstruation”

“Those days in the past, we had to sleep alone and were not allowed to even use a pillow. We had to use separate utensils, but nowadays it is not practiced.”

“We won’t go to anybody’s home when menstruating they would be doing prayers daily, so we avoid visiting them”

“Relations on my mother’s side restrict me from touching the prayer rituals, and materials. But relations on my husband’s side and my husband himself allow me to do prayers and send me to the temple when menstruating. My mother-in-law was also very positive, and allowed me to do all the rituals. She helped in my daily work, and looked after my children during those difficult days”

“We were not allowed to enter the prayer room. Even our teacher did not allow us to attend assembly prayers. We sat separately. Then boys would get to know that we were having menstrual periods. They might giggle, and bully us. Even some teachers did not allow us to wear ash powder on the forehead.”

4.2 Key Informant Interviews

Interviews were conducted with key persons who were directly involved with schoolgirls, female estate workers, school leavers and females living in the estate community during their daily activities. Most key persons

were involved in administration, implementation of rules and regulations, teaching, and establishment of estate community welfare services. Therefore, they mainly communicate, facilitate, and deal with females in the estate community.

Table 2: Distribution of categories of key informants

Region	Key Informant	No
Kandy	School teachers	2
	School principals	1
	Welfare officer	1
	Child Development Officer	1
	Estate management representatives	1
Nuwara Eliya	School teachers	2
	School principals	1
	Welfare officer	1
	Child Development Officer	1
	Estate management representatives	1

A teacher who works in an estate setting school was interviewed.

“Menstruation is a natural, biological phenomenon which every woman faces monthly. It helps them to refresh every month, but it gives rise to pain, discomfort, and sometimes mood changes for many of them.

Female students face many problems when schooling during menstrual periods. The majority of female students suffer from abdominal pain and always stay seated with the fear of leaking from their undergarments, and staining their white uniform. I am a dancing teacher at the school. Nowadays, children participate in dancing, and sports events during their periods without fear. Morning they wake up, and come to school around 7.30 am, and till 2.30

pm they cannot change. Recently the practice has been changed. Most of girls' used menstrual pads instead of menstrual reusable cloths, and they even changed during school time.

We have separate toilets for girls, and boys in the school. A pad disposal dustbin and a hand washing area were available in the girls' toilet. An NGO has donated those facilities to the school. There is also a continuous water supply. All girls had a practice of carrying an extra pad in their school bags. We collected the used menstrual pads in a dustbin, and buried them at the end of the day. Female students would help us. Recently Education department gave vouchers for children to buy menstrual pads. My school was a small school in the estate setting in Galaha, but in large schools those facilities were not available, and there was no continuous water supply in some big schools."

Another male teacher was interviewed.

"Earlier days they had poor awareness. Even A/L students walked with stained uniforms. I used to send them back home many times. But it has changed a lot. Still there are many wrong practices, and restrictions during menstrual periods. Females are not allowed to go to prayer room. In those days they used clothes as menstrual absorbent, but now it is not very common, and many use menstrual pads. So, we should not have the same old idea now.

*My school is a remote school with 500 students. There are around 300 female students out of 500. They didn't have good facility in their toilets. School also did not have proper washing facilities. **I think that keeping a dustbin promotes students to dispose used sanitary material. So, keeping the dustbin in the toilet should not be done. I feel that female student should refrain from coming to school during menstrual periods***

We as responsible officers, need to create awareness among children both male and female students together. Otherwise, boys may bully their female counter parts”

A male principal from an estate school was interviewed.

“Menstruation is a cyclical event of women and a gift given from God to continue mankind through reproduction. Some don’t get it regularly and it can affect their fertility as well. Nowadays girls should be given adequate knowledge in this field. There should be a combined program by the health and education sectors to provide facilities, knowledge, and money to continue this program. Ministry of Education gave vouchers to buy menstrual pads. But now it is stopped, but I think it needs to be continued. I bought menstrual pads and stored them in the cupboard, and I instructed all my teachers also to do so in their classrooms to help the girl children in need during their periods. All female teachers have a small stock of menstrual pads in their cupboards at my school. Girls request for menstrual pads when they need them.

I have noticed the attendance of female students during menstrual periods in school reduced remarkably. *The white uniform is the problem. They are always tense, thinking of an accidental blood stain on their uniform. So, they didn’t come to the school. The school does not have good facilities for female students. There is a toilet, but continuous water supply and a disposal method of used menstrual pads are not available. Therefore, girls did not have the facility to change their menstrual materials during school time. They stayed till evening. Sometimes, they throw the used menstrual pads in the toilet, and flush it . So, toilets get blocked frequently. We didn’t have separate dustbins, or separate staff for cleaning and disposing of them. There are no teachers or other human resources. All schools have the same problem. That must be changed, and attention should be drawn to this matter.*

At home, some women keep themselves clean, but some do not. Health awareness should be given to help women take care of themselves during their menstrual period to avoid discomfort and family disputes. Taking treatment or taking measures to minimize discomfort, and pain during periods is less popular among females in the estate sector. Therefore it needs to be addressed. Women in olden days said that menstruation was solely for women and hid things in front of males. However, now due to many awareness programs, even men help the females during menstruation, by buying pads, and helping their children during menstruation”

A deputy principal from a national school in the estate sector was interviewed.

