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Knowledge, Practice, and Cultural Barrier on Menstrual Hygiene Management Among Adolescent Girls and Women (Age 10-50 Years) in the Host Community and Forcibly Displace Myanmar Nationals in Cox's Bazar District, Bangladesh

Moammad Shajan Siraj[1*]
[1]Master of Public Health, University of Creative and Technology, Chittagong, Bangladesh, Master of Economics, University of Chittagong, Bangladesh, Humanitarian aid worker and working in the Rohingya refugee response, Cox's Bazar, Bangladesh,

Mohammad Humayun Kabir Shohag[2]
[2]Department of English, World University of Bangladesh, Dhaka, Bangladesh

Fahima Amzad Chowdhury[3]
[3]MSS, Department of Sociology, University of Chittagong, Chittagong, Bangladesh

Prasanjith Barua[4]
[4]Business Studies, Premier University, Chittagong, Chittagong Bangladesh

Nakshatra Nur[5]
[5]MSS Department of Economics, Bangladesh University of Professionals, Dhaka, Bangladesh

Anam Fatima[6]
[6]Department of Anthropology University of Chittagong, Chittagong, Bangladesh

Eyenan Taj Rean Shoumik[7]
[7]Business Studies, Bangladesh University of Professional, Dhaka, Bangladesh

Tabassum Khan[8]
[8]Business Studies, University of Chittagong, Chittagong, Bangladesh

Corresponding Author:- Moammad Shajan Siraj[1*]

Abstract:

➢ ***Background:***

Menstrual Hygiene Management is essential for every woman and adolescent girl. To avoid any risks to health, effective management of menstrual hygiene requires knowledge, access to materials, and WASH services. Menstruation is frowned upon in many countries, including Bangladesh. The purpose of this study is to analyze the state of menstrual hygiene management practices, processes, and culture in the host community of Bangladesh and the Rohingya Community / Forcibly Displaced Myanmar Nationals (FDMN).

➢ ***Materials and Methods:***

A descriptive, cross-sectional study was designed and a non-probability purposive sampling method was followed with 95% CI. The P-value of less than 0.05 was taken as the level of significance to determine the sample size. The study considered 468 sample sizes and KoBo data collection toolkits were adopted along with a printed copy for the house-to-house survey data collection.

➢ ***Results:***

The study shows that among adolescent girls and women, 41% in the Rohingya camp and 46% in the host community did not have proper prior information regarding menstruation before the menarche. 11% of females and adolescents believe that they discharge bad/contaminated blood during menstruation. To manage menstruation, 61% of the host community and 68% of Rohingya use reusable clothes,. 49% of the host community and 35% in the camp are drying the Menstrual Hygiene Management cloth under the sunlight; many of them do not practice it due to shame and taboo. 43% in the Rohingya camp and 18% in the host community report a problem with changing clothes due to a lack of space to change the cloth in the toilet/washroom. Disposal of the absorbent in the latrine and drain is higher in the camp compared to the host community. A significant number of women and adolescent girls are not allowed to go out from home for

daily activities and separate sleeping during menstruation.

➢ ***Conclusion:***
Still, high numbers of women and adolescent girls' menstrual hygiene management is poorly managed. This poor management leads to physical complications which need medical attention. Social stigmas and taboos regarding menstruation have a negative impact on mental health.

***Keywords*:-** *Menstrual Hygiene, Menstrual Knowledge and Practice, FDMN, Host Community, Adolescent Girls and Women, MHM Kits.*

I. INTRODUCTION

Menstruation is biological function that maintains the reproductive cycle of women and adolescent girls. It consequences in bleeding from the womb (uterus) being lost through the vagina. Menstruation generally happens monthly for between 2-7 days [1]. Only women have the wonderful and sole ability to create human life in nature and can have children after they start menstruating. The average amount of blood lost during a menstrual period is 30ml-40ml. Women and girls are usually familiar with lighter and heavier flow days during their menstrual period [3]. Every female must deal with Menarche; it occurs between the ages of 10 to 16 years [4] and remained relatively constant at approximately 50 years [2]. Worldwide, approximately, 52% of the female population (26% of the total population) is of reproductive age. At least 500 million women and girls globally lack of adequate facilities for menstrual hygiene management (MHM). Inadequate WASH (water, sanitation, and hygiene) facilities, particularly in public places, such as schools, workplaces or health centers, can pose a major obstacle to women and girls [5]. Twenty-three million people do not have access to adequate sanitation [29]. There are a projected 54 million women and girl who are menstruating in Bangladesh [6]. A significant number of them continue unhygienic menstrual management. Cultural and religious norms regarding menstruation create barriers for women and girls to participate in normal daily life, going to school and work or participate in religious ceremonies. Furthermore, women and girls lack access to the information, products and infrastructures which are needed to manage menstruation with dignity. This severely impacts their health, well-being, and the realization of their rights [7]. Today's adolescent girls will be required to accomplish up to 3000 days of menstruation over their lifetimes [2].

Considering the WHO/UNICEF Joint Monitoring Programme (JMP), menstrual hygiene can be defined as a basic need related to the menstrual cycle. It is important that women and adolescent girls have access to hygienic materials for menstrual management to absorb menstrual blood. Private space is vital to change menstrual management materials. They should have access to safe water and soap for washing their hands and reusable clothes. They require facilities for safe disposal of used menstrual managing materials and a suitable place to dry reusable materials. To manage menstruation with dignity and without discomfort, information regarding hygiene education, advice, and support is important [3] [29]. In many countries, including Bangladesh and Rohingya Refugee/ FDMN camps, menstruation is taboo to talk about openly and remains hidden from others. It is also a substance of extreme shame. As a consequence, women and adolescent girls feel shy to talk openly about management of menstruation. Generally, due to restrictions and inadequate knowledge, especially girls experience a severe drop in self-confidence during puberty. In Bangladesh and Rohingya Refugee/ FDMN camps, most women have unhygienic practices during storing reusable clothes, often inappropriately dried in between use, and drying practice is not healthy and tried to avoid the sun during drying of menstrual cloth. The healthy practice of management of menstruation is important to avoid harm. Menstruation hygiene management also depends on a supportive cultural environment, enabling factors, and access to knowledge and materials. Improper and unhygienic menstrual hygiene management practices are exposed to health risks during periods, and threaten a person's health and cause infections in the reproductive tract. Resulted in a significantly increased risk of bacterial vaginosis and urinary tract infections.

