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An Evaluation of Save the Children's Menstrual Hygiene Management Training Program in Nepal

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An abstract of

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Abstract

An Evaluation of Save the Children's

Menstrual Hygiene Management Training Program

in Nepal

By Raghuraj Kasturi

Program Background: In 2013, Save the Children partnered with local Non-Governmental Organizations to implement a menstrual hygiene management training program for teachers in Nepal. The training program's purpose was to reduce absenteeism among female students in schools by training teachers to address students' menstrual hygiene management needs. Absenteeism among female students was assumed to be the result of the students' inability to manage menstruation at school, comfortably.

Methods: This study used a cross-sectional design to evaluate Save the Children's menstrual hygiene management training program in two districts. Key informant interviews were conducted with trained teachers and focus group discussions were conducted with male and female students at schools with trained teachers. In addition, structured observations were conducted to assess school facilities to determine their impact on girls' menstrual hygiene management needs. Data collected were then analyzed to evaluate the training program's impact on students' menstrual hygiene management needs.

Findings: The evaluation revealed that there were areas in students' knowledge and skill that influenced their ability to manage menstruations. When evaluating students' knowledge, there remained knowledge gaps on the menstrual cycle, students were dealing with conflicting discourses surround menstruation knowledge, they preferred natural remedies to manage dysmenorrhea and that other community organizations played a role in education. Most importantly, the knowledge helped empower teachers and students. When evaluating students' skills, schools lacked resources to properly demonstrate management strategies, girls preferred disposable pads over homemade pads, and teachers played a critical role in girls' management strategies. In addition, issues were disocvered with the schools' facilities that impacted girls' ability to manage their menstruations at school.

Recommendations: Recommendations were made to better improve the training program by providing knowledge to address menstrual cycle knowledge gaps, partner with other community organizations to better educate students, reinforce that pain medication is safe to use, and train teachers to better support students' menstrual hygiene management needs by fostering better relations with the students. Most importantly, this study revealed that teachers should be trained on how to organize and facilitate peer support groups for girls within the school.

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Definition of Terms

SC	Save the Children
PNGO	Partner NGO
MHM	Menstrual Hygiene Management
FT	Focal Teacher
SHN	School Health and Nutrition
ARSH	Adolescent Reproductive and Sexual Health
FRESH	Focusing Resources on Effective School Health
UN	United Nations
SDG	Sustainable Development Goal
VDC	Village Development Committees
KII	Key-Informant Interviews
FGD	Focus Group Discussion
WASH	Water, Sanitation, and Hygiene
WASH OBS	Water, Sanitation, and Hygiene Facility Observations
SSDO	Sun-Shine Development Organization
KDC	Kalika Development Center

Executive Summary

In Nepal, Save the Children (SC) and their local Partner Non-Governmental Organizations (PNGO) designed a Menstrual Hygiene Management (MHM) training program to reduce absenteeism in schools which was assumed to be a result of girls' inability to manage menstruations at school. In addition to training FTs, SC also constructed 'Girl Friendly' toilets for girls to have a safe and private space to manage their menstruation at school.

One component of the MHM training program was to train school focal teachers (FTs), teachers who were the focus of the MHM training program, on how to effectively communicate to students the process and side effects of menstruation and emphasize that it is a natural process. A second component of the MHM training program was training FTs how to demonstrate making homemade pads so that students will have a strategy to manage their menstruation at school. The overall purpose of the MHM training program was to reduce female absenteeism due to menstruation, by providing FTs with the education and skill on menstrual management to pass to students.

This evaluation seeks to determine how successful the MHM training program's objectives were transferred to FTs as well as determine the impact of the 'Girl Friendly' toilet in allowing girls to comfortably manage their menstruations at school. Qualitative interviews and structured observations were used at schools where FTs were trained and 'Girl Friendly' toilets had been constructed.

All of the qualitative interviews and structured observations were used to determine the impact of the MHM training program female students' MHM. The analysis produced the following findings:

1. Access to Menstruation Knowledge leads to Empowerment among FTs and Students

2. Lack of Knowledge on the Menstrual Cycle among Students

3. Conflicting Discourses Surrounding Menstruation Knowledge for Students

4. Students Prefer Natural Remedies to Manage Dysmenorrhea

5. Community Players Also Provide Menstruation Knowledge

6. Limited Resources for School Homemade Pad Demonstrations

7. Students Prefer Disposable Pads

8. FTs are the Key Influencers of Girls' MHM Strategies

9. 'Girl Friendly' Toilets Lacked Standardization

10. Lack of Access to 'Girl Friendly' Toilets

From the findings of this evaluation, the following recommendations have been made to better improve SC's MHM training program to meet girls' MHM needs in Nepal:

1. Provide more biological knowledge on menstruation to FTs to help fill in girls' knowledge gaps.

2. Make FTs aware of the critical role they play in integrating the knowledge girls receive at home to the knowledge they receive from FTs and provide strategies to help FTs do this.

3. Reinforce that pain medication is safe to use.

4. Provide FTs with strategies to partner with local community organizations to better educate students, especially with the community health post.

5. Train FTs on how to organize and facilitate peer support groups for girls within the school.

6. Reduce the time spent training FTs to make homemade pads and devote more time towards the education component since girls' MHM needs are centered around knowledge gaps.

7. Ensure that FTs still conduct homemade pad demonstrations for students without the financial means to purchase disposable pads

8. Dispel myths surrounding disposable pads and reinforce the notion that disposable pads are safe to use.

9. Help FTs understand the crucial role they play in empowering girls to manage their menstruations without shame or feelings of guilt.

10. Provide FTs with strategies to raise funds at the school-level to keep disposable pads available for students.

11. Ensure that all students, including the disable have full access to school facilities whenever they need it.

12. Ensure that all 'Girl Friendly' toilets are standardized and maintained to this standard through periodic maintenance checks.

13. Train FTs to be accessible to students, either by training FTs to develop rapport with students and/or developing a school wide policy that makes sure girls can access the services they need without being shy.

MHM Training Program Background

In 2013, Save the Children (SC) Nepal identified the need for improved menstrual hygiene management (MHM) among female students in the districts of Kapilavastu and Pyuthan to reduce school absenteeism. Upon recognizing this need, a MHM training program was designed for teachers in high schools throughout both districts. These teachers were considered focal teachers (FTs) since the MHM training program focused on training teachers. The MHM training program was designed under SC Nepal's School Health and Nutrition (SHN) and Adolescent Reproductive and Sexual Health (ARSH) programming. MHM fits under the SHN four pillars of Focusing Resources on Effective School Health (FRESH): equitable school health policies, school base health and nutrition services, safe learning environment and skills based health education. Due to the nature of MHM it naturally fits under ARSH, as well. This report is an evaluation of the MHM training program's impact on female students' MHM needs and provides recommendations on ways the MHM training program can be improved to better address the MHM needs of female students.

Since 2013, due to staff turnover and changes within the organization of SC Nepal, details about the MHM training program were unknown. This evaluation seeks to understand the way in which the MHM training program was implemented and the impact of the MHM training program on students' MHM needs. Furthermore, SC Nepal recognized that it was important to determine if the needs of students and teachers of these districts had remained the same or changed since the MHM training program was first introduced.

Female Student Absenteeism

Absenteeism in schools was perceived by school faculty to be a result of girls' inability to comfortably manage their menstruations at school. School teachers in both Kapilavastu and

Pyuthan districts noticed that absenteeism was an issue among adolescent girls and communicated this need to SC and Partner NGO (PNGO) staff during routine school visits. Teachers, in both districts, wanted to reduce student absenteeism since it was increasing among female students during their menstruation period.

SC and PNGO staff observed that student absenteeism was a result of two factors. Absenteeism among students below grade five was observed amongst both males and females, while absenteeism above grade five were mostly amongst females. When discussing this issue with teachers at schools, SC and PNGO staff determined that the younger students were missing school because they were hungry and would leave school to eat. From these school visits, faculty reported that those female students above grade five, were absent during their menstrual period.

SC and PNGO staff speculated that girls did not feel comfortable managing their menstruations at school. SC and PNGO staff assumed this was due to lack of knowledge regarding MHM strategies, lack of hygiene products at school, and lack of a safe and private space for female students. Therefore, if a girl was to begin menstruating at school she would not have access to the necessary materials; cloths, pads, or sanitary napkins to manage her menstruation. Girls were not receiving information nor resources to properly manage their menstruations comfortably and confidently at school and therefore, would go home.

Besides the need to fill the knowledge of MHM strategies and resource gap, SC also installed ‘Girl Friendly’ toilets in both Kapilavastu and Pyuthan district schools. SC determined that the construction of these toilets would provide girls with a safe and private space to manage their menstruations, as well as privacy to clean and dry their pads at school.

Purpose of MHM Training Program

Once SC and PNGO understood the reasons for girls' absenteeism they designed a MHM training program to reduce absenteeism in the schools. One component of the MHM training program was to train FTs on how to effectively communicate to students the process and side effects of menstruation and emphasize that it is a natural process. A second component of the MHM training program was training FTs how to demonstrate making homemade pads so that students will have a strategy to manage their menstruation at school. The overall purpose of the MHM training program was to reduce female absenteeism due to menstruation, by providing FTs with the education and skill on menstrual management to pass to students.

MHM Training Program's Objectives

In order to fill the knowledge and resource gap, the MHM training program was divided into an education component and skill component.

I. *Education component*: provide FTs with knowledge on menstruation and reproductive health to be transferred to students. Knowledge focused on the following subjects:

1. The biological process of menstruation with emphasis on it being a natural process.
2. The importance of maintaining a healthy diet during menstruation
3. Strategies to manage dysmenorrhea

II. *Skill component*: train FTs' on making homemade pads to be transferred to students. Skill focused on:

1. Pad construction
2. Pad cleaning
3. Pad drying

This evaluation seeks to determine how successful the MHM training program's objectives were transferred to FTs as well as determine the impact of the 'Girl Friendly' toilet in allowing girls to comfortably manage their menstruations at school.

Overview of Menstruation Studies in Nepal

U.N Sustainable Development Goals

In 2015, the United Nations (UN) set a new agenda to end poverty, protect the planet, and ensure prosperity for all by developing seventeen sustainable development goals (SDGs). SDG four focuses on ensuring inclusive and quality education for all and promoting lifelong learning. SDG five focuses on achieving gender equality and empowering all women and girls. Improving MHM relates to these two sustainable development goals, by providing women with culturally sensitive strategies to manage their menstruations with comfort and dignity which can facilitate opportunities for educational success and achieve gender equality. Unfortunately, certain cultures, including Nepali culture, view menstruation as a taboo thus stigmatizing menstruating women and hindering women's ability to achieve gender equality and empowerment as well as quality education and lifelong learning.

Menstruation and Women's Health

Research specifically targeting menstruation in Nepal began when studies revealed that women's health was impacted by menstruation. The first study on this topic to be published revealed that there were Nepali cultural practices for menstruating women that impacted their micronutrient uptake. Once it was understood that menstruation did impact women's health, a study was conducted specifically targeting menstrual morbidity further revealing the impact menstruation had on Nepali women's health.

One of the first studies in Nepal to explore menstruation and its impact on women's health was conducted by Gittlesohn 1997, who identified the link between nutrition and menstruation in rural Nepali households. Gittelsohn's research team used recall and observation methods to assess nutrition intake among menstruating women in 105 rural households. From the data collected, the

research team noticed that micronutrient intakes of adolescent girls and adult women was less than the intakes of other household members. This gender differential appears linked in part to the way women are shunned while they are menstruating. This study showed that there were cultural implications for menstruating women and could affect women and girls' nutrition.