*“There are 2400 students; out of them 1500 are female students. There are around 800 female students whose age is more than 12 years. But our toilets didn’t cater to their needs. There are no facilities for disposal. They throw them everywhere. **Children don’t come to school much during those days.** Some students bear some myths related to the use of menstrual pads. They think that the use of pads would cause future subfertility. Now the menstrual pads are a bit expensive. The voucher given by the education ministry was helpful for them. I think it should be continued. Many of them in society are restricted from doing certain things during menstrual periods. I think it should be changed now.”*

A welfare officer was interviewed.

“Our estate management had built up toilet in hills with water supply. We also have female ‘Kangani’ to help them. We grant leave if they have any discomfort with menstrual periods.

“Though the working women in hills take an off during working hours, if they pluck 20kg only they will get their full day payment of 1000 rupees. Therefore, they have to work with any pain or discomfort to earn that money. Even with the pain, they need to work 5 days without staying at home to receive the full five-day payment. Even if a woman goes home to change during work hours, they lose the target weight of leaves and their daily wage. This is the real problem for many women and they are suffering from it.”

A Child Development Officer was interviewed (CDO).

“Menstruation is a monthly phenomenon amongst females, school children find it difficult to manage and study during those days. Some students don’t go for the whole 5 days in some months. They are pampered at home by their mothers. When we were small, our parents didn’t do this. Bathrooms in schools are not clean with no water supply, and sometimes no privacy to change their menstrual pads. In some schools, this is the reason for the children to stay at home during their periods”

An Assistant estate superintendent was interviewed.

“Menstruation is a matter with the reproductive system to have the next generation. Healthy females contribute to the next generation. It is not necessary to hide this and keep this a secret. Many do not expose this. This is a biological, natural phenomenon. Earlier we had some restrictions whilst working on the estate during the menstrual periods. Later the necessity of rest during menstrual periods was raised. Therefore, we allow women to go home and have rest during menstrual periods. Most of the fields are surrounded by line rooms. In one or two fields there were toilets and they had water as well, but not the hand washing facility. Hand washing facility was available in the child development centers (crèche) and in the dispensary. Most of them do

burning and burying to dispose of used menstrual material. On a few occasions, the estate management distributed menstrual pads which were received through donations. I had a strong feeling that we need to improve the knowledge among employees in this field. We need to raise the awareness among the school children.”

4.3 Summary of Findings

1. Adolescent girls in plantations face several challenges that impact their ability to manage menstruation hygienically and with dignity in schools. This contributes to school absenteeism, social isolation, and potential health risks and stigma.
2. Menstrual pads were the preferred menstrual material of all the study participants.
3. Similarly, females working in the estates and factories suffer from many challenges when managing their menstrual periods effectively in their work settings.
4. Poor knowledge about menstruation, the menstrual cycle, and MHM contribute to a lack of preparation for menarche, and the associated fear, anxiety, and embarrassment experienced by many girls at first menstruation.
5. Mothers are an important source of information on menstrual hygiene to almost all participants. However, their knowledge about menstruation and MHM is not enough to give sufficient, comprehensive, and accurate information to their daughters. This would further strengthen the cultural taboos among the future generations, enabling the propagation of stigma, myths, and discrimination against menstruating individuals.

6. Estate schools and teachers are ill-equipped to provide comprehensive education and advice about MHM. This is due to the lack of trained teachers, and poor access to teaching materials on menstruation.
7. Inadequate water, sanitation, and hygiene facilities in school and the estate work setting present challenges for menstruating school girls, school leavers and estate workers.
8. This study reveals that there is poor knowledge on the proper disposal of menstrual hygiene products. The lack of appropriate disposal methods for used menstrual absorbents, uncertainty about how to dispose of them, and practice of unhealthy, unsafe, harmful disposal methods causes adverse effects on both the environment, and the health of the community.
9. Many estate workers and school girls were found to be reluctant to change absorbent materials at school or at their work setting due to unfavorable infrastructure facilities (availability of running water and privacy), the lack of flexible working hours and administrative restrictions.
10. In addition to insufficient water for washing, including washing hands, unclean and small latrines and the lack of privacy contribute to the reluctance to change soiled menstrual pads at school. Subsequently, most of the girls happened to change absorbent materials only after returning home hence they wore soiled materials for longer than eight hours.
11. The majority of estate schools did not provide adequate water, disposal facilities and privacy for such practices. Only one small estate school teacher mentioned that they provided means of disposal inside the latrine (i.e. dustbins with closed lid inside), without such facilities it is hard for girls to dispose of absorbent materials.