The existing stigma around menstruation creates barriers to enjoy several human rights, including the right to non-discrimination, equality, bodily integrity, health, privacy, and the right to freedom from inhumane and degrading treatment from abuse and violence [17]. They also face social and cultural barriers and have limited access to WASH facilities and MHM products. The Guardian reports that a 12-year-old school girl killed herself after a teacher apparently humiliated her over a blood stain from menstruation in the Tamil Nadu state of India [18]. All these factors are more contribute to the increased rates of risky social and health-related behaviors that many adolescents practice.

This study will help to fix the risk factors and to take proper steps to ensure a favorable situation for the women and girls in the selected area. This study will be supportive to the development practitioners and government to address menstrual hygiene management issues as essential health issues.

II. MATERIALS AND METHODS

➢ *Study Design and Location:*
A descriptive, cross-sectional study is designed by following the quantitative method. A semi-structured questionnaire has been administered through the house-to-house survey to capture the status mentioned above in this study. A non-probability purposive sampling method is followed with 95% CI, and the P-value of less than 0.05 is taken as the level of significance to determine the sample size; the typical case sample is 384, but to get more information, this study consider a sample size of 468 in the camp and host community, Cox's Bazar.

- *In the Rohingya Refugee Camp:*

The population's characteristics are homogenous, and access to WASH service is almost similar; study population has been considered geographical and easy access to data collection.

- *In the Host Community of Bangladesh:*

The population's characteristics are not precisely homogenous, and access to WASH service is not the same; in Uhiya and Teknaf Upazila, there are Rohingya refugee/FDMN, and support from NGOs is also high compared to the Cox's Bazar Municipality, Kutubdia, and Maheshkhali (Matarbari).

Matarbari union, Maheshkhali and Uttar Dhorong, Kutubdia in the Cox's Bazar municipality have been considered the most vulnerable word/union.

- *Study Duration:*

This study started in the January 2021 and completion deadline was in the June 2021 but due to the COVID-19 situation, data collection from house to house is delayed and data collection has been completed in June 2021 to December 2021.

- *Sample Size:*

468 Adolescent girls and women.

- *Sample Size Calculation:*

In quantitative research, the goal is not to get a large sample representative of the population but sample rich in information. This study follows this approach, and participants were selected considering the accessibility in the location and willingness of the respondents who are interested in providing data without any hesitation on menstrual hygiene.
The typical case sample is 384, but to get more information, this study considered 468 sample sizes. KoBo data collection toolkits were adopted along with printed copy of the questionnaire for the data collection. A descriptive analysis is done to analyze the situation through Microsoft Excel and Sphinx data collection software. To select the sample size for this study, consider Raosoft online sample size calculator software http://www.raosoft.com/samplesize.html. This is similar to the typical case sample size calculation.

- *Sample Calculation for the General Case:*

- *N is the Sample Size*
- *t is the Error Risk Parameter Related to the Confidence Interval (Confidence Level at 95%; Standard Value of 1.96)*
- *p is the Expected Prevalence (for these Surveys, a Value of p = 0.5. is Chosen, i.e., 50%);*
- *q = 1– p, i.e., q = 0.5 for this Study.*
- *d is the Degree of Accuracy Required, Generally 5%,*

$$N = \frac{1.96^2(0.5 \text{ X } 0.5)}{0.05^2} = 384$$

This sample size is divided into the two characteristics of the population. One group is camp dwellers (Rohingya) anthers group is host community people of the Cox's Bazar. However, this study also considers 468 sample in the camp and host community aiming to get more information.

- *Subjects & Area Selection Justification:*

The study's general objective is to assess the knowledge, practice, cultural belief, taboos, and access to WASH service among the women and adolescents of age 10-50 in the Host community of Cox's Bazar and Rohingya /Forcedly Displaced Myanmar Nationals (FDMN).

In Cox's Bazar, many national, international NGOs, UN, and government line departments are working on the refugee response. As per government's recommendation, they are considering 25-30% of the budget for the host community, but there is limited evidence of the MHM's current situation, practice, cultural barrier and accessibility to proper management of menstruation. Therefore, this study will support those development practitioners to work for reproductive-age girls and women for a safe reproductive life. On the other hand, there are some studies conducted by different NGOs and individuals in the Rohingya community. Still, this study can be considered for the Rohingya community to compare the situation on the issues mentioned above, and considering different accessibility and settings.

In Ukhiya and Teknaf, many NGOs, INGOs, and UN are working in the camp and host community. Joint Response Plan (JRP) in the humanitarian response at Cox's Bazar is considered on those two Upazilas considering camp settings for Rohingya/FDMN. The majority of the Rohingya is located in Rajapalong, Palongkhali, and Balukhali under Ukhiya Upazila on the other hand Hnila and Whykong union under Teknaf Upazila.

Camps are considered under three areas focal territory- under the leadership of UNHCR, IOM, and UNICEF as well as overall leadership of the WASH sector. The camp response is closely similar in all camps; that's why this study considered purposively based on easy access for the data collection.

On the other hand, Maheshkhali, Kutubdiya, are geographically different (Maheshkhali and Kutubdia are Island), and Cox's Bazar (municipality) is considered as main town of Cox's Bazar district. There are no Rohingya (officially) in those three upazilas. Therefore, access to the WASH support is not the same in all upazila.