It wasn't until 2003 when research focused on the impact of cultural behaviours around menstruation on women's health, focusing on menstrual morbidity. A study by Padhye et al. 2003, conducted a prospective study at a private clinic in Kathmandu for a period of three months and focused on 525 patients coming to the clinic with current or past menstrual problems. The study aimed to find incidence of menstrual morbidity and their mode of presentation. Another objective of this study was to understand the impact of "discriminating traditional rituals" during girls' 1st and regular menses. The research team discovered that more than 90% of women had to follow traditional "unhealthy and unsociable" rituals at menarche and more than 75% woman continued to be subjected to these practices, where the community would perceive them to be "untouchable" for five days of every month for the rest of their "active reproductive lives". This study showed that women's health was impacted during menstruation and further revealed that Nepali cultural practices could magnify the detrimental health impact of these behaviours on women's health.

From these studies, it was clear that women's health was impacted by menstruation in Nepal. This sparked further studies to not only focus specifically on menstruating women as a study population but also to understand the cultural implications of Nepal on this subject.

Knowledge about Menstruation

Before discussing Nepali cultural practices and its effect on menstruation, it is important to understand how Nepali women received information on menstruation. Multiple studies were conducted to understand what Nepali women knew about menstruation and how the Nepali culture

influenced the way knowledge was communicated to women of reproductive age. Researchers identified major knowledge gaps with menstruating Nepali women and further realized that Nepali traditional practices were associated with these knowledge gaps.

G.C. and Koirala 2013, released a report on student perceptions of menstruation. The purpose of this report was to identify how Nepali girls get information on menstrual practices and identify cultural practices around menstruation. The study recruited 22 female students in Biratnagar city, located in the Terai region in Southern Nepal who were asked to write essays about menstruation. These essays were then and then assessed to understand girls' knowledge of menstruation. From these analyses, several misconceptions and knowledge gaps about menstruation existed among Nepali girls.

A study conducted by Sapkota et al. 2013, targeted knowledge and practices among school girls and further explored this knowledge gap issue. The research team conducted a descriptive study among 61 secondary school female students in Panchkanya, Sunsari, a district adjacent to Dharan in the Southeast of Nepal. The study found that only 36.1% of girls reported correctly about menstruation and that the most common source of knowledge was girls' mothers. In addition, the study discovered that 54.1% of girls used sanitary pads and 78.7% reported suffering from dysmenorrhea. The study concluded that traditional menstruation beliefs persisted and that MHM among the girls was "unsatisfactory". It is important to note that this study revealed that Nepali cultural practices were associated with how women received information on menstruation

A similar study was conducted by Auemaneekul et al. 2013, at a secondary school in Rupandehi, located in the Southern part of Nepal, also in the Terai region bordering India. A cross-sectional study using self-administered questionnaires for 150 students was conducted. Similar results to Saptoka's study were reported where 53% of girls had poor MHM, and again the mother

was the best informant. The report concluded that health education is an essential requirement to fill the knowledge gap to promote "accessibility, availability and sanitary facilities and products". The research team suggested that further research with qualitative methods would be useful since this is a sensitive issue needing a better understanding of adolescents' menstrual hygiene practices in the context of Nepali culture and traditions.

In 2014 a study conducted by Pandey 2014, used qualitative methods to explore the menstruation challenges experienced by girls in the Kathmandu valley. A qualitative approach was used, and only a focus group discussion (FGD) of girls age 12-18 years were recruited from a private and public school in Kathmandu valley. There was a total of 21 girls, 12 from class 8, 5 from class 9 and the remaining 4 girls from class 10. Data from the FGD revealed that girls' knowledge of menstruation was better than practice, but both were still unsatisfactory. Similarly, girls needed to be educated about the process and significance of menstruation, use of pads or absorbents and proper disposal.

Another study on menstrual knowledge, conducted by Kapoor and Khari 2016, used a cross-sectional study to recruit 100 adolescent girls who had attained menarche from a hospital attached to a teaching institution, catering predominantly to lower and middle economic classes. A pre-validated semi-structured questionnaire was used to assess the girls' knowledge, experience, effect of mother's education on menstrual hygiene practices and factors affecting their positive and negative attitudes. The results revealed that 56% of girls reported that their primary source of knowledge on menstruation was their mother. Only 11% knew that menstruation was a naturally occurring process, and only 28% were mentally prepared before menarche. Also, 46% of girls used readymade pads. Maternal education was found to be significantly associated with use of readymade pads (P = 0.031). In addition, significant positive correlation was seen between

premenarchal preparedness to "pleasantness" (r = 0.3215, P = 0.001), while negative correlation was found between preparedness to "secrecy" (r = -0.1549, P = 0.124), "annoyance" (r = -0.1421, P = 0.158) and "worrying thoughts" (r = -0.2074, P = 0.038). There was also negative correlation observed between years of experience with menses to "secrecy" and "worrying thoughts" (r = -0.0162, P = 0.872 and r = -0.1033, P = 0.864, respectively). The study concluded that there was a significant lack of knowledge, poor hygiene practices and negative attitude among adolescent girls that could be remedied by educating the girls and their mothers.

Another study was conducted to see menstrual pattern and abnormalities in two boarding high schools in Dharan, located in the Southeast of Nepal. Sharma and Gupta 2003, carried out a cross sectional study of 96 girls ranging from 11 years to 17 years and determined that 73% of them were "psychologically prepared" before reaching menarche, however, only 8% knew only "very little" about abnormalities that can occur during menstruation and the rest were completely ignorant to these issues. From this study, there was a clear need for comprehensive health education on menstruation to allow girls to differentiate the normal phenomenon from abnormality and allow them to report any case of aberrance in the menstrual cycle.

In the Adhikari et al. 2016 study, the research team set out to evaluate 150 adolescent girls between 13 and 15 years from 3 schools in the village development committees of Chitwan district, again, in the Terai region of Southern Nepal. Their data revealed that girls were not properly maintaining their menstrual hygiene at all. Only 6% of girls understood that menstruation was a physiological process, and of these girls only 36.7% knew that menstruation is caused by hormones. As far as MHM strategies, 94% used pads but only 11.3% knew how to properly dispose of the pads. The study concluded that girls should be educated about the biological process of menstruation and its significance, use of proper pads or absorbents and its proper disposal. This

study and the one conducted by Sharma and Gupta reported that health education and training are needed for girls to properly manage their menstruations.

Studies targeting menstruation knowledge of Nepali women all overwhelmingly revealed that there were major knowledge gaps. Most women received information on menstruation from their mother and mothers directly influenced MHM strategies of young girls. The studies revealed that the cultural context of Nepal and the stigma surrounding menstruation not only influenced how girls access this information, but also how girls will practice MHM. Yet, it was still unclear what specific details of the culture influenced these knowledge gaps.

Cultural Influences on Menstrual Hygiene Management

Menstruation is a highly stigmatized cultural issue throughout Nepal reflected by the cultural practice of "chhaupadi". Chhaupadi is a social custom practiced by many Hindu Nepali families where menstruating women are prohibited from normal family activities and are exiled to barns or sheds during the length of their menstruation period. Only recently has there been international attention on this cultural practice and very few studies have been conducted to understand "chhaupadi's" impact on adolescent girls' MHM.

Khagendra Dahal 2008 reported that a Nepali woman died after being banished to a shed during menstruation. This article shed light on the cultural practice of "chhaupadi" where menstruating women are exiled to sheds or barns for about five days of every month. In this particular case, a 24-year-old woman living in the Western hills of Nepal developed a cough and cold after being exiled in mid-October and later died from sepsis after pneumonia. This article brought attention to the cultural practice of "chhaupadi" which is particularly prevalent in rural communities throughout Nepal, despite the government declaring it illegal in 2005. Clearly, Nepali culture and traditions influenced women's health during menstruation. Dahal's 2008 report

indicated that this was not an isolated incident and that similar cases have been reported in other rural communities in Nepal.

One report systematically reviewed reports of "chhaupadi" throughout Nepal. Bhandaree 2013 and his team randomly sampled 28 "chhaupadi" incidents from national newspapers and legislative cases between 2010 and 2012. Of these incidents, 9 resulted in death of the female, 2 resulted in illness, 7 reflected the "ill" practice of "chhaupadi", 5 explored awareness programs (1 proved to be ineffective), and the remaining 5 related to issues of family ostracism. The report concluded that the estimated impact of "chhaupadi" is more severe than perceived since the data was collected from newspaper reports and not a "complete independent comprehensive research" study.

Shortly after this report, Crawford 2014 and her research team released an exploratory report titled *'This is a natural process': managing menstrual stigma in Nepal*. Female residents from Kathmandu metropolitan area were recruited and 2 focus group discussions with 4 participants each, and 11 in-depth interviews were conducted. Participants needed to be over the age of 18 and fluent in English, a characteristic common among the affluent and most educated in Nepal. The report concluded that future interventions should focus on "social and behavioural change communication programs where reduction in felt stigma could be coupled with an attempt to increase women's sense of urgency in rejecting traditions that serve to perpetuate shame and blame around menstruation".

Additionally, two reports focusing specifically on "chhaupadi" were released. The first report was released by Hannah Robinson 2015 who served as a youth volunteer in Nepal for several years. Her volunteer experiences motivated her to conduct "chhaupadi" studies and focuses on the lives of Nepali women from Western Nepal, an area that had been missing from previous studies.

Robison called for a greater understanding of and better education on female health issues related to “chhaupadi” within Nepal. A study conducted by Ranabhat et al. 2015 aimed to determine the factors of reproductive health problems related to “chhaupadi”. A cross-sectional study was conducted with 62 women of menstrual age in Kailali and Bardiya districts, both located in the far west of Nepal, bordering India. Semi-structured questionnaires focusing on topics revealed from focus group discussions with community key informants (field-level health workers) were used. The research team found that a fifth of households sampled, practiced “chhaupadi”. In addition, condition of livelihood, water facility, and access during menstruation, especially during “chhaupadi” was associated ($P<.001$) with the reproductive health problems of women. The study recommended that further research on appropriate strategies against “chhaupadi” and menstrual hygiene should be conducted.

Most these studies have all taken place in developed areas of Nepal, such as Chitwan and the Terai region bordering India. The studies mentioned have all shown that there is a negative impact on menstruating women’s health due to the cultural practice of “chhaupadi” and they have all called for training and health education to better meet girls’ menstrual hygiene needs. In addition, these reports have all said that the impact of “chhaupadi” on menstruating women’s health has been severely underreported. These reports motivated the government to formally state that it would work towards eradicating this cultural practice with the help of International NGO’s such as Save the Children.

Menstruation and Schooling

The previous studies displayed the impact menstruation had on women’s health especially in the Nepali cultural context with traditions like “chhaupadi”. In addition to these studies, others

were conducted to determine what influences girls' absenteeism from school, whether it was lack of menstruation knowledge, lack of MHM strategies or the culture itself.

The first was done by Oster and Thornton 2008 and presented the results of a randomized evaluation where menstrual cups, a type of feminine hygiene product which is inserted in the vagina during menstruation to collect blood, were distributed to 25 adolescent girls out of 198 enrolled from four schools in Chitwan district. These girls were followed for fifteen months to measure the effects of menstrual cups on schooling. The study found that though girls were 3 percentage points less likely to attend school on menstruation days, the menstrual cup had no significant effect on school attendance, suggesting that policy claims of barriers to girls' school activities due to lack of appropriate MHM strategies may be unwarranted. The study suggested that long term impacts may be observed but were not feasible for this particular study. Oster and Thornton released a follow-up study in 2011 and reported more definitely that first, menstruation has a small impact on school attendance and that girls who randomly received sanitary products were no less likely to miss school during their period. Oster and Thornton rejected, at the 1% level, the claim that better menstruation products close the attendance gap perhaps suggesting that the cultural impact of "chhaupadi" may play a larger role in achieving SDG 4 and 5.