12. Lack of appropriate, functional, and sufficient numbers of WASH facilities to support MHM practices, and a need to keep menstruation a secret contribute to the significant fear of leakage or staining of clothes. This anxiety results in school absenteeism, and reduced participation in academic and non-academic work, and with peers, including reluctance to stand in front of the class or participate in physical education.
13. Current practices and challenges faced by girls in school also have potential health risks. Lack of hand-washing and the use of unclean or soiled materials for long hours increase the risk of infection. However, direct evidence of the impact on reproductive, and urinary tract infections was lacking from this study population. The lack of adequate supplies of water and soap for hand-washing also raised concerns about the risk of infection.
14. Pain and other menstrual symptoms such as fatigue, lethargy, and dizziness were also significant contributors to reduced participation and performance in school. While most girls suggested that they missed school sessions because of menstruation, almost one in seven had missed one or more days during their last menstruation. Pain and feeling unwell were reported as the main reasons for school absenteeism, in addition to fear of staining. Almost all girls reported experiencing menstrual pain, and for a quarter of them pain was described as distressing or severe. Pain was a common reason for also not participating in class and contributed to poor concentration. Many girls were not able to adequately relieve these symptoms at school. Dizziness, fatigue, and lethargy were also common complaints during menstruation.

15. Secrecy and taboos surrounding menstruation meant that girls were particularly concerned about boys knowing that they were menstruating and feared being teased and bullied. There were also concerns about leakage, and staining at school.
16. Lack of knowledge and some misconceptions about the reproductive cycle, and menstruation may put girls at risk of unintended pregnancy. Sociocultural myths, and taboos without any scientific evidence restrict the mobility and activities of daily living of females, and damage their dignity, and self-confidence.
17. Most of the teachers who participated in the study too had misbeliefs, and poor attitudes leading to incorrect practices imposed in the schools they teach at. This can result in bullying, and further aggravated the stigma.



Discussion

This study revealed the unseen aspect of menstruation in an underserved community that was associated with many social determinants and socio-cultural misbeliefs. The results of the study helped to identify the existing gaps in service provision, and facilitate relevant stakeholders to enhance, and continue appropriate services on MHM in the estate sector.

5.1 Menstrual Hygiene Management

Many research studies conducted in low middle-income countries on menstrual health and hygiene management revealed important setting and region-specific issues. Therefore, many UN agencies have paid their fullest contribution and attention to minimize the inequities between the settings to manage, and maintain appropriate standards for menstrual health, and hygiene.

5.2 Knowledge of MHM

Important points extracted in KII and FGDs revealed the reality of menstrual health and hygiene, attitudes and perceptions of the estate community including that of key person, and also the cultural and social norms of the estate community in two MOH areas in Kandy and Nuwara Eliya districts.

Knowledge on the physiological aspect and the scientific basis of the menstrual cycle among school girls, school leavers, and estate workers was found to be insufficient

Knowledge and information on menstrual hygiene and its' management were taught to girls mainly from their close female relations; primarily from their mother, aunt and/or grandmother. Relatively less information was found from school and other awareness programs.

“My mother and grandmother do not allow me to go near the males in the family including my father, brother, and my own sons. They believe that something bad could happen to them, if I touch the male family members even accidentally”.

Except for a few schooling students, most study participants reported using menstrual pads as their preferred menstrual material. Other females used both menstrual pads and old cloths as menstrual material. *“...I change the pads twice a day, since, we have evening classes in the school, and they instructed us not to change the menstrual pads inside the school. So, I used to change after coming home in the evening”*

A tea estate worker “.... we wear a pad in the morning at 7.30am and used to come back home around 12.30pm-1pm and have a bath, change and go back to work. I might finish the work by 5.30 pm and come back home....”

Practices on changing menstrual absorbent material was poor amongst the majority of schoolgirls, and working women in the study group. This was primary due to the lack of infrastructure facilities in schools and in the work settings of the estate.

All the participants practiced either burying, burning, or flushing pads in the toilet as the disposal method. Each participant mentioned that they adhere to cleaning, hand washing, washing the genital region, and bathing (some reported not bathing on the first day of menstruation) during their menstrual periods. These were usual practices and a part of their menstrual management.

The majority of the facilities in the work settings and schools do not have basic facilities managing menstrual periods. However, facilities in most study participants' home environments were conducive to managing menstruation.

The respondents in the discussions came out with a variety of social norms, myths, and beliefs related to menstrual health management.

A significant number of students didn't know about menarche till they experienced it. Studies have shown that women from socially disadvantaged groups are more likely to have less understanding of knowledge on the menstrual cycle and hygienic menstrual practices (20, 21). A knowledge, attitudes, and practices (KAP) analysis of 720 adolescent girls and 282 female teachers in the Kalutara district of Sri Lanka in 2015 by Family Health Bureau (FHB) showed relatively close findings. Of the students, 66% were not aware of menstruation until menarche (24).

Schools in the estate sector in Sri Lanka experience a lack of adequate human resources for teaching. Therefore, students hardly receive teachings from their teachers related to this topic. Health professionals who worked and served the estate setting have conducted workshops on menstrual health; however, they experience language barriers to communicate necessary health messages. Improving the capacity of Teachers to address menstruation, and associated reproductive health topics without stereotypes is a crucial element in improving the health of school-going girls (25).

5.2.1 Management of menstrual material

A majority (98%) of participants used menstrual pads as their preferred menstrual hygienic product few used clean old cloth as menstrual material when they were at home, and three ladies expressed that they used old cloth material when going to work at the tea estates.