This study considered major two target audience, one is Rohingya/FDMN who are living in the camps, and different NGOs, INGOs, UN, and government setting who are working to support them. Another one is the Host community, where limited NGOs and other development practitioners are working on those parts. Culture is different in Rohingya and Host community.

The study also aims to identify necessary actions to be taken at the local level (host community and camp level). It

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can be considered at the national level to address menstrual hygiene issues and future reproductive health problems for women and girls.

Finally, the findings from this study will create the scope for the researcher for further research on menstrual hygiene management. This comparative study finding will create further interest in the research field of reproductive health and menstrual hygiene in the context of Cox's Bazar and Rohingya Camp.

- *Inclusion Criteria:*

Adolescent girls and women (age 10-50) have given consent and have willingly joined or participated in the study.

- *Exclusion Criteria:*

Girls aged below 10-and women above 50 are excluded from the study. People who felt unwilling to participate and who were unable to provide information due to physical and mental illness or handicapped.

- *Data Collection Procedure Methodology:*

The data for this study has been collected through one-to-one interview using semi-structured and open-ended questionnaires. 26 data enumerators were engaged for the data collection, in the 05 Upazilas and the camps to ensure unbiased data quality.

Before data collection, all data enumerators/research assistants received training on the data collection process and field test.

Considering the sensitive issues (as per current culture), time, and COVID-19 situation, this study accepted the participants' comfortability. Based on that, all possible data collection technique has been applied. In addition, there was an option for the KoBo data collection tool kit and a hard copy of the questionnaire. Furthermore, prevision for the interview through e-mail, skype/other latest technology also available for the data collection. But finally, all data has been collected through one-to-one interview/survey.

All data collected by the KoBo online platform and those are exported in the excel format for the analysis. Data analysis has been done through sphinx software and Microsoft excel.

III. STUDY RESULT

- *Socio- Demographical Information of the Respondents*

- *Location:*

As per the proposed sample size, the present study project was supposed to consider 384 samples but the team decided to account for additional samples (total 468) to reduce chances of error from the result. Under the project, the samples would be retrieved from various geographical locations within the host community and FDMN, however the population within the host community is more scattered compared to the FDMN and as such the project has covered a larger portion of the host community (55%); where as 45% of the project aim is over FDMN geographic locations.

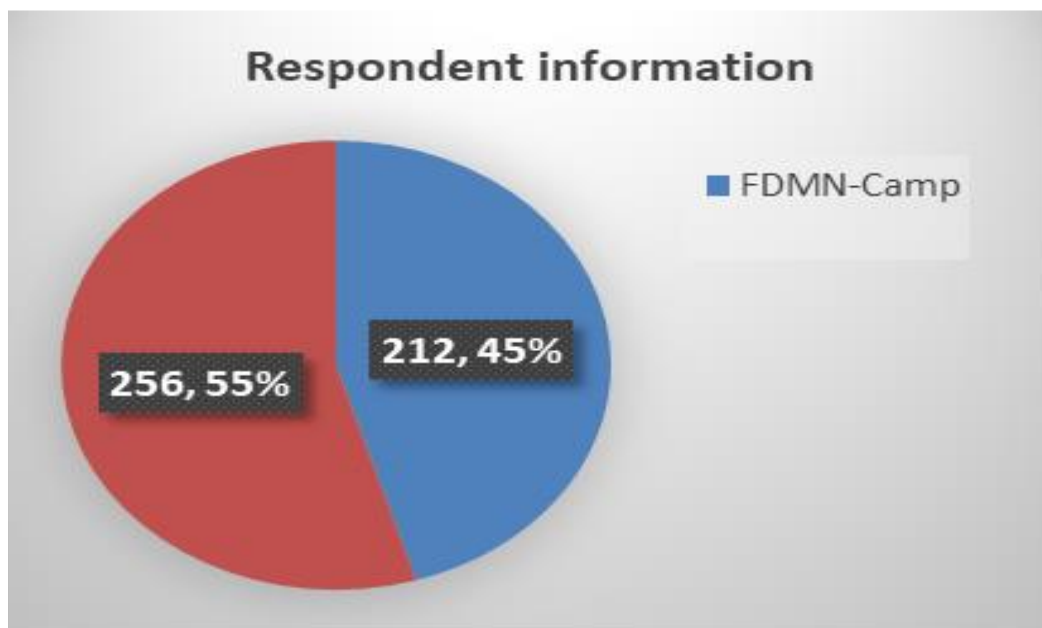

Fig 1 Response by Location

- *Response in the Host Community and FDMN:*

In the FDMN, a total of 12 camps have been considered for the study. The selected camps are listed below. It must be mentioned that due to the ongoing COVID-19 crisis, there have been multiple lockdowns and as a result it has been difficult to access all camps with the same sample size. In the host community, samples were identified considering the population ratio. Minimum one union from each Upazila has been considered for the study.