In 2016, two studies were released looking at MHM among adolescent girls in two separate regions of Nepal. The first was conducted in Makawanpur district, located in the Southern part of Nepal close to Chitwan, the site of many previous MHM studies. Systematic random sampling was used to recruit 200 adolescent school girls aged 15 to 19 from 10 higher secondary schools in the district. Adhikari 2016 and his research team aimed to assess the menstrual management among school girls and found that there are significant differences between the caste, religion and age of the respondents leaving school during the period ($P<.05$). There was also significant difference

between marital status and the use of absorbent for the management of menstruation in case of not leaving school (P=0.012). Finally, the study found there was significant difference between location of the respondents and the way of managing menstrual pads or materials in school (P=.0004). The study concluded that it was necessary for schools to manage safety menstrual pads in school for emergency periods, which prevents girls from shame, insult and leaving school.

The second study was conducted in the Pokhara Valley of Nepal, located in the central part of Nepal. In this cross-sectional study conducted by Sharma et al. 2016, 260 adolescent girls recruited from seven separate schools responded to surveys containing 19 items. The survey revealed that 64.2% of girls had irregular menstrual cycles and significant association was found between regularity of menstruation and ethnicity. In addition, a significant association was found between severe dysmenorrhea and absenteeism. The study concluded that girls school attendance was affected due to menstrual pains.

These studies focus on the issue of absenteeism among adolescent girls in Nepal. There are varying results as to what impacts absenteeism, whether it's lack of menstruation knowledge or effective MHM strategies. SC's MHM training program for FTs focuses on absenteeism as well, and hopes to better understand how menstruation knowledge and provision of feminine hygiene products impacts girls' absenteeism.

Further Research on MHM

Since 1997 there has been a growing number of studies examining menstruation in Nepal. Early research has shown that menstruation has an impact on women's health, and subsequent studies have been conducted to understand the type of menstruation knowledge women receive and how this influences their MHM strategies. From these studies it was quite clear the culture of Nepal, more specifically "chhaupadi" had a direct impact on how girls perceive menstruation,

access to menstruation knowledge, as well as availability of feminine hygiene products. The government of Nepal, after outlawing the practice of "chhaupadi" even invited organizations to come and conduct studies on this issue to better inform policy and help meet the SDGs.

After the devastating 2015 earthquake, more international attention was given to MHM in Nepal. A study was conducted by Budhathoki et al. focusing on promoting menstrual hygiene in post-earthquake Nepal. The study found that disaster relief aid was often lacking gender sensitivity and did not provide any materials for the appropriate management of menstrual hygiene. The study concluded calling for timely identification and preparation beforehand with appropriate and culturally sensitive techniques and locally available materials that are reusable could help promote sustainable and acceptable means of MHM in crisis.

SC has partnered with the Nepali government and has created interventions and programs to help address female MHM needs and understand menstruation better. SC's MHM training program has been implemented in two districts that have not been studied by the literature. This evaluation hopes to understand how FTs trained on menstruation education affects adolescent girls' menstrual hygiene and whether the MHM training program can be better improved to meet the menstrual needs of school-aged girls. In addition, the assessment hopes to understand the menstrual needs of girls in Kapilavastu and Pyuthan districts and how it compares to areas that have been previously studied in Nepal. As stated earlier, the SDGs have tried to not only provide quality and inclusive education for all but also promote gender equality and women's empowerment. Empowerment will likely be achieved with an educated female population. This evaluation aims to provide useful recommendations to help Nepal achieve these goals.

Methods

Study Design

This study used a cross-sectional design using qualitative methods to evaluate SC's MHM training program for FTs in Kapilavastu and Pyuthan districts. The study was conducted at two levels: first at the administrative level with SC and PNGO staff, and second at the school level with trained FTs, boys, and girls. At the administrative level 2 Key Informant Interviews (KIIs) were conducted in each district; 1 KII with SC district staff and 1 KII with PNGO staff. At the school level 3 schools were included per district. At each school, 1 KII with a trained FT and 1 Focus Group Discussion (FGD) were conducted with 6 to 8 female students. In addition, 1 FGD was conducted with 6 to 8 male students but was only carried out at the first school visited in each district since obtaining a diverse set of male students' perceptions on menstruation wasn't needed to evaluate the MHM training program. Finally, 6 structured observations were carried out at each school visited. Findings from each data collection activity were used to evaluate the MHM training program.

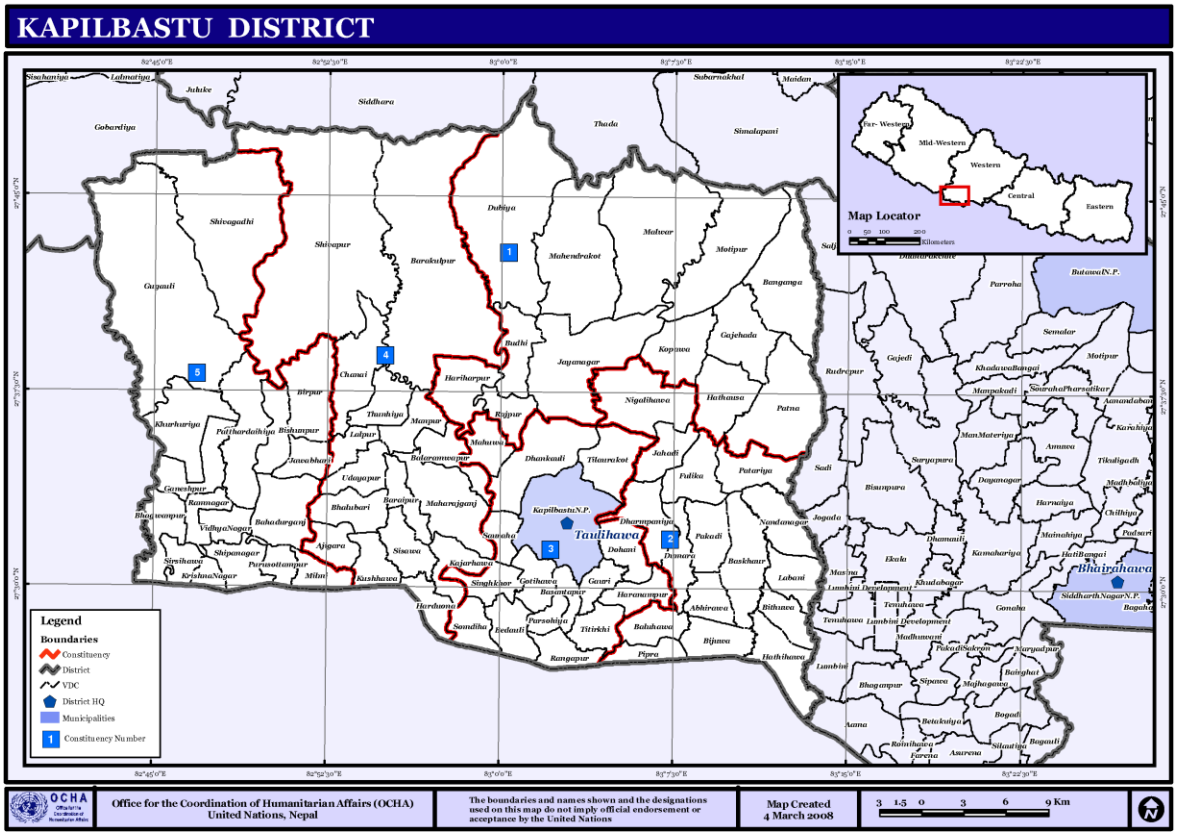
Research Setting

SC's MHM training program for FTs was piloted in two districts: Kapilavastu district in the Western region and Pyuthan district in the Mid-Western Development region of Nepal. These districts were chosen because higher secondary schools in these districts participated in SC's SHN programs and the construction of 'Girl Friendly' toilets, therefore, would provide data to evaluate the MHM training program. The evaluation was conducted 19 June – 1 July, 2016.

Kapilavastu district is located in the Southern part of Nepal, borders India's Uttar Pradesh state, contains 6 municipalities and 86 Village Development Committees (VDCs) (OCHA, 2008). The 2011 National Population and Housing Census reported that the population of Kapilavastu is

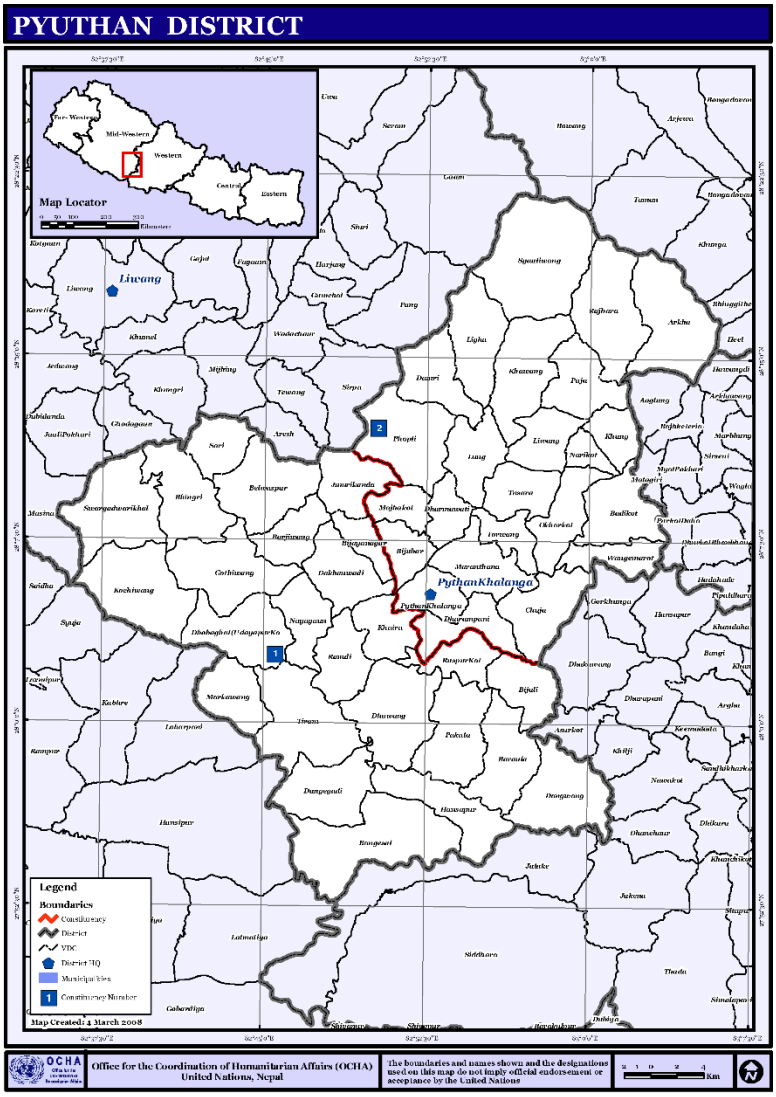
571,936. The district is located in the Terai, the Southern part of the Western region. The Terai is an area that is relatively flat and able to sustain mass agriculture production for the nation. Kapilavastu's top cash corps include paddy rice, wheat, and sugarcane. In addition, Kapilavastu district does not suffer the same limitations like other mountainous regions of Nepal due to its low elevation, road access and shared border with India (Dahal, 2005).