However, the frequency of changing the material was an issue among many participants due to the lack of a supportive environment in schools and at work. The majorities had not heard of the menstrual cup, and were reluctant to use this material due to fear of vaginal insertion and due to misconceptions such as concern over damaging the vagina. They hardly knew about other material such as tampons, and menstrual panties. Their practice of using disposable menstrual pads was established following many awareness programs. Practice of using other menstrual materials such as paper, and sponges which were found in many studies worldwide, but was not observed in this study. A systematic review conducted in India on MHM revealed a similar finding (25). Out of 88 studies, the use of absorbents was different by setting, with commercial menstrual pads more common in urban areas and clothes more commonly used in rural areas. However, in the current study, clothes was less commonly used in the school setting when compared to the work settings of the estates.

FDGs and KIIs revealed that many students did not attend schools during their menstrual periods. The main reasons were the fear of staining, not having facilities in the school for MHM, and physical discomfort. *“...I have noticed the attendance of female students during menstrual periods in school reduces remarkably. The white uniform is the problem. They are always tensed, thinking of an accidental blood stain on their uniform. So they didn't come to the school. The school does not have good facilities for female students.....”*

A study conducted in Bhutan showed a similar finding to the current study (26). Among 1010 participants, 24.2% reported missing college due to dysmenorrhea during menstruation. School absenteeism suspends academic activities among female students which may lead to school dropouts and poor

academic performance. This would affect their future careers and economic potential.

5.2.2 Supportive Environment and Infrastructure Facilities

Both the school environments and work settings in the estate sector were not organized as friendly settings for women and schoolgirls who were menstruating. Existing labour rules and administrative requirements are also not supportive with obtaining leave and allowing convenient duty hours. As the estate workers are also driven by daily wages, the reorientation of their daily performance to obtain the salary needs to be addressed by senior management.

Most of the estate settings have a very old infrastructure facilities since colonization by the British and very minimal changes and development activities have been done since. *“I need to change (my menstrual pad) two times per day during menstrual periods. If I go to the factory at 10 pm, there is no place there to change. So I come home at 8.30 am the next day and clean myself. We can use the toilet in the factory. But we can’t change there, because the boys also use the same toilet.”*

Living conditions for employees including sanitation facilities and housing conditions are at a sub optimum level. Relevant authorities should be convinced to ensure that the minimum standards of infrastructure are available in order to maintain good menstrual hygiene.

“...Therefore, girls did not have the facility to change their menstrual materials during school hours. They stayed till evening. Sometimes, they throw the used menstrual pads in the toilet, and flush it off . So toilets get blocked frequently. We don’t have separate dustbins, or separate staff for cleaning and disposing of them. There are no teachers or other human resources. All schools have the same problem.....” The establishment of

waste segregation and environment- friendly disposal system is costly and a challenge for the estate sector administration as well as the Ministry of Education. Their current practice of menstrual material disposal is harmful to them and to the environment as well. Disposal in closed dustbins should be the current disposable method promoted, and would require awareness raised among school children, and the stakeholders. However, due to the lack of a proper garbage clearance system in the estate sectors through the provincial authorities this again would lead to stagnant menstrual waste with no disposal location.

5.2.3 Stigma and Discrimination

This was a major obstacle for all study participants, affecting their education, health and social involvement. The current study revealed that almost all participants faced some sort of stigma and discrimination. Male participants in the study expressed mixed views on the current situation of menstrual health management. “..... *I think that keeping a dustbin promotes students’ to dispose the used sanitary material. So, keeping the dustbin in the toilet should not be done. I feel that female students should refrain from coming to school during their menstrual periods. We as responsible officers, need to create awareness among children, both male and female students, together. Otherwise, boys may bully their female counter parts*”. His statement is highly restrictive, and discriminative, but at the same time expresses concerns for the girl students too!!?.

Almost all Hindu participants in the study experienced psychological trauma during menstruation, as they were isolated from society. “*Usually, teachers didn’t know that we were flushing the used menstrual pads into the school toilet. If they got to know, they would punish us*” “*...We won’t go to anybody’s home when on our period as they would be doing prayers daily, so*

we avoid visiting them” “Relations on my mother’s side restrict me from touching the prayer rituals, and material (when I am menstruating). But relations on my husband’s side and my husband himself allow me to do prayers, and takes me to the temple. My mother-in-law was also very positive and allowed me to do all the rituals.....” “We were not allowed to enter the prayer room. Our teacher did not allow us to attend assembly prayers. We sat separately in the school classroom so then boys would get to know that we were having menstrual periods. They might giggle and bully us. Even some teachers did not allow us to wear ash powder on the forehead to school.”

These statements describe the significant discrimination, and stigma the menstruating school girls facing in the school.

“I worked in a tea factory, and during menstrual periods, they would not allow me to go near or touch certain type of machinery. We ourselves will not go near them. We were not allowed to go outside the home alone in the night during menstruation” this statement shows that the participants themselves were confused over their actions during menstruation.