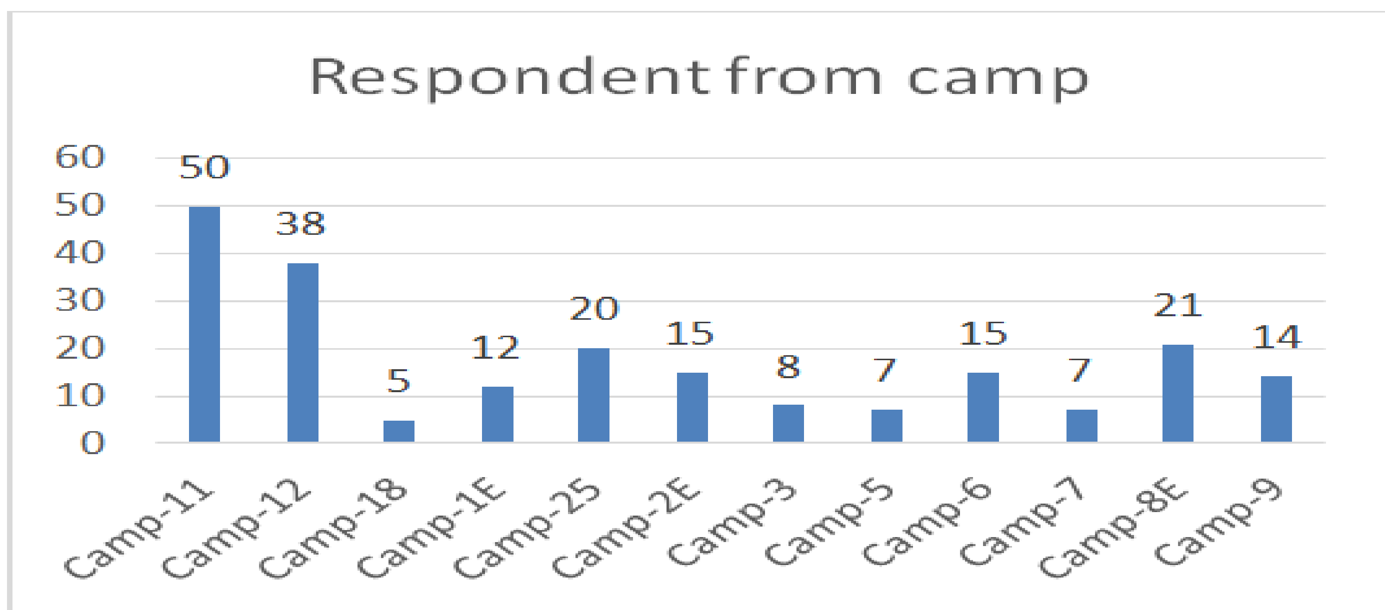

Fig 2 2 Response in the Camp

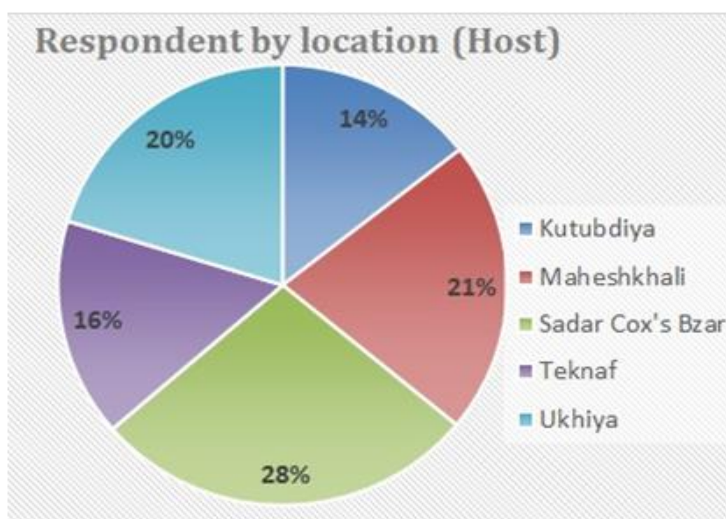

Fig 3 Response in the Host Community

- *Age Group:*

This study has considered 61% women and 39% adolescents; the age range under this project is between 10-50 for women and adolescents.

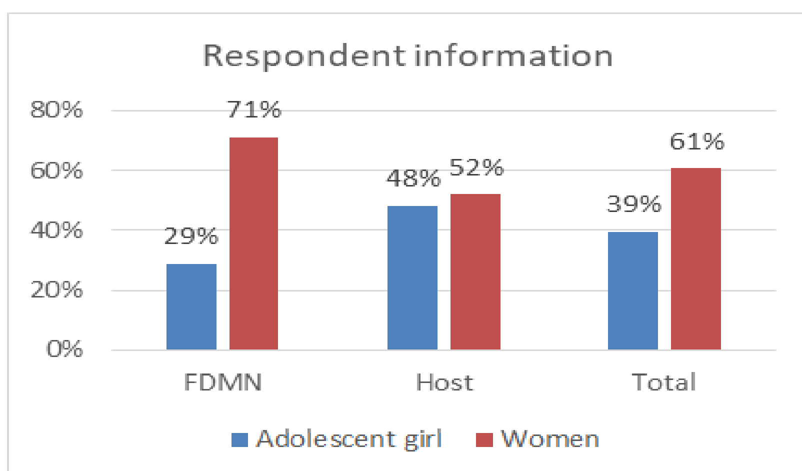

Fig 4 Age group

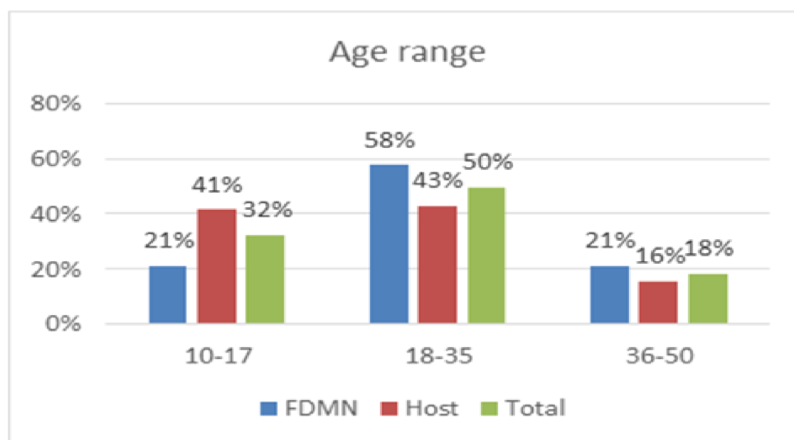

Fig 5 Age Range

- *Disabilities Information:*

The Figure 6 and 7 is representing the information of the person with disability. Though this study tries to take into account everyone who meets the criteria for inclusion, but the information on people with disabilities has not been accurately reflected because the vast majority of respondents in the host community and camp don't mention the disability issues.