Figure 1: Kapilavastu District Map with VDCs



Pyuthan district is located in the foothills of the Himalayan mountain range and belongs to the Mid-Western Development region of Nepal (OCHA, 2008). The population, taken from the 2011 National Population and Housing Census, is 228,102 with 50 VDCs located throughout the district. Pyuthan is considered to be less developed than Kapilavastu due to its geography, difficulty in road access and lack of investment in infrastructure by the government of Nepal (Dahal, 2005).

Figure 2: Pyuthan District Map with VDCs



Study Population

The study population included both FTs and students in school in each district. In addition, SC and PNGO staff, two from each district, who were involved in designing and implementing the MHM training program for FTs were included. Within each district, three schools were selected where 'Girl Friendly' toilets had been constructed. At each school, interviews were conducted with FTs who had participated in the MHM training program, 6 FTs in total. At each school, interviews were also conducted with female students who were recipients of the knowledge

transferred by FTs, 46 girls were interviewed: 24 girls in Kapilavastu and 22 girls in Pytuhan. Finally, 14 boys were interviewed at the first school visited in both districts, 8 in Kapilavastu and 6 in Pyuthan. A total of 70 participants were interviewed for this study.

School Selection

This study selected 6 schools, 3 in each district. The schools in each district were selected by the SC district staff in collaboration with the PNGO who had a prior relationship with both organizations. Eligibility criteria for school selection were FTs who had participated in the MHM training program and a 'Girl Friendly' toilet had been constructed. All the schools selected have participated in other SC SHN programs, as well. Schools in rural and urban settings were selected to capture differences across VDCs in each district, particularly regarding community socio-economic background which may influence access to feminine hygiene products.

Participant Recruitment

Purposive recruitment was used to select study participants. Recruitment of FTs were based on their eligibility criteria listed above. FTs at schools were contacted prior to the study by SC district staff to select students for interviews and were notified to recruit 6-8 students ages 11-18 with the following eligibility criteria: varied class performance, varied absenteeism, varied socioeconomic background, and varied Hindu castes. Parental Consent forms were sent in advance to the FTS to be distribute to selected students so that student could obtain signatures from their parents. The same instructions were given in both districts. This recruitment strategy was used to understand how the MHM training program impacted a diverse population of students.

Field Instruments

The following field instruments were used: KIIs, FGDs, and Water, Sanitation, and Hygiene (WASH) facility observations (WASH OBS).

1. Key Informant Interviews (KIIs)

KIIs were used to gain the individual perspective of SC and PNGO staff on the MHM training program objectives, MHM training program partners, school selection and methods used to train FTs attending the MHM training program. FT KIIs were used to gain their individual perspective on SC's MHM training program, menstruation education at the school, teacher's perception of menstruation curriculum, student dynamics and the 'Girl Friendly' toilet. The interview guide for all KIIs were developed at the Rollins School of Public Health under the supervision of SC International and SC Nepal.

2. Focus Group Discussions (FGDs)

FGDs were used to gain the student's perspectives on menstruation and MHM. FGD guides were developed for both male and female students with assistance from SC International and SC Nepal. The guides were pilot tested then translated into Nepali by the SHN team. The FGD guide for female students focused on the following topics: a body mapping activity to assess students' knowledge of menstruation, worries and stress associated with menstruation, self-efficacy with MHM strategies, delivery of menstruation education at the school, and school policies on MHM with a focus on the 'Girl Friendly' toilet. The FGD guide for male students focused on the following topics: support strategies for female students, perception of menstruating female students, with a focus on female student behavior in the classroom during menstruation, and finally school teasing.

3. Observations of School WASH Facilities

A structured observation form (see appendix A) was adapted from the SC International MHM Operational Guidelines Manual. Structured observations were carried out to understand school WASH facilities' influence on students' MHM needs. The structured observations

assessed: student uniform colors, toilet compartments, the school's waste disposal/drainage system, and hand-washing facilities. Toilet compartments were assessed for their functionality, cleanliness, lighting, security, dustbins and access for the disabled. Waste disposal and drainage observations were used to assess waste pits, composting chambers, and septic tank capacity, whether pits or incinerators were used for sanitary hygiene products and finally presence and functionality of school drainage systems. Hand-washing facilities were assessed for their proximity to toilets and availability of water and soap/ash.

Training

The 3-person study team, consisting of two females and one male, was trained in one day on the field instruments, qualitative research methods, including interviewing, moderating, note-taking, transcription and translation. Special attention was given towards ethical issues such as: participants opting out of interviews, consent forms, oral assent for students, and child protection. Each day, after data collection activities were completed, the team would de-brief and use the iterative process to address any issues with guides and data collection. Most issues brought up during training pertained to probing and follow-up questions as well as avoiding leading questions.

Data Collection

First, this study determined the objectives of the MHM training program, school selection and the training method used by interviewing SC and PNGO staff who designed and implemented the program. Second, the study evaluated the MHM training program's impact on FTs by conducting in-depth interviews with trained FTs on how they were trained and how they transferred this knowledge at the school. Third, female students were questioned on their menstruation knowledge, MHM worries and strategies, as well as school and family MHM support. Finally, boys were interviewed for their knowledge of menstruation, their perception of

female menstruation behavior, and how they support their female peers during menstruation. In addition, structured observations were used for school facilities to better understand the impact of facilities, specifically the 'Girl Friendly' toilet, on student MHM. This report concludes with a list of key findings and recommendations to better address female student MHM needs based on the MHM training program evaluation.

1. Kapilavastu District

At the administrative level, KIIs were conducted with a SC district staff member part of both SHN and ARSH teams as well as a PNGO staff member from Sun-Shine Development Organization (SSDO). These interviews were conducted in English. At the first school visited, the study team conducted a male student FGD consisting of eight participants from ages 13 to 17, a female student FGD consisting of eight participants from ages 11-16, at school 1. At the second school, all the same activities were conducted except for the male student FGD. The second school hosted a female student FGD consisting of 8 students who were 15 and 16 years old. Finally, the third school assessed also hosted the same activities except the male student FGD and hosted a female student FGD consisting of students aged 12 to 15 years. For all of the student FGDs, parental consent was obtained from the students' parents. In addition, prior to the FGD beginning, oral assent was obtained from the students. Finally, WASH OBS were conducted by the same study team member at all 3 schools.

2. Pyuthan District

Again, at the administrative level, KIIs were conducted with a SC district staff member part of the ARSH team and a PNGO staff member from Kalika Development Center (KDC). These interviews were conducted in English. At the first school, only 6 participants were available to participate in both the male and female student FGDs because students had the day off to study for

their final exams that would be commencing the following day. At the first school, the male student FGD consisted of students from ages 12 to 18 and the female student FGD consisted of students ages 14 to 17. The second school hosted all the same activities except the male student FGD. The female student FGD consisted of students ages 15 to 17. And finally, the third school hosted all the same activities except the male student FGD, as well, and the female student FGD consisted of students ages 11 to 14. For all of the student FGDs, parental consent was obtained from the students' parents. In addition, prior to the FGD beginning, oral assent was obtained from the students. Finally, WASH OBS were conducted by the same study team member at all 3 schools.

Table 1: Table of Data Collection Activities with Study Population and Location

Location	Study Population	Activity Conducted
Kapilavastu District		
Save the Children District Office	Save the Children SHN & ARSH staff member	KII
SSDO District Office	SSDO staff member	KII
School 1	Focal Teacher	KII
	Female Students (8)	FGD
	Male Students (8)	FGD
	WASH Facilities	WASH OBS
School 2	Focal Teacher	KII
	Female Students (8)	FGD
	WASH Facilities	WASH OBS
School 3	Focal Teacher	KII
	Female Students (8)	FGD
	WASH Facilities	WASH OBS
Pyuthan District		
Save the Children District Office	Save the Children ARSH Staff	KII
KDC District Office	KDC staff member	KII
School 1	Focal Teacher	KII
	Female Students (6)	FGD
	Male Students (6)	FGD
	WASH Facilities	WASH OBS
School 2	Focal Teacher	KII
	Female Students (8)	FGD
	WASH Facilities	WASH OBS
School 3	Focal Teacher	KII
	Female Students (8)	FGD
	WASH Facilities	WASH OBS
Location	**Data Collection Activity**	**Total**
Kapilavastu district	Staff KIIs	2
	Focal Teacher KIIs	3
	Female Student FGDs	3
	Male Student FGD	1
	WASH OBS	3
Pyuthan District	Staff KIIs	2
	Focal Teacher KIIs	3
	Female Student FGDs	3
	Male Student FGD	1
	WASH OBS	3
Total Assessment Activities Conducted:		**24**

Data Analysis

All KIIs and FGDs were transcribed verbatim in Nepali, then translated into English. All data were de-identified by the study team. Notes from the FGDs were also translated from Nepali into English. Textual data from all FGD activities were also translated from Nepali into English. KIIs with SC and PNGO staff were conducted in English and did not need translation.

All transcriptions were then imported into MAXQDA, the qualitative data analysis software program to aid in data analysis. All transcripts were memoed to aid code development, using brief memos to detail topical themes emerging from the data. A total of 51 codes, the majority of which were in-vivo codes, were developed from this process, which were grouped into six groups: MHM training program codes, school MHM services, school/community, MHM strategies, education/support, and concern/needs. In addition, several categories were developed for comparison purposes. The codes and categories were then reviewed at the Rollins School of Public Health and were revised to create a complete codebook. All transcripts were then coded using this codebook.

The codes were then used to aid in the analysis process by retrieving sections of the transcript related to the evaluation objectives. Codes were used to compare data between both districts and among the different study populations groups: FTs, male and female students. In addition, triangulation was used to validate data across the study population groups at the same school. Findings from the structured observations were then used to further support the transcript data.

Findings

This study was carried out to evaluate the MHM training program's impact on students' MHM needs. There are three components to this evaluation: first, to assess the education component of the MHM training program on students' menstruation knowledge and determine which knowledge gaps were filled and which gaps remain. Second, to assess the skill component of the MHM training program on making homemade pads for menstruation and to determine if students can construct and utilize homemade pads, properly. Third, to assess the school WASH facilities and understand these facilities impact on students' MHM. By evaluating these components of the MHM training program, the study hopes to not only understand what MHM needs were addressed by the training program, but also if those needs have changed over time.

The overall goal of the MHM training program was to reduce absenteeism amongst female students due to their menstruation. SC and PNGO staff members determined that the MHM training program should have an education component centered on menstruation as well as a skill component for making homemade pads. If teachers were properly trained on these two components, then hopefully they would effectively transfer this knowledge and girls would be able to comfortably manage their menstruations at school and reduce absenteeism.

The findings of this study revealed that there still remain gaps in students' knowledge of menstruation, that most female students were able to construct homemade pads but they preferred disposable pads and that school WASH facilities vary widely between schools.

Despite the need to improve certain aspects of the MHM training program, all schools reported that absenteeism among female students has reduced since the MHM training program began.

Objective 1: Education Component

SC and the PNGO staff first needed to understand what aspects of menstruation were causing female students to be absent from school. In Nepal, any discussion of menstruation is taboo, therefore, open discussion of menstruation rarely occurs. Because of this, girls are not exposed to information regarding menstruation and are often uninformed when menarche occurs. When a girl experiences menstruation, she is often confused and scared as to what is going on in her body. Girls are unaware of the importance of maintaining a healthy diet and hygiene to better manage menstruation symptoms and that cramps and pains are common side effects during menstruation. Girls in Nepal don't understand that these are common side effects among all menstruating women due to the stigma hindering communication. One of the reasons that girls were missing school was because they would experience the side effects of menstruation, and become scared. Girls did not feel comfortable sharing these concerns openly with teachers and would therefore, deal with their pain privately, away from school. The following student's response captures the need and importance for this information to be transferred to students:

> "When I had menstruation for first time, I didn't know anything. I know that girls will menstruate one day but I didn't have the knowledge on menstruation. That day from the morning time I had stomach pain. I thought that I haven't eaten anything bad, suddenly I felt something cold and then I went to toilet to see what had happened. When I saw blood, I was so frightened thinking what had happened to me? Lots of questions arise in my mind, that is it any kind of illness? I tell this incident to my grandmother, then she said that I had my menstruation. And those who had menstruation could not touch grandmother, if we touch her she would be sick. I thought that what happened to me that if I touch my grandmother she will be sick? After that I did like what my grandmother suggested me. I had severe pain at

the that time, I feel like only I had such problems? Or others may also have such pain?"