5.3 Methodological Concerns

The research team adapted many strategies to minimize possible bias and to improve the quality of data at the implementation stage. The principal investigator (PI) who is Tamil-speaking and also fluent in the English language conducted all the discussions and interviews. Tamil discussions were transcribed into English from Tamil by the PI to minimize the errors. As the research was primarily conducted among females in an underprivileged community, ethical approval was obtained following necessary amendments in the research to ensure the rights of the community. Considering the administrative feasibility and to get the maximum output from the discussions and interviews, two estates were selected purposely. Not applying a non-

probability sampling technique may introduce selection bias to the study. Only two estates were involved in data collection considering the feasibility of implementation. The current study finding could not be generalized to entire plantation community in Sri Lanka, and hence the quality of the study findings and the region-specific information can be further improved if the interviews and discussions were extended and conducted in plantation settings of other districts in Sri Lanka.



Conclusion and Recommendations

Conclusion

This study highlights the unique challenges faced by menstruators in the plantation community.

1. The majority of the study population had poor knowledge and hygienic practices of menstrual health.
2. Most participants received knowledge and practices on menstrual hygiene management from their close relatives.
3. Schools and work settings did not have favorable environments or an appropriate level of WASH facilities to manage menstrual health.
4. The majority of students and other females used hygienically prepared or commercial menstrual pads as their preferred menstrual hygiene product.
5. Practice of changing menstrual materials and cleanliness during menstruation was significantly affected by the lack of supportive infrastructure facilities in the work setting and in schools.
6. Almost all participants did not use an environmental-friendly, safe method to dispose used menstrual products and as the products used were not biodegradable or reusable.
7. Significantly, almost all the study participants had many sociocultural norms, stigma and restrictions during menstruation especially related to religious practices and diet.

6.1 Recommendations

1. Improve access to comprehensive education about menstruation and menstrual hygiene among the estate community by mobilizing stakeholders in the healthcare and education sector.
2. Enhance the provisions on male engagement in menstrual hygiene management.
3. Introduce appropriate biodegradable environmental-friendly menstrual products at an affordable price.
4. Advocate for improvement of WASH facilities in schools.
5. Improve the accessibility to affordable menstrual products by raising awareness amongst local shopkeepers.
4. Advocate for menstrual leave or flexible working hours for the estate workers without it affecting their daily wage.
5. Advocate amongst estate administration for the improvement of WASH facilities at plantation workplaces.

6.1.1 Proposed Activities

1 and 2

- Support expansion of the current content on menstrual health education within the curriculum to include the physiology of the menstrual cycle, menarche, its' relationship to fertility and reproduction and menstrual disorders.
- Guidelines on MHM, including practical information about the management of menstruation at school, combatting common myths and misconceptions about menstruation (including traditional practices and beliefs, and recognizing religious and other cultural restrictions that may cause harm), should be introduced.

- MoH and MoE should support teachers to deliver menstruation education in school with appropriate training and teaching materials, to increase the knowledge and understanding of MHM amongst students.
- MHM by healthcare sector stakeholders should be integrated into the community through health promotion and health education activities delivered amongst employees in the plantation setting and members of the mother supportive groups.
- Continuous comprehensive SRH education for both male and female students would empower girls, and instill empathy and support amongst boys who will then be less likely to bully girls who are menstruating.
- Develop a Tamil medium resource pool of persons trained on sexual and reproductive health from the health sector.
- In addition to that strengthening community-based volunteer groups, mother supportive groups and youth groups, to disseminate the knowledge through them (utilizing social media groups, and using latest AI technology to combat the language barrier) and to deliver accurate knowledge, to further improve healthy menstrual practices amongst the estate community.

3.

- Provide menstrual hygiene materials and other commodities in schools, and work settings through allocated school teacher or allocated person from estate setting.
MoE and MoH should ensure schools have adequate resources to provide free or affordable disposable menstrual products.
- Establish a sustainable program by MoE to provide free menstrual pads/ vouchers to buy the menstrual pads/ subsidized price for the school children/beneficiaries.

- Establish an environment-friendly, sustainable waste disposal system in the estate sector - household level, work setting, and school level.
- Establishment of a segregated garbage collection system by the local government, and local level incinerator facility to dispose of used menstrual absorbent material by the MoE.
- Advocacy to relevant government authorities to take policy decisions to remove any taxes imposed on menstrual products to overcome unaffordability of menstrual hygiene products amongst vulnerable communities.

4.

- Reorient the labour regulations and wage policies at estate administration level to facilitate performance based daily/weekly wage system that would enable females working in the estates to take rest when necessary during menstruation.
- Allocate/ grant paid leave for females working in the estate sector during menstruation if necessary.
- Provide menstrual pads in sickrooms of all work settings to support them in case of emergency.
- Financial/ logistic support from NGOs, CSOs, CBOs could be obtained to provide menstrual materials for affordable prices.

5.

- Strengthen WASH facilities in schools and improve the facilities to achieve sufficient, appropriate, functional standards by MoE through the support of government and donor agencies.
- Strengthen the WASH facilities in work settings in the estate with the establishment of facilities in the field level with safe latrines, covered dustbins in the latrines, a hand washing facility, continuous water supply and regular cleaning schedules for working females in the field. Improve

the facilities in the factories with gender specific safe lockable toilets and continuous water facilities to ensure safety of the working females.