Fig 6 Information Related to Person with Disabilities

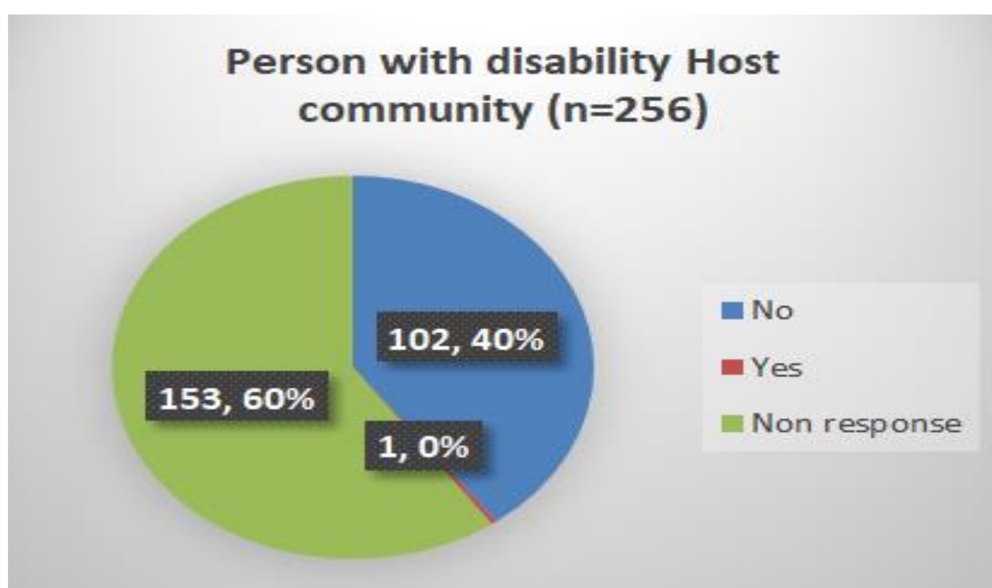

Fig 7 Person with Disabilities Host

IV. KNOWLEDGE AND PRACTICES

➢ *Perceptions/Causes on Menstruation:*

It is quite difficult to define menstrual hygiene within the FDMN and the Host community. While menstrual hygiene is a biological process, the respondents in neither community have a complete and sound understanding of the process but instead have shallow personal ideas of their own that they live by. Though there is a huge gap in the educational background between the respondents from FDMN and the Host community, the perceptions regarding menstrual hygiene are very close.

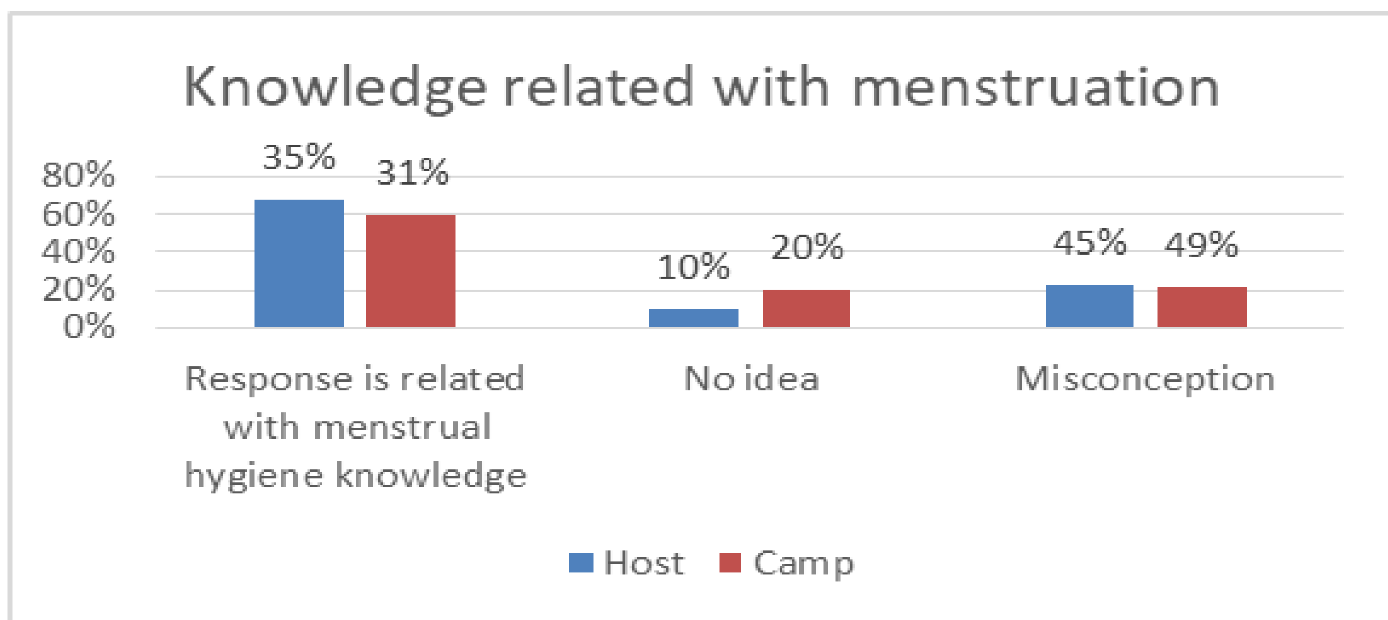

Fig 8 Knowledge Related with Menstruation

The studies show (Figure 8) that on average 35% of the of the respondents in the host community and 31% of the FDMN have good sense which can relate with the proper knowledge on menstruation, though there still exists a knowledge gap and misconception regarding mensuration. 45% of the host community and 49% of the FDMN in the camp people have misconception regarding menstruation.

Table -1 shows the overall perception regarding menstruation and this study gave the scope to the respondents for the multiple reposes to capture all options regarding menstruation.