-Female Student, Pyuthan, School 2

The MHM training program's education component focused on three topical areas relating to menstruation to address students' MHM needs similar to what was expressed above:

1. The biological process of menstruation with emphasis on it being a natural process
2. The importance of maintaining a healthy diet and hygiene during menstruation
3. Strategies to manage dysmenorrhea

Data from FGDs with girls were used to evaluate student comprehension of these topical areas. To support the knowledge transfer of these topical areas, data from the FT KIIs and girls FGDs were used.

Access to Knowledge Leads to Empowerment

Before exploring how the trained FTs transferred information from the MHM training program to pupils, the study team sought to understand what motivated teachers to do so. FTs and school principals understood that the MHM training program was addressing a need that they had expressed to SC and PNGO staff during school visits. Due to this, many schools found no objections in the MHM training program's purpose and were eager to participate. KIIs with the trained FTs elicited the following responses:

"Well, when I was their age, I knew nothing regarding menstruation and now when I am able to teach them I feel very happy. Even my guardians weren't able to teach me such information when I was young and there weren't any female teachers in my school at that time."

-FT, Pyuthan, School 1

Another FT, described how the MHM training program gave her knowledge that would not only empower her but also the students she taught:

> "It has *empowered* us because we were unable to make pads in this way and the education that we received from the [MHM training] program is helping a lot since we were not knowing about it before."
>
> -FT, Pyuthan, School 3

Clearly, the teachers' motivation stemmed from their desire to help their students. One teacher even recounted that the students were quiet about the issue of MHM before her first training. Once she returned and discussed the issue with students they began asking questions and this in turn motivated the teacher to learn more to answer their questions. They recognized that their students were suffering due to gaps in their knowledge and skills to effectively manage menstruation, and this training would increase their capacity to meet these needs. In addition, the knowledge played a crucial role in making students and FTs feel empowered and allowed them to feel that they could manage their menstruations in a culture where menstruation is so heavily stigmatized. This study revealed that in order to fully empower students and FTs certain areas of the MHM training program's education component needs to be improved to better meet students' MHM needs.

Lack of Knowledge on the Menstrual Cycle

During the FGDs with girls, a body mapping exercise was used to determine students' understanding of the biological process causing menstruation. Students were asked to draw an outline of the female body and include important reproductive organs involved with menstruation. Once drawn, students were asked which organs they had drawn and its function. Most students

could properly identify and place where the ovaries, fallopian tubes and uterus were located, however, when asked to describe the menstrual cycle, certain details of the process were incorrect.

> "From our fallopian tubes the egg comes out. It will move a little bit and then it will burst causing blood to come out of us."
>
> -Female Student, Pyuthan, School 1

At some of the schools, girls looked quite confused when asked to draw reproductive organs, this could be due to shyness, however, when probed further they could not provide any information as to what reproductive organs were involved with menstruation, let alone the process. For example, at School 2 in Kapilavastu, when probed on the function of fallopian tubes participants were incorrect in their knowledge stating that it "helps in the formation of eggs". At School 1 in Pyuthan, when asked which reproductive organ produces the ovum, a participant replied "It may be the uterus". Some girls even took the opportunity to begin asking the moderator and note-taker specific information on menstruation:

> Moderator: "Have you asked to any other person regarding why stomach cramps occur during menstruation?
>
> Participant 4: "I have to ask with you."
>
> -Girls FGD, Kapilavastu, School 1

It's not quite clear what the participant means when she replied "I have to ask with you", it could be that the girl simply did not feel comfortable asking teachers or people in her community due to the stigma surrounding menstruation or that there are other issues with accessing knowledge from FTs.

In both districts, girls seemed to have a vague idea of the biological process of menstruation, however, it was clear that their knowledge was incomplete. There was the common

misconception that the egg would either break or burst, and this was the reason for blood during menstruation. Most girls could name reproductive organs; however, they could not properly describe the process of menstruation or the role of reproductive organs during menstruation. Without addressing these knowledge gaps, students' sense of empowerment will be hindered.

Conflicting Discourses Surrounding Menstruation: Culture vs. Health

Most students could properly describe the importance of eating nutritious food and maintaining hygiene during menstruation. Students often reported the importance of changing pads during the day, the importance of disposing pads, properly, and eating foods that were rich in vitamins and iron. Though students could provide this detail, it was difficult to determine if this was a result of the MHM training program or if this was communicated to them from their families. When probed further in the FGDs, it was revealed that diet and hygiene knowledge coming from the home was framed much differently than when it came from FTs.

As mentioned earlier, menstruation is stigmatized in Nepali culture, therefore, it was important to understand how girls' families influenced and reinforced this tradition. In both Kapilavastu and Pyuthan, most of the menstruation knowledge that girls received from their family came from mothers and older sisters and centered on behavioral restrictions during menstruation which directly impacted diet and hygiene. Most of the behavioral restrictions involved limiting the contact girls had with others, since they were viewed as "impure" during their menstruation. Due to this, most girls reported that if they are using a common water source with others in the community then they needed to announce that they were menstruating and that community members should avoid contact with them. Some girls reported that they aren't allowed to touch brothers, fathers, or grandparents. There were lots of restrictions around eating, as well, where girls would not be allowed to enter the kitchen, or would have to sprinkle their plates with "*suun*

pani (pure water)" before taking it into the kitchen. All of these practices were done to "protect" others from being "contaminated" by the menstruating girl.

In addition to these restrictions, girls had special hygiene practices for menstruation. One girl from Pyuthan School 2 reported that on the first day of menstruation they take a bath and are not supposed to do any work, and then they were not allowed to bathe again until the third or fourth day. Another girl at the same school reported that she too bathes only on the first day, but is required to wash her genitals anytime she visits the bathroom after that. While another girl reported, "My mother told me to bathe every day. If we bathe every day, the blood flow will be less." Though there is no connection between daily bathing and blood flow, reinforcing the girl to bathe daily is good for her hygiene and health.

Girls also reported that their mothers would tell them about how to use pads properly during menstruation. This information focused on not using the same pad for an extended period of time and the importance of regularly changing the pads. The frequency of changing pads varied in both Kapilavastu and Pyuthan, with some girls reporting to change their pad three times a day, while others reported that they should change it six times. Most of these recommendations, whether it involved behavioral restrictions or hygiene recommendations centered around the idea of purity. Hindu cultural practices revolve around the idea of purity, and may be the reason why menstruation knowledge coming from girls' families centered around this.

Knowledge on diet and hygiene coming from the home was always framed in a religious context and gave girls an attitude of being "impure" that could cause harm to the people they love. Conflictingly, the knowledge that girls received at the school from trained FTs were framed much differently, for example:

> "The cleanliness we do at home is viewed as religious but in school proper hygiene management during menstruation is all about *personal* cleanliness. At home, we are asked to be clean so that gods and goddesses will not be angry with us, but in school we are educated that if we don't keep ourselves clean then we can get sick."
>
> -Female Student, Pyuthan, School 2

Girls were aware that information they received at home was centered on religious and traditional beliefs, but at school the information was framed in a way that would impact the girl on an individual level. Information on pad maintenance and the importance of hygiene were consistent, but the reason behind these practices were different. It is important that the MHM training program realize this conflicting discourse among girls and find a way for FTs to pay careful attention to how hygiene and diet knowledge is framed and to integrate the important aspects of the cultural context and dispel unnecessary stigma and worry impacting girls' mentality. Once FTs are aware of this conflicting discourse then they can help better empower girls.

Preference for Natural Remedies to Manage Dysmenorrhea

Dysmenorrhea was the most common reason for stress during menstruation among all female students in both districts. When probed in the FGDs, girls reported that they felt scared and worried about stomach cramps, body aches and heavy blood flow. Strategies to manage these symptoms generally came from their mothers and sisters. Though this was the case, girls mentioned how pain medication could be used to help alleviate some of these symptoms though they were advised to be cautious.

> "When some have stomach cramps, leaves of *aaselu* (wild yellow berries) can be crushed to make juice and we have that. We can drink *tulshi* and ginger tea. If we have severe pain then we can visit the health post and have medicine. We should

not take medicine haphazardly; it will have side effects. Only take it as required and have lots of rest. Protein and fruits should be included in our diet. Due to the fear of contamination, the clothes [used in the homemade pad] should be dried in direct sun rays or we can use the disposable pad. We have to clean our body regularly, moreover, while menstruating we have to pay more attention."

-Female Student, Pyuthan, School 2

This study found one school to be particularly focused on natural remedies and placed emphasis on menstruation being a natural process. Girls at school 3 in Kapilavastu all reported positive support from the information they received at home. Not only did this impact the way girls managed their dysmenorrhea, but these girls were not as impacted by the social stigma surrounding menstruation.

"We don't have such restriction on touching. We can do everything as usual at home."

-Female Student, Kapilavastu, School 3

Mothers openly talked about menstruation and would communicate appropriate hygiene measures and pad upkeep while girls were menstruating. Many girls reported that their mothers would reinforce the idea that menstruation is a natural process and that girls should not worry empowering them during their menstruation. Later in the discussion, a girl mentioned that most of the students at the school belong to the *Tharu* community, an ethnic group located in the Terai region of Nepal. The values of this group centered around the natural world, acceptance of natural things and due to this, girls were able to access information from mother's freely, did not suffer from the stress caused by social stigma, and were empowered in their ability to manage their menstruations effectively.

Students in both districts shared similar sentiments, claiming that they use natural strategies to manage dysmenorrhea and stated that pain medication is only used in severe cases.

> "We use ginger, *tulshi*, salt, turmeric powder and boil water then drink. If this herbal medicine does not work then we take medicine. If we cannot tolerate it then we take medicine but it is said we should not take medicine."
>
> -Female Student, Kapilavastu, School 3

Though girls prefer to use these natural remedies, they are not readily available at school and presents challenges for girls to manage their dysmenorrhea using the strategy they prefer. Students were questioned to see how they adapt their management strategies at school and reported that often times FTs will advise them to take pain medication and rest at school. Unfortunately, pain medication is not readily available at some schools.

> "We don't even have a sufficient amount of medicine to provide them. Lots of students come with that problem, we try to keep them at school allowing them to rest but when they have severe pain then we have to let them go home."
>
> -FT, Pyuthan, School 1

From the girls FGDs and FT KIIs it was reported that in Kapilavastu, Schools 1 and 2 had medicine readily available, while School 3 did not. In Pyuthan, Schools 2 and 3 had medicine available while the first school did not.

Even at schools were pain medication was readily available, girls chose not to use it causing FTs to let girls go home instead to seek the natural strategy that they prefer.

> "When they ask us to take the medicine to help us with our body aches we say no and we go home."
>
> -Female Student, Kapilavastu, School 2

Clearly, girls prefer natural remedies when it comes to managing their dysmenorrhea and alleviating its symptoms. Despite the availability of pain medication in some schools, absenteeism among menstruating girls can still occur.