- Improve the housing and infrastructure facilities in the estate community to have the privacy in their own housing unit by abolishing the current 'Line room'.
- Establishment of a continuous safe water supply to improve healthy, safe menstrual hygiene practices and reduce the stigma.

References

Achalkar, K. (2024). Menstrual hygiene management among government school going adolescent girls in Tumakuru District, Karnataka in India: a comparative cross-sectional study. *JCCPSL*. 30 (2). <https://doi.org/10.4038/jccpsl.v30i2.8661>

UNICEF, Guidance for menstrual Health and Hygiene. [UNICEF-Guidance-menstrual-health-hygiene-2019.pdf](#)

Sommer M, Sahin M. (2013). Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. *Am J Public Health*. 103.1556–1559

UNICEF, Columbia University. (2012). *WASH in Schools - Empowers Girls' Education - Proceedings of Menstrual Hygiene Management in Schools Virtual Conferences*. UNICEF and Columbia University, USA, p. 2.

United Nations, Menstrual Health in adolescent girls. <https://sdgs.un.org/partnerships/menstrualhealthadolescentgirls#:~:text=WHO%20calls%20for%20menstrual%20Health,before%20menarche%20to%20after%20menopause>

Sommer, M. Hirsch, J, Nathanson, C, & Parker, R G. (2015). Comfortably, Safely, and Without Shame: Defining Menstrual Hygiene Management as a Public Health Issue. *American Journal of Public Health*. 105 (7). 1302–1311. <http://dx.doi:10.2105/AJPH.2014.302525>. [PMC 4463372](#)
[PMID 25973831](#)

Guidance on Menstrual Health and Hygiene. UNICEF. (2019). <https://www.unicef.org/media/91341/file/UNICEF-Guidance-menstrual-health-hygiene-2019.pdf>

Kakakhel, W. S. (2022). UNICEF: Learning from our experiences. <https://www.susana.org/resources/documents/default/3-5099-7-1666100784.pdf>

<https://sdgresources.relx.com/menstrualhygiene#:~:text=It%20is%20essential%20that%20all,directly%20impacted%20by%20menstrual%20hygiene>.

Lindsay, C. (2022). "Period Poverty: The Public Health Crisis We Don't Talk About". policylab.chop.edu.

Health, The Lancet Child & Adolescent. (2018). "Normalising menstruation, empowering girls". *The Lancet Child & Adolescent Health*. 2 (6). 379. doi:10.1016/S2352-4642(18)30143-3. ISSN 2352-4642. PMID 30169273. S2CID 52140727.

"Period poverty remains a critical, yet overlooked, health issue, advocates say". PhillyVoice. (2021)

UNESCO. (2014). *Puberty education & menstrual hygiene management - good policy and practice in health education - Booklet 9*. Paris, France: United Nations Educational, Scientific and Cultural Organization (UNESCO).

Montgomery, P., Ryus, C. R., Dolan, C. S., Dopson, S., Scott, L. M. (2012). "Sanitary pad interventions for girls' education Ghana: A pilot study". *PLOS ONE*. 7 (10). e48274. Bibcode:2012PLoSO...748274M. doi:10.1371/journal.pone.0048274. PMC 3485220. PMID 23118968.

Crofts, T. (2012). Menstruation hygiene management for schoolgirls in low-income countries. *Loughborough: Water, Engineering and Development Center (WEDC)*, Loughborough University.

House, S., Mahon, T., Cavill, S. (2012). "Menstrual hygiene matters. A resource for improving menstrual hygiene around the world". *London: WaterAid*.

Imran, Myra. "World Menstrual Hygiene Day Observed". The International News.

United Nations, Sustainable Development Goals. <https://sdgs.un.org/goals>

Loughnan, L. C., Bain R., Rop, R., Sommer, M. , Slaymaker, T. (2016). "What Can Existing Data on Water and Sanitation Tell Us About Menstrual Hygiene Management?" *Waterlines* 35.3. 228-44.

Wilbur, J, Torondel, B, Hameed, S, Mahon, T, Kuper. (2019). "Systematic review of menstrual hygiene management requirements, its barriers and strategies for disabled people". *PLOS ONE*. 14 (2). e0210974. Bibcode:2019PLoSO..1410974W. doi:10.1371/journal.pone.0210974. PMC 6365059. PMID 30726254.

Kjellén, M., Pensulo, C., Nordqvist, P., Fogde, M. (2012). *Global review of sanitation systems trends and interactions with menstrual management practices - Report for the menstrual management and sanitation systems project*. Stockholm Environment Institute (SEI), p. 25. Stockholm, Sweden.

Paria, B., Bhattacharyya, A., Das, S. A. (2014). Comparative study on menstrual hygiene among urban and rural adolescent girls of west Bengal. *J Family Med Prim Care*. 3(4). 413-417. <http://doi.org/10.4103/2249-4863.148131>.