Table 1 Perception Regarding Menstruation

Perception of Menstruation	FDMN-Camp	Host Community	Grand Total
Because of hormonal changes	0%	1%	0.5%
Don't know	20%	10%	15%
For discharge of bad/contaminated blood	11%	11%	11%
For emotional change	2%	0%	1%
Girls become beautiful/faces will turn yellow by menstruation	2%	1%	1%
Girls menstruate through physical growth/changes	10%	11%	10.5%
It is a sign of growing up for girls and get reproductive maturity	7%	4%	5.5%
Menstruation continues in every month for the girl between the ages of 10 and 12	0%	1%	0.5%
Menstruation is a blessing of Allah	7%	9%	8%
Menstruation is a normal process of girls life	6%	10%	9%
Periodical(monthly) discharge of blood	5%	2%	3%
Signs of puberty	4%	4%	4%
There is a change in the movement of girls	0%	1%	0.5%
To gain the ability to have a baby	9%	18%	13.5%
To get rid of the disease	1%	1%	1%
To increase sexual desire	1%	0%	0.5%
To keep the body healthy	15%	16%	15.5%

- *Experiences of Menarche and Prior Information on Menstruation:*

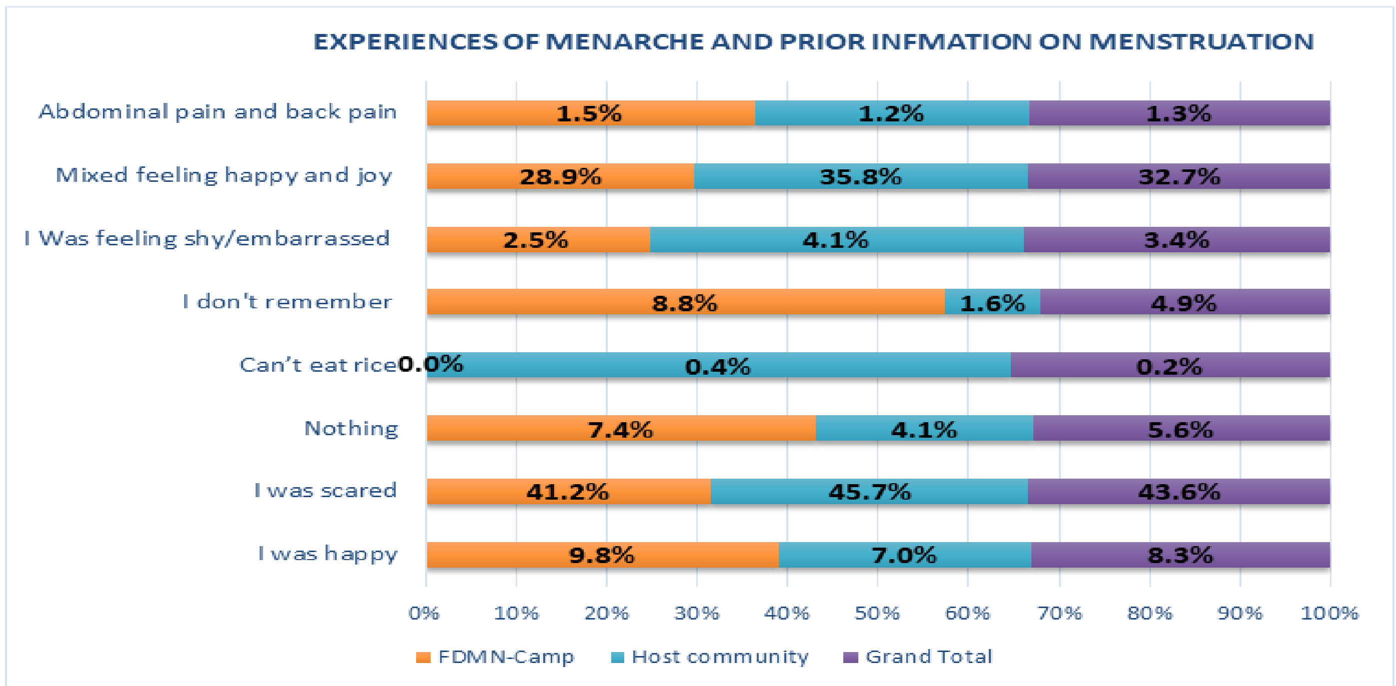

Fig 9 Experiences of Menarche

Further, the study unearthed that 44% [Figure 9] of the entire respondent pool felt fear during this transformative period of their lives. 41% in the camp and 46% in the host community did not have proper prior information regarding menstruation. These findings are very significant and underlines the dire necessity of MHM education and adolescent awareness are of the utmost importance to all adolescents.

- *Attitude Regarding Menstruation:*

The respondents are asked how they perceived menstruation as a whole, whether it is a good or a bad thing. Only 6% in the FDMN considering it a bad thing and only 7% saying the same in the Host community.

The respondents from both communities, who hold negative impressions regarding menstruation, are asked why they feel it is a bad thing. The most common responses are that it makes them feel uncomfortable; that it is a painful process (abdominal and waist pain); that they have to remain separate or in different rooms during this period; being called impure during this period; inability to say their prayers; and that the discharge of bodily fluids makes them uncomfortable [Figure 10].