Dysmenorrhea was commonly experienced by all girls participating in the FGDs, however, without considering the girls' preferred use of natural remedies in lieu of pain medication, girls' ability to manage dysmenorrhea at school is impacted and can result in continued absenteeism. The MHM training program should consider this when training FTs and help reinforce that it's safe to use pain medication when severe pain is experienced during menstruation. Again, FTs can play a key role in integrating the information framed in cultural practices with information from the MHM training program.

Community Players in Menstruation Knowledge

Teachers were not the only source of menstruation education for girls. Students in both Kapilavastu and Pyuthan reported that community organizations played a role in addressing students' MHM needs. SC and PNGOs were not the only external organization to assist students with MHM; local health posts, local NGOs, as well as local radio stations had a role to play as well.

In Kapilavastu district, there were many community organizations that were involved with the schools and impacted the way girls manage their menstruations. At school 1, the boys FGD revealed that the local Red Cross had visited the school and conducted a training on how to support girls during menstruation. Details regarding the specifics of this program and what kind of impact it had on the girls' MHM practices is unknown, however, their role in the community is important to note. At school 3 there were reports of school visits by a representative from the community's children club who would have sexual health sessions and help answer student questions. Details

were not given on the exact content on menstrual knowledge, however, it was reported that it was discussed.

Schools in Pyuthan district also received information from similar organizations. A girl from School 1 mentioned a group who had visited the school "helping the school in providing pads" and that the girls "can ask without any shyness." The girls FGD revealed that the knowledge they received about the pads were beneficial, though details of the information or what organization provided this information was not revealed. At the same school, boys reported that community health workers from the local health post visited the school and "filled the gaps about adolescent education." Again, details about the information or its impact were not revealed. Finally, in both School 2 and School 3 there were reports of a local radio program called *Sathi Sikcha* that airs on Saturdays.

> "In [*Sathi Sikcha*] we share with our friends. It is easy to share with friends. Like this we have session in which we discuss, they have a question and we answer it. We will say the problems and the solutions are also generated by us."
>
> -Female Student, Pyuthan, School 2

This radio program focuses on any sort of adolescent issues or problems and one student reported that often times they will discuss worries about menstruation and provide solutions on the radio show. Though this radio show was mentioned in both schools 2 and 3, it was not heard of by other girls in the focus group. However, as soon as it was mentioned, the other girls became interested and asked the girl foe more details about the show such as when does it air, its names and other topics the show discusses.

Local community health posts and clinics played an even stronger role in Pyuthan than it did in Kapilavastu district. School 2 in Pyuthan had a close relationship with their community

health post because it was directly across from their front gate. Due to this close proximity, the health post's doctor would often come and conduct classes on reproductive health. The girls reported that they preferred his teaching style because "he taught us very clearly". In addition, the focal teacher reported that she had obtained a video from this health post that was specific to MHM and how to maintain and clean pads. The teacher said that she would often show this video during health class or during Friday's free-time. School 3 had also developed a partnership with their local health post, though it's proximity wasn't as near as school 2's. The school had a rule that when students requested information on reproductive and sexual health then they were allowed to visit the health post and this was facilitated by the one of the organizations at the school.

Local community organizations, health posts, and radio stations all played a role in delivering information on menstruation and reproductive health to students in both Kapilavastu and Pyuthan. Though the direct impact of this information on students' MHM practice is unknown, there is a strong possibility that there was some sort of effect since it was reported by students. If this is the case, there might be opportunities to address student MHM needs through these channels, help integrate the varying ways in which information is framed, and collaborate to empower students.

Evaluation of the MHM training program's education component revealed that there remain gaps in students' menstruation knowledge. It also revealed, that there are many influencers on how students interpret the knowledge they receive and can directly impact how students choose to accept and reject the information provided by the MHM training program. SC should update the education component of the MHM training program to address these gaps, as well as make FTs aware of the other influencers that impact how students receive information on Menstruation and that they are the key player that can integrate this knowledge to help empower students. In addition,

FTs should be advised on strategies to partner with other community members and ways to openly discuss menstruation in order to better address student MHM needs more effectively.

Objective 2: Skill Component

The skill component of the MHM training program focused on teaching FTs on how to make homemade pads. There were three topical areas to this component: pad making, pad cleaning and pad drying. Both pad cleaning and drying overlapped with the hygiene content of the education component. From the FGDs conducted at schools in both Kapilavastu and Pyuthan districts, it was clear that FTs were successful in transferring the skill component knowledge to students as most girls affirmed they can make the homemade pad and could even recount the exact steps involved when questioned.

> "One sewing pattern paper is given and we take our 1m cotton cloth from home and put the sewing pattern on top of it, so that we can cut the cloth to that pattern. And then we take a chalk and make the shape of that pad. We use measuring tape to cut it exactly and then we will sew the cloth to the shape. Oh yeah, we need to keep a button on it, too. There should be an opening so that we can put a fresh cloth and insert it in the pad, easily in that pad whenever we need to change it."
>
> -Female Student, Kapilavastu, School 3

The majority of FTs interviewed reported that they would conduct the training at school on Fridays after "mid-day tiffin" for students in grades 8 and above, since most FTs perceived those younger to still be "children" and had not reached menarche, yet. Most schools would have this time open for elective courses, therefore, FTs felt that this was the best available time to hold the training. These trainings were not held every Friday, but sometimes once or twice a month. One FT even reported that she was so excited to get back and teach the students that she taught them

during her own leisure time and during certain students' free times. The evaluation of the MHM training program's skill component revealed that the knowledge gained by the FT was successfully transferred to students, however, new information regarding limited resources for pad demonstrations, student pad preference, and the impact of misinformation by FTs emerged.

Limited Resources for School Homemade Pad Demonstrations

The data collected revealed that limited resource were a barrier to conducting the skill component of the training. Supplies like cloth, needles, thread used for making the homemade pad were not readily available, and not sufficient to train all students effectively. This required many teachers to come up with a variety of methods in disseminating the information.

During the MHM training program, FTs were advised to hold the training for both male and female students, stating the importance of creating a support network for girls by having a mixed gender group. However, due to limited resources, FTs often chose to train just female students since they were the ones using the pads. One FT, however, tried to do her best and teach all the students at her school

> "It was quite a mess. There were 112 students for the training. I also had to take the attendance. It was hectic for me to do all this alone."
>
> -FT, Kapilavastu, School 3

Even when trying to reach all the students at the school there were issues with managing the students, a topic not covered during the MHM training program. Another FT stated that she requested students to bring needle, thread and old clothes from home at the beginning of the week, and those students who remembered to bring these items were then trained on Friday. One FT in Pyuthan reported that she received 2 meters of cloth and a pair of scissors from the MHM training

program and used this to train students, but this was not reported at other schools. But for most schools the following method was used:

> "First of all, we don't have enough resources in our school. We have to ask students to bring materials that are needed at the time of [homemade pad] training. The cloths that were used while [students] learned to make pads were brought by themselves. We informed them that after they learn how to make pads then they have to teach other students, also."
>
> -FT, Pyuthan, School 2

As stated, most teachers trained a handful of students due to limited supplies and would urge those trained to disseminate this information to their peers. It was difficult to determine how successful this practice was, since many teachers reported that they did not follow up on those trained. However, from School 1 in Pyuthan, a girl reported in the FGD that "I only [taught] nine and they also taught [others]." First, this student showed the others the homemade pad and how it worked, and the next day brought supplies from her home and taught the students how to do it. Another girl simply showed the finished product but did not demonstrate how to make it.

The FT at School 1 in Pyuthan became so discouraged with the lack of resources at her school that she was pushed to collect money from students to buy disposable pads from the local market and have these accessible to students in case of emergency and as a result she reported that this proved to be more useful in addressing students' MHM needs.

Though data in the FGDs support that knowledge was transferred successfully, there is the possibility that the girls selected by the FTs were in fact the original girls that the FTs had trained and ordered to disseminate the information to the rest of the student body. Due to the variety of teaching styles and lack of follow-up it is hard to determine confidently, how effective these

trainings were for students and whether it impacted their MHM. Regardless, the lack of resources has impacted students' MHM.

Students Prefer Disposable Pads

Lack of resources not only affected the homemade pad demonstrations but it also impacted the way in which FTs could support their students' MHM needs. Without enough resources to provide each student with a homemade pad, FTs had to turn to alternative methods. Many FTs reported that they would find ways to raise funds for buying disposable pads and keeping a stock at the school for students to use.

> "We have been collecting 5…, yes, 5 rupees from each student and buying [disposable] pads for the students these days. Now [students] are using these [disposable] pads and now they are feeling good. Maybe they are feeling good…or bad, but now we have already started after collecting 5 rupees."
>
> -FT, Pyuthan, School 2

Other schools reported that they could get donations to keep disposable pads in stock at the school. One FT reported that the funds came from another teacher at the school.

> "Our school got a fund through one of our teachers, here. WE had deposited that amount in the bank and with the interest of that money we buy [disposable] pads that are used by the girls. By this way we are managing."
>
> -FT, Pyuthan School 1

In Kapilavastu, the PNGO, SSDO, helped to not only introduce the idea of disposable pads to the school, but also financial assistance to help the school begin their stock of emergency pads for girls.

> "Through Save the Children, the organization called SSDO brought the concept about the [disposable] pads and also provided some financial help to the school. After that we distributed [disposable] pads to the girls. And after doing that, there were some betterment."
>
> -FT, Kapilavastu, School 2

Since FTs at schools were developing their own strategy to meet girls' MHM needs, the study team explored how this approach was affecting the girls' MHM. It was important to determine whether girls actually preferred these disposable pads over the homemade pads and not just that they were using the disposable pads since it was the only feminine hygiene product available for them to use at the school. When questioned, girls revealed that they did indeed prefer the disposable pads over the homemade pads since it did not slip as easily as a homemade pad, provided more comfort, and was easier to manage.

> "When we didn't know about the [disposable] pads, we used [homemade] pads. Now the availability of [disposable] pad has made it easier. We should buy such pads from medical shops, usually my mom buys those pads for me."
>
> -Female Student, Pyuthan, School 2

In fact, the majority of girls from schools in Kapilavastu and Pyuthan reported that they prefer to use disposable pads rather than the homemade pad.

> "It's easier to engage in [physical education] sessions while using [disposable] pads and it is easier to change also. If we use [homemade pads] it will slip."
>
> -Female Student, Kapilavstu, School 1

This was the major concern for girls that affected their MHM preference, the fear of leaks and the pad not being secure.

The lack of resources motivated FTs to discover alternative strategies to meeting students' MHM needs. Whether it was collecting money from students or the provision of financial assistance from faculty and external organizations, FTs met students' MHM needs by keeping a stock of disposable pads available for students to use in case of unexpected menstruations.

FTs are the Key Influencers of Girls' MHM Strategies

There was one school that was an exception to the disposable pad preference, this was School 3 in Kapilavastu district. The girls at this school all reported that they prefer using homemade pads. When asked why they prefer the homemade pad they reported:

> "Madam said that we shouldn't use the [disposable] pads. It has chemicals that can cause cancer. Use of that pad will lead to infection in the uterus and give us cancer."
>
> -Female Student, Kapilavastu, School 3

This same message was communicated when the focal teacher was interviewed:

> "We should give them such classes. We need to make them aware of the consequences of bad hygiene. If they use the pad made by themselves [homemade pads] it will be better than the pads found in the market. These market pads will cause cancer."
>
> -FT, Kapilavastu, School 3

This teacher clearly understands the importance of hygiene and the need for girls to learn this, however, she is providing misinformation to the students which is having a large impact on their MHM knowledge, strategies and preferences. But more importantly this example shows how receptive students are to the information that FTs provide and therefore, the MHM training program should utilize FTs to their fullest potential to address students' MHM needs.