Rossouw, L., Ross, H. (2021). Understanding Period Poverty: Socio-Economic Inequalities in Menstrual Hygiene Management in Eight Low- and Middle-Income Countries. *Int. J. Environ. Res. Public Health*. 18. 2571. <https://doi.org/10.3390/ijerph18052571>

Periyasamy, N. V. (2016). Update on the health status of plantation community in Sri Lanka. *JCCPSL*. 23 (4) DOI: <https://doi.org/10.4038/jccpsl.v23i4.8135>

Menstrual health and hygiene in Indonesia - Understanding practices, determinants and impacts among adolescent school girls, UNICEF

Eijk, A. M., Sivakami, M., Thakkar, M. B. (2016). Menstrual hygiene management among adolescent girls in India: a systematic review and meta analysis. *BMJ Open*. 6. e010290. <http://dx.doi.org/10.1136/bmjopen-2015-010290>)

Tshomo, T., Gurung, M. S., Shah, S., Gil-Cuesta, J., Maes, P., Wangdi, R., & Tobden, J. (2021). Menstrual Hygiene Management—Knowledge, Attitudes and Practices Among Female College Students in Bhutan. *Front. Reprod. Health*. 3. 703978. <https://doi:10.3389/frph.2021.703978>

ANNEXURE I

Menstrual Health and Hygiene (MHH) related issues among 18 - 49 years estate females in the selected MOH areas in the district of Kandy and Nuwera eliya district

Guide questions for Focus Group Discussions (FGDs)

Menstrual Health hygiene and menstrual health management in the school and home setting

1. Could you explain how do you able to get your services from the school during your menstrual period?

Probe questions

- i. What is your general opinion on women having the menstrual period?
- ii. From where did you hear or learn about menstruation, and about your menarche preparation
- iii. What was your feeling while going to school during your last menstrual period?
- iv. What were all the materials you used to catch/ absorb your menstruation when you at home during your last menstruation period?
- v. What were all the materials you used to catch/ absorb your menstruation when you at school/ outside home during your last menstruation period?
- vi. Do you have separate cloths (panties) to use during menstruation period?
- vii. Have you ever washed your menstrual materials during your last menstruation period?
- viii. How frequently you used to change the menstrual material during last menstrual period, when you are at home/ at school or outside home?
- ix. Tell about handwashing during the menstrual period?
- x. How often you wash your genital during your last menstrual periods?
- xi. If so, did you use soap while washing your genitals?
- xii. Where did you most often dispose your used menstrual materials when you are at home during your last menstrual periods?

- xiii. Where did you most often dispose your used menstrual materials when you are at school/ outside home during your last menstrual periods?
- xiv. While disposing your used menstrual material, did you usually wrap them in anything?
- xv. Where did you store your menstrual materials after your last menstrual period?
- xvi. Where did you wash your menstrual materials during your last menstrual periods?
- xvii. If so, did you use soap or detergent to soak your material?
- xviii. When your menstrual materials were drying, did you usually cover them with anything?
- xix. During your last menstrual period were your menstrual materials completely dry before you used them?
- xx. Did you use an iron on your menstrual materials before you reuse them during your last menstrual period?
- xxi. Do you know about the menstrual cup used to catch the menstruation? If so how do you use it?
- xxii. Do you have toilets for you to use during your menstruation period at home? If so, tell about the facilities there.
- xxiii. Do you have toilets for you to use during your menstruation period at school/ outside home? If so, tell about the facilities there.
- xxiv. What are the issues you generally face during the menstrual period at home/ at school/ outside home?
- xxv. Tell about the any issues in buying the menstrual materials monthly? Economic
- xxvi. From where do you get the information on menstrual hygiene and behavior during menstrual period (mother/ relatives/ elder sisters/ peers/social media/ school teacher)

ANNEXURE II

Menstrual Health and Hygiene (MHH) related issues among 18 - 49 years estate females in the selected MOH areas in the district of Kandy and Nuwera eliya district

Guide questions for Key Informant Interviews (KII)

Menstrual Health hygiene and menstrual health management in the school, home and work setting

This is an interview to assess the menstrual health and hygiene in schools, at home and at work setting.

1. What is your common opinion on menstruation?
2. What is your opinion on the services available to the students, teachers and workers during the menstrual periods?
3. Do the school, work place have the private separate girls' bathroom for students, teachers and workers to change during their menstrual periods?
4. Do the school/workplace have hand washing area in the bathroom for them to wash before or after changing this menstrual material?
5. Do the school, workplace have the facility to provide menstrual material in case of emergency?
6. How do they dispose their menstrual material in the school/ workplace?
7. How do you dispose the collected menstrual material in the school/ work place?
8. Generally, what is the reaction of male staff on hearing about the menstrual periods?
9. Could you please tell any specific incidents which really disturbed you due to the issues in the menstrual periods?
10. What is your opinion on what to do and do not do when they are menstruating?
11. Anything else you want to stress on this other than discussed.

ANNEXURE III

“නාලොයුතම පරම සිසිම”

දුරකථන
பணிபாளர் } 081 - 2224336
Director
தொலைபேசி } 081 - 2222341
அலுவலகம் } 081 - 2220206 - 8
Office
ෆැක්ස් } 081 - 2204755
පැකස් }
Fax



මගේ අංකය } CPC/PJHS/P3/3/2024
எனது இல }
My NO.
ඔබේ අංකය }
உமது இல }
Your No.
දිනය } 27/11/2024
திகதி }
Date

සෞඛ්‍ය සේවා දෙපාර්තමේන්තුව - මධ්‍යම පළාත
சுகாதாரத் திணைக்களம் - மத்தியமாகாணம்
Department of Health Services - Central Province

163, සංඝරාජ මාවත, මහනුවර.
163, சங்கராஜ மாவத்தை, கண்டி.
163, Sangaraja Mawatha, Kandy.