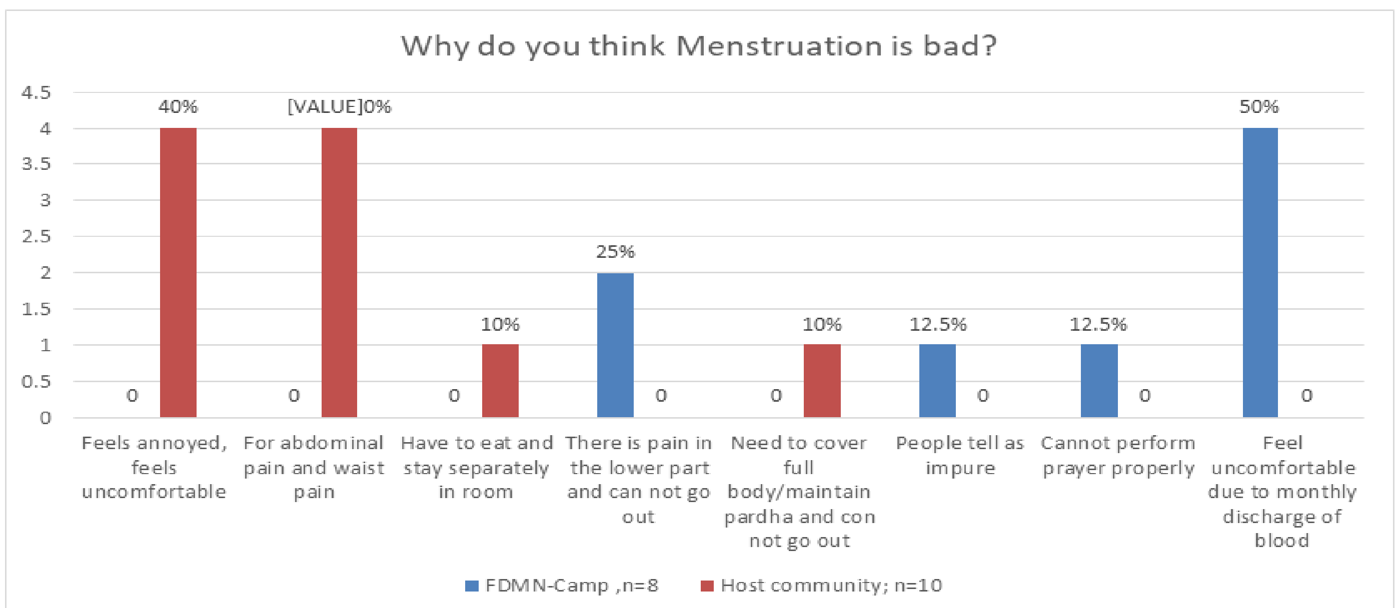

Fig 10 Reason of the Negative Attitude

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- *Sources of Information on Menstruation:*

To set the primary and secondary audience for menstrual hygiene management education, it is essential to know from where the girls and women first heard or learned about menstruation. Respondents report that the most common sources are mother and relatives (sister, aunt, and grandmother). In the host community, majority of the respondent report first hearing or learning about menstruation from their mother (32%), but it is grandmother (27%) in the refugee camp [Figure 11].

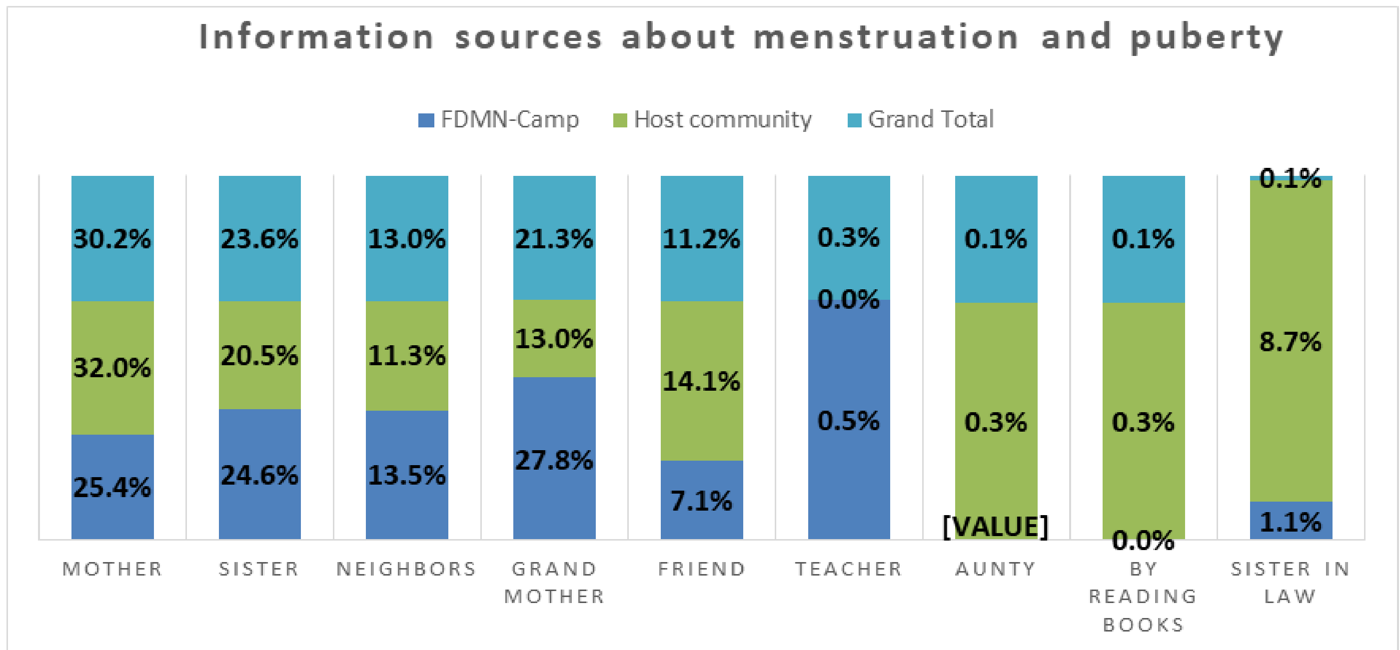

Fig 11 Sources of Information on Menstruation

- *Food Intake /Dietary Diversity Status During Menstruation:*

During menstruation food intake is important to keep good health, extra nutritious food can be very supportive for some girls and women. Around 33% report that they change the food intake during the menstruation (31% in FDMN and 35% is in the host community [Figure 12].