The study team chose to explore this issue even further to understand what qualities make FTs such a key influencer on girls' MHM strategies. Students reported that there were certain qualities in the teacher that influenced how they internalized the information they received and most importantly, how the student approached teachers for information. Gender played a large role with students' comfortability in asking for assistance, most students preferred female teachers and this could be associated with the social stigma surrounding menstruation in Nepal. Though gender did play a role, there were some variations, sometimes it was merely how the teacher presented information that impacted students. In Schools 1 and 2 of Pyuthan, girls reported that they felt comfortable asking the male health teacher for assistance because of the way those teachers openly talked about menstruation and reproductive health.

> "Sir teaches all the things. There is nothing personal while teaching. He teaches us as if he has experienced everything; how should I use a pad and so on. He teaches health, he understands girls' problems, so we ask him."
>
> -Female Student, Pyuthan, School 1

FTs are in direct control of what information gets to students and are therefore, the key influencers to how students will manage their menstruations. Since open communication on menstruation is difficult, due to the stigma surrounding it, there are a limited number of ways in which a student can get informed. It is important that the information that teachers are providing students are accurate and up-to-date and that FTs are trained to be approachable to support students.

Evaluation of the MHM training program's skill component revealed that the girls recruited for the FGDs successfully learned to make homemade pads, however, FTs reported that resource scarcity influenced their ability to directly train all students at the school. Due to these limitations,

FTs developed alternative methods to meet students' MHM needs and in doing so, students' pad preference for disposable pads was revealed. However, students at school 3 were an exception to this preference and this was due to major impact FTs have on their students' MHM strategy. The MHM training program should consider how to better utilize FTs to address students' MHM needs and train FTs to be more approachable for students to voice their concerns.

Objective 3: School WASH Facilities

The third objective of this evaluation sought to determine the status of school WASH facilities and how these facilities support students' MHM needs. School WASH facilities are a major component to the school's infrastructure that allow privacy for girls to manage their menstruations, privacy to clean and dry their pads, access to soap and water to maintain their hygiene, and facilities should have either an incinerator or burning pit for students to dispose feminine hygiene products with dignity. Appropriate WASH facilities would allow girls to comfortably manage their menstruations at school and reduce absenteeism.

Students in both districts all had the same uniform. The uniform consisted of dark blue trousers for males, dark blue skirts for females, and all students wore a light blue shirt. Any sort of menstruation leaks would likely be concealed with these colors. All toilets in both districts lacked dustbins and were inaccessible for disabled students. Toilets in all schools had lighting issues and were either completely dark, or dimly lit. Almost 50% of all waste pits, composting chambers or septic tanks were too full or overflowing in Kapilavastu School 1 and in Pyuthan, Schools 2 and 3. All drainage systems were either incomplete or completely lacking, except for School 3 in Pyuthan whose drainage system was fully complete and functional. Schools suffered from lack of soap or ash at all hand-washing facilities in both districts. Despite these issues, the

structured observations revealed that there were major issues with 'Girl Friendly' toilets and access to WASH facilities.

'Girl Friendly' Toilets Lacked Standardization

All schools had gender separate toilets where girls could privately manage their menstruations, however, after visiting all the schools, the study team discovered that there were varying standards for the 'Girl Friendly' toilet. The biggest difference was observed in toilet type, cleanliness, and available amenities between the 'Girl Friendly' toilet of Kapilavastu and Pyuthan districts. These 'Girl Friendly' toilets were all Asian squatting type toilets in Kapilavastu district, however, in Pyuthan, these 'Girl friendly' toilets were all Flush toilets. Figure 1 displays the difference between the 'Girl Friendly' toilet in Kapilavastu compared to the ones in Pyuthan. Both 'Girl Friendly' toilets give girls privacy to manage their menstruation, however, in Pyuthan 'Girl Friendly' toilets had more amenities than in Kapilavastu, and the facilities were maintained better.

The quality of the bathroom seemed to make a difference when it came to girls' ability to manage their menstruations effectively at school. It should be noted that Kapilavastu School 3 had no 'Girl Friendly' toilet. This could have influenced one girl at this school where homemade pads were readily available, to state "the school can only help in providing pads. Nothing else." Besides receiving a hygiene product, the girl did not feel that the school could help her manage her menstruation while there.

Figure 1: 'Girl Friendly' Toilet Differences Between Districts

Left: Kapilavastu School 2, Top Right: Pyuthan School 1, Bottom Right: Pyuthan School 2

In addition, most schools reported that there was some sort of pit or incinerator near the toilets, where girls could dispose of their pads. In figure 1, the picture of the Kapilavastu School 2 'Girl Friendly' toilet shows a dark square opening behind the toilet which was connected to an incinerator, allowing girls to properly dispose of used hygiene products. The 'Girl Friendly' toilet, in Pyuthan, however, did not provide girls with a way in which to properly dispose of their feminine hygiene products. In addition to these varying 'Girl Friendly' toilets, girls had issues with accessing these facilities.

Lack of Access to 'Girl Friendly' Toilets

Regardless of whether a school has a 'Girl Friendly' toilet, students need to have access to it to manage their menstruation. Pyuthan School 1 did have a 'Girl Friendly' toilet, as shown in figure 1, however, since it was newly built, the principal kept the toilet locked always. This could also explain why the room and toilet were so clean, since no one was actually using it. When asked about this in the girls focus group, a student replied:

"We don't know who has the key! We are in a hurry, so instead of asking about the key, we use another toilet."

-Female Student, Pyuthan, School 1

Another student in the focus group quickly followed up with: "we have to go ask for the key and it's odd." Not only are girls already shy about menstruation, but in Nepali culture where menstruation is already stigmatized, asking for a key to a toilet specifically for managing menstruations presents a huge barrier for girls.

In both districts, there were many issues involving the schools' WASH facilities. Issues pertaining to lack of soap, incomplete drainage systems, lack of dustbins, and more important variances with the 'Girl Friendly' toilets' standards all need to be addressed to ensure that girls are able to comfortable manage their menstruations at school. Once these issues are addressed, school faculty should ensure that students have access to these facilities.

Implications and Recommendations

This section of the report is used to detail the implications of this study's findings on girls MHM needs and provide recommendations that SC should take to address girls' MHM needs better. The implications are organized by the three evaluation objectives, focusing on the education component, skill component and school WASH Facilities.

Implications for the MHM Training Program's Education Component

As stated earlier, the education component of the MHM training program focused on three topical areas: the biological process of menstruation, the importance of maintaining healthy diet and hygiene while menstruating and strategies to manage dysmenorrhea. This study revealed that the knowledge FTs were receiving from the MHM training program was empowering both the FTs and the students, clearly displaying the importance of this knowledge. Though the knowledge could lead to empowerment, it was revealed that there were gaps in the students' biological knowledge of the menstrual cycle.

The education component of the MHM training program should spend more time on this topic so that FTs can fill this gap once they return to school and transfer the knowledge to students. Once students understand what is happening inside their body, then they can begin to accept that menstruation is a natural process and this can help alleviate some of the social implications that are placed on girls due to the stigmatized nature of menstruation in the Nepali culture.

The way in which menstruation is discussed has a direct impact on girls' ability to manage their menstruation. Due to religious traditions, girls are taught that they are "impure" when they are menstruating. This has social implications that directly affects their hygiene and diet and though this results in healthy practices of hygiene and nutrition among girls, it is done in a way that negatively impacts the mentality of the girl. The FTs are placed into a position where they can

help integrate the knowledge they are receiving from home, which is based in religious practices, with the knowledge they receive from the MHM training program, which is based on the girl's individual health. By integrating these two discourses, and helping girls navigate through these cultural influences, a more positive result can emerge where girls are more confident and not as ashamed to manage their menstruations. The MHM training program's education component should communicate this openly to FTs, during training and help provide them with strategies to integrate these ideologies.

It was also revealed that girls prefer to use natural remedies for managing dysmenorrhea. Most of these natural remedies are coming from the girls' families, however, there is an aversion to using pain medication to help alleviate severe symptoms. FTs should be trained on how to properly communicate to girls that it is ok to use pain medication in severe situations and that the side effects of doing so are minor. Again, FTs are placed in a key position where they can integrate the knowledge coming from home and the knowledge coming from the MHM training program to lead to more positive MHM strategies for girls.

Finally, this study identified other community players that impacted girls' knowledge on menstruation. Community organizations like the Red Cross, Children's Club, local health posts visited schools in both Kapilavastu and Pyuthan to hold sessions on menstruation and reproductive health. FTs should be trained on how to partner with these organizations to provide additional support to girls in schools. In addition, girls seemed to prefer the radio show *Sathi Sikcha* and how girls could voice their worries about menstruation and elicit support and advice from other girls in the community. The interest in this radio show revealed that girls could benefit from peer support groups that allow them to not only share their experiences with menstruation with other students and friends, but allows them the opportunity to share solutions to these worries. FTs should be

trained on how to foster these peer support groups at the school and help girls share knowledge in a culture that blocks the open discussion of a stigmatized topic like menstruation.

Recommendations to Improve the Education Component of the MHM Training Program

1. Provide more biological knowledge on menstruation to FTs to help fill in girls' knowledge gaps.
2. Make FTs aware of the critical role they play in integrating the knowledge girls receive at home to the knowledge they receive from FTs and provide strategies to help FTs do this.
3. Reinforce that pain medication is safe to use.
4. Provide FTs with strategies to partner with local community organizations to better educate students, especially with the community health post.
5. Train FTs on how to organize and facilitate peer support groups for girls within the school.

Implications for the MHM Training Program's Skill Component

The skill component of the MHM training program focused specifically on how to make, clean, and dry homemade pads. This study showed that this knowledge was transferred successfully despite all schools reporting lack of resources to carry out homemade pad demonstrations to all students. Because of this, FTs had to come up with alternative strategies to meeting girls' MHM needs for feminine hygiene products, and in doing so revealed that girls prefer disposable pads, not the homemade pads. Though many girls reported this preference, the MHM training program should continue to train FTs to demonstrate to students how to make homemade pads since there is the possibility that some students do not have the financial means to purchase disposable pads and would be placed at a disadvantage without any reliable feminine hygiene product. Instead, the MHM training program should devote more time on the education component rather than the skill component, since knowledge gaps are a more concerning MHM needs among students.

Another important finding that came out of evaluating the skill component was, again, the crucial role that FTs have in influencing girls' MHM strategies. One school was an exception to the disposable pad preference because the FT at that school spread misinformation to the students. Because of this, girls at this school assume that disposable pads from the market have chemicals that could cause cancer and therefore, avoid using them. Not only should the MHM training program dispel this myth by ensuring that all FTs know that disposable pads are safe, but they should reinforce the fact that FTs are key influencers to how girls will choose their MHM strategy. This ties in closely with how FTs can help integrate the way in which girls are educated on menstruation. If FTs are given accurate information and properly informed of their ability to impact their students with the knowledge they provide, then hopefully FTs will be more conscious of the information they transfer and how they present it to students.

Recommendations to Improve the Skill Component of the MHM Training Program

1. Reduce the time spent training FTs to make homemade pads and devote more time towards the education component since girls' MHM needs are centered around knowledge gaps.
2. Ensure that FTs still conduct homemade pad demonstrations for students without the financial means to purchase disposable pads
3. Dispel myths surrounding disposable pads and reinforce the notion that disposable pads are safe to use.
4. Help FTs understand the crucial role they play in empowering girls to manage their menstruations without shame or feelings of guilt.
5. Provide FTs with strategies to raise funds at the school-level to keep disposable pads available for students.