Dr.(Mrs.)P.Nithershini,
Regional Director of Health Services,
Kegalle.

Requesting administrative approval to conduct a qualitative study in Menstrual Hygiene in two MOH areas in Kandy and Nuwaraeliya.

Title: “ Menstrual Health and Hygiene (MHH) related issues among 15-49 years estate females in the selected MOH areas in the district of Kandy and Nuwaraeliya ”

This refers to the letter dated 05th June 2024 on the above title.

The training and research committee of the Department of Health Services, Central Province has reviewed and recommended your Project proposal.

I hereby grant permission to carry out this research study in two MOH areas in Kandy & Nuwaraeliya Districts.

It would be highly appreciated if you could share the study findings with us for the improvement of healthcare delivery in the province.

Dr. M.N. Weerasooriya,
Provincial Director of Health Services,
Central Province.

Dr. M.N. Weerasooriya
Provincial Director of Health Services
Central Province.

Cc:-

01. Regional Director of Health Services, Kandy/NuwaraEliya – for information and facilitate Pl.

අපගේ දැක්ම : “ශ්‍රී ලංකාවේ විශිෂ්ටතම පළාත් සෞඛ්‍ය සේවා දෙපාර්තමේන්තුව බවට පත්වීම”

எங்களுடைய நோக்கம் “இலங்கையின் மிகச் சிறந்த மாகாண சுகாதார சேவைகள் திணைக்களமாக உருவாகுதல்”
Our Vision : “To be the excellent Provincial Department of Health Service in Sri Lanka

ANNEXURE IV



ETHICS REVIEW COMMITTEE

Faculty of Medicine
University of Peradeniya

Tel : 081 - 2396361

Fax : 081 - 2389106

Dr. P. Nithershini,
Office of Regional Director of Health Services,
Kegalle.

19.11.2024

Dear Dr. Nithershini,

ETHICAL CLEARANCE LETTER

The Ethics Review Committee, Faculty of Medicine, University of Peradeniya has reviewed and discussed the protocol of Research Project No **2024/EC/33** entitled "**Menstrual Health and Hygiene (MHH) related issues among 18 - 49 years estate females in the selected MOH areas in the districts of Kandy and Nuwaraeliya**" submitted by you on **07.08.2024**. The committee has decided to approve the **version 3.0** of the referenced protocol on **04.11.2024**, subject to the following conditions that are mandatory:-

- It is understood that the study is being conducted in MOH area Galaha & MOH area Maskeliya.
- Any amendment or deviation to this study protocol should not be implemented until it is reviewed and approved by the ERC, Faculty of Medicine, Peradeniya. The required amendments/deviations should be submitted to the ERC, Faculty of Medicine, Peradeniya using the **Amendment Submission Form**.
- This certificate is valid until **03.11.2025** if and when an extension is required; a properly filled **Protocol Extension Submission Form with a progress report and a justification for extension** should be submitted to the ERC, Faculty of Medicine, Peradeniya, one month before the termination date.
- Submission of a report on Serious Adverse Events (SAE) to ERC every 3rd month during the period of study.
- Any Serious Adverse Event that occurs during the conduct of the study should be reported to the ERC Faculty of Medicine, Peradeniya immediately.
- The study should be conducted after obtaining informed consent from participant/guardian.
- Submission of progress report on ethical issues to the ERC, Peradeniya at the completion of one year period. (Please use the progress report format given in the website)
- Submission of a final report to the ERC, Peradeniya at the end of the study.
- The study has to be conducted in compliance with the approved protocol; failing to oblige may terminate the approval.

Thank you


Prof. Sulochana Wijethunga
Chairperson / Ethics Review Committee

Chairperson
Ethics Review Committee
Faculty of Medicine
Peradeniya

Prof. Saman Nanayakkara
Dean, Faculty of Medicine
University of Peradeniya
Peradeniya.
TP: 0812388840

Prof. Sulochana Wijethunga
Chairperson, ERC
Department of Pathology
University of Peradeniya
0812396688

Dr. Ashani Rathnayake
Secretary, ERC
Department of Anesthesiology
University of Peradeniya
0812396460

Our Vision

The vision of HDO is to establish a socially just, equitable, and a peaceful civil society through poverty eradication and sustainable development.

Our Mission

HDO works to empower communities through people-centered, participatory, and sustainable development, with a strong commitment to protecting the environment, promoting human rights, and advancing gender equality-driving lasting and transformative social change.



Human Development Organization

**P.O. Box 171, Kandy, Sri Lanka. | Tel./Fax: +94 81 2232217
Email: hdo.srilanka@gmail.com | Web: www.hdosrilanka.org
www.facebook.com/HDOKANDY | www.twitter:@hdo_kandy**