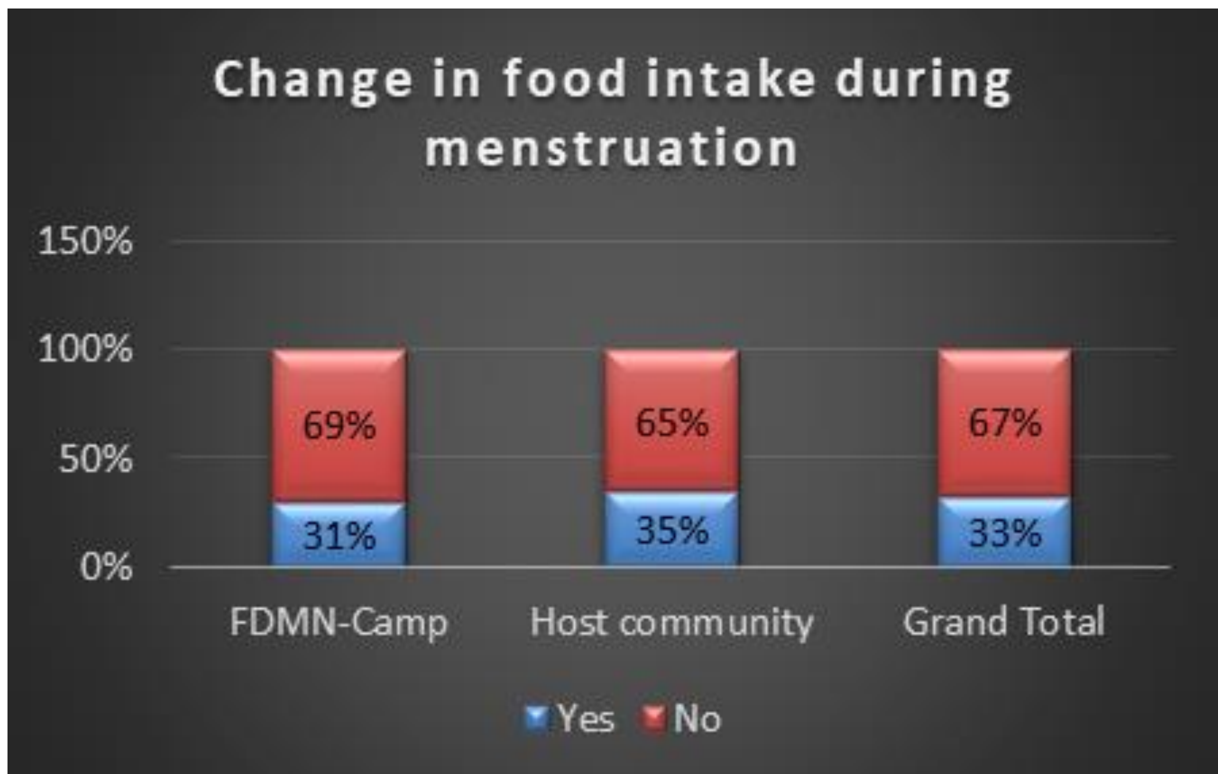

Fig 12 Food Intake Status

- *Idea on Germs Transmission:*
31% of respondents reports that they have idea on the germs transmission. Their main responses are [Figure 13]:

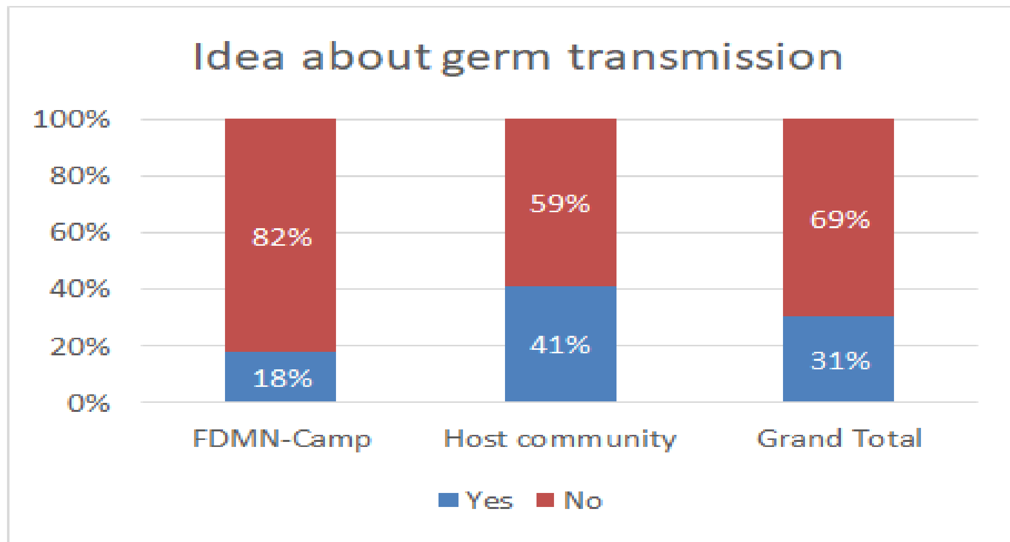

Fig 13 Idea on Germs Transmission

Bacterial infections can lead to a variety of illnesses if there is incomplete drying cloth, long time not changing pad, using dirty clothes can cause abdominal pain etc. (table -2).

Table 2 Idea on Germs Transmission Additional Information

Bacterial infections can lead to a variety of illnesses
If Clothes are not dry completely under the sun then germs can enter easily
If I don't change pad in 6 hours intervals then germs can easily enter the body
If menstruation doesn't happens it causes tumor, cancer in uterus or causes various diseases
Infections can lead to a variety of illnesses. For example, cancer
Using dirty clothes can cause abdominal pain, burning
Wearing unclean clothes, germs can transmitted into the body and health becomes weak

- *Existing Cultural and Social Norms of Families Regarding