Implications for School WASH Facilities

School WASH facilities play a crucial role in allowing girls to manage their menstruations comfortable at school. There were many issues that arose from the structure observations that hindered girls from using these facilities. Some of these barriers included lack of soap, cleanliness, dustbins, and ways to properly dispose of feminine hygiene products. FTs should be made aware of the importance of these amenities and the role they play in allowing girls to comfortably manage menstruations at school. In addition, there were major discrepancies with the 'Girl Friendly' toilet. This needs to be standardized from SC's end since they are the ones constructing this facility at school. In addition to improving the standards and amenities of the school WASH facilities, girls must have access to these facilities to use them when they need to. Access to 'Girl Friendly' toilets and other MHM services, were always controlled by school faculty. Whether it was the key to access the 'Girl Friendly' toilet in Pyuthan School 1, or simply asking for a pad during an emergency, students need to feel comfortable in expressing a sensitive issue with faculty. Due to the stigmatized nature of menstruation in Nepali culture, many girls felt that this was a barrier and did not seek access unless they were comfortable with the faculty member controlling access.

Recommendations to Improve School WASH Facilities.

1. Ensure that all students, including the disable have full access to school WASH facilities whenever they need it.
2. Ensure that all 'Girl Friendly' toilets are standardized and maintained to this standard through periodic maintenance checks.
3. Train FTs to be accessible to students, either by training FTs to develop rapport with students and/or developing a school wide policy that makes sure girls can access the services they need without being shy.

Appendix A: School WASH Facility Structure Observation Form

School Facility Observations			
A01. Research Assistant name:	A02. Date (dd/mm/yy): __/__/__	A03. Start time ___:___ am/pm	A04. End time ___:___ am/pm
Basic School Information			
A1. School Name:	A2. School Identification code:		
*A1.1 Do students wear uniforms? ☐ 1: Yes ☐ 2: No *A1.2 If yes, Please describe the type and color of uniforms girls wear:			

B. Sanitation observations NOTE: You may need a teacher or student to help you.
B01. Are there toilets/latrines at the school? ☐1: Yes ☐2: No
Definitions:
Toilet compartment- an individual stall/seat/open pit/squat plate where a single child can defecate in private (not urinals).
Functionality
1. Functional – toilet facilities are not physically broken and can be used. ***2. Partially functional***– toilets can be used, but there are at least some problems with the physical infrastructure and some repair is necessary. ***3. Not functional*** – toilets exist, but are so badly damaged or deteriorated it is no longer reasonably possible to use them ***4. Don't know***-Unable to assess because locked from the outside
Cleanliness
1. Clean – toilet compartments are not smelly; there are no visible faeces in or around facility, no flies, no litter. ***2. Somewhat clean*** – there is some smell and/or some sign of faecal matter/urine and/or some flies and/or litter. ***3. Not clean*** – there is a strong smell and/or presence of faecal matter and/or urine and/or significant fly problem and/or large amount of litter.

4. *Don't know*-Unable to assess because locked from the outside
Light
1. Light – vision is essentially the same on the inside as it is on the outside. ***2. Somewhat dark*** – there is less visibility on the inside, but it is still possible to see clearly. Girls could look at their uniforms and tell if there is a stain. ***3. Dark*** – toilets and latrines are very dark on the inside. It is really hard to see. It would be difficult for girls to look at their uniforms and tell if there is a stain. **4. Locked**- Locked from the outside

Toilet #	**B1. Toilet Type** **1:** Flush/ pour flush **2:** Asian Type **3:** Pit latrine w/o slab / Open pit **4:** Fresh Life **5:** Trench **6:** Bucket **7:** Hanging toilet/ latrine **8.** SC's Special Toilet **88:** Other: _____	**B2. User** **1:** For girls ONLY **2:** For boys ONLY **3:** For boys or girls **4:** For female teachers or staff ONLY **5:** For male teachers or staff ONLY **6:** For female or male teachers or staff (not students) **7:** For use by anyone in the school (students/ teachers, male/female) **99:** Don't know	**B3. Functionality** **1:** Functional **2:** Partially Functional **3:** Not Functional **99:** Don't Know	**B4. Cleanliness** **1:** Clean **2:** Somewhat Clean **3:** Not Clean **99:** Don't Know	**B5. Lighting** **1:** Light **2:** Somewhat Light **3:** Dark **99:** Don't Know	***B6. Locks Inside** **1:** Yes, functional **2:** Yes, not functional **3.** No **99:** Don't Know	***B7. Outside Locks** **1:** Yes, functional **2.** Yes, not functional **3.** No. **99:** Don't know	***B8. Can student access the toilet without assistance?** **1:** Yes **2:** No **3:** Don't know	**B9. Dustbin inside?** **1:** Yes, in toilet 2: yes, in classroom **3:** No **99:** Don't Know	***B10. Anal Cleansing materials** **1:** Yes **2:** No **99:** Don't Know	**B11. Access for Disabled** **1. yes** **2. No** **99. Don't know**	**Notes**
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B12. How many urinals are there?
B11_1: For Boys_____
B11_2: For Male teachers_____
B11_3: For Girls_____
B11_4: For Female teachers _____
B11_98: Not applicable (no individual urinals)

B13. If there are continuous urinal walls/gutters, what is the total length (meters)?
B12_1: Boys_____ m
B12_2: Male teachers_____ m
B12_3: Girls_____ m
B12_4: Female teachers _____ m
B12_98: Not applicable (no continuous urinals)

C. Waste disposal and drainage observations

C1.1 At the time of the visit, are the waste pits/composting chambers/septic tanks obviously too full or overflowing?
☐ 1: Yes, in all facilities visited
☐ 2: Yes, in more than 50% of the facilities visited
☐ 3: Yes, but only in 50% or fewer of the facilities visited
☐ 4: No in none of the facilities visited
☐ 5: Unable to observe

***C1.2** At the time of the visit, did you see a pit for burning used sanitary towels? ☐ 1: Yes ☐ 2: No
***C1.3** At the time of the visit, did you see an incinerator for burning used sanitary towels? ☐ 1: Yes ☐ 2: No
C2. Does the school have a drainage system for removing wastewater from the school grounds? (You may have to verify with teacher. Drainage should include provision for removing storm water, 'grey water' from hand-washing stations, etc.) ☐ 1: Yes ☐ 2: No ☐ 3: Yes, but only a partial or incomplete system
C3. *If yes,* is the drainage system functional at the time of the visit? ☐ 1: Yes ☐ 2: No ☐ 3: Partially

D. Hygiene observations
D1. Does the school have hand-washing facilities? ☐ 1: Yes ☐ 2: No

Hand-washing Station #	**D2. Hand-washing facility type** 1: Running water form a piped system to a tank (faucet & sink/standpost/ rainwater tank & faucet/Bucket & spigot) 2: Hand-poured water system (e.g. bucket or ladle) 3: Basin/bucket (hand-washing done in the water and is not running or poured) 88: Other (please specify)	**D3. Location of hand-washing facility.** 1: Inside toilet/latrine blocks 2: Close to girls toilet/latrine blocks 3: Close to boys toilet/latrine blocks 4: In classrooms 5: Within grounds but not close to toilets 6: Close to cooking areas 7: Inside individual latrine/ toilet stalls 88: Other	**D4. Water available *currently*?** 1: Yes 2: No	**D5. *Soap or ash* available *currently*?** 1: Yes 2: No	**Notes**

1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
End Observation					

References

Adhikari, P., Kadel, B., Dhungel, S. I., Mandal, A. (2016). Knowledge and practice regarding menstrual hygiene in rural adolescent girls of Nepal. *Kathmandu University Medical Journal, 5(3)*: 382-386.

Auemaneekul, N., Bhandari, S., & Kerdmongkol, P. (2013). Menstrual hygiene practices among adolescents in a Rural District of Nepal. *Asia Pacific Journal of Public Health, 4(1)*: 8-15.

Bhandaree, R., Pandey, B., Rajak, M., & Pantha, P. (2013). Chhaupadi: victimizing women of Nepal. *Scientific Committee of Reviewers*, 141.

Budhathoki, S. S., Bhattachan, M., Pokharel, P. K., Bhadra, M., Teijlingen, E. (2016). Reusable Sanitary Towels: Promoting Menstrual Hygiene in Post-Earthquake Nepal. *Journal of Family Planning and Reproductive Health Care.* doi: 10.1136/jfprhc-2016-101481

Crawford, M., Menger, L. M., Kaufman, M. R. (2014). 'This is a natural process': managing menstrual stigma in Nepal. *Culture, Health & Sexuality, 16(4)*: 426-439. doi: 10.1080/13691058.2014.887147

Dahal, K. (2008). Nepalese woman dies after banishment to shed during menstruation. *British Medical Journal (BMJ)*: 337. doi: https://doi-org.proxy.library.emory.edu/10.1136/bmj.a2520

Dahal, K. (2005). Revitalization of the Regional Development Agenda in Nepal: Lessons from British Model. Center for Nepal and Asian Studies, 32(2): 277-297.

GC, S., & Koirala, P. (2013). Menstruation among Nepalese Adolescent girls.

Gittelsohn, J., Thapa, M., Landman, L. T. (1997). Cultural Factors, Caloric Intake and Micronutrient Sufficiency in Rural Nepali Households. *Social Science Medicine, 44(11)*: 1739-1749.

Kapoor, A., & Khari, S. (2016). Knowledge, Attitude and Socio-cultural Beliefs of Adolescent Girls towards Menstruation. *Journal of Nepal Paediatric Society, 36(1)*: 42-49.

OCHA. (2008). *Kapilbastu District* [Online Image]. Retrieved February 17, 2017 from http://www.un.org.np/maps/district-maps/western/Kapilbastu.pdf

OCHA. (2008). *Pyuthan District* [Online Image]. Retrieved February 17, 2017 from http://www.un.org.np/maps/district-maps/mid-western/Pyuthan.pdf

Oster, E., & Thornton, R. (2009). *Menstruation and education in Nepal* (No. w14853). National Bureau of Economic Research.

Oster, E., & Thornton, R. (2011). Menstruation, sanitary products, and school attendance: Evidence from a randomized evaluation. *American Economic Journal: Applied Economics, 3(1)*: 91-100.

Padhye, S., Karki, C., Padhye S. B. (2003). A profile of menstrual disorders in a private set up. *Kathmandu Univeristy Medical Journal, 1(1)*: 20-26**.**

Pandey, A. (2014). Challenges experienced by adolescent girls while menstruation in Kathmandu, Valley: A qualitative study. *Journal of Community Medical Health Education, 4(285)*: 2161-0711.

Ranabhat, C., Kim, C., Choi, E. H., Aryal, A., Park, M. B., Doh, Y. A. (2015). *Chhaupadi* Culture and Reproductive Health of Women in Nepal. *A*: 785-795. doi: 10.1177/1010539515602743

Robinson, H. (2015). Chaupadi: The affliction of menses in Nepal. *International Journal of Women's Dermatology, 1(4)*: 193-194.

Sapkota, D., Sharma, D., Pokharel, H. P., Budhathoki, S. S., & Khanal, V. K. (2013). Knowledge and practices regarding menstruation among school going adolescents of rural Nepal. *Journal of Kathmandu Medical College, 2(3)*: 122-128.

Sharma, M., Gupta, s. (2003). Menstrual Pattern and abnormalities in the high school girls of Dharan: a cross sectional study in two boarding schools. *Nepal Medical College Journal, 5(1)*: 34-36.

Sharma, S., Deuja, S., Saha, C. G. (2016). Menstural pattern among adolescent girls of Pokhara Valley: a cross sectional study. *BMC Women's Health, 16*: 74. doi: 10.1186/s12905-016-0354-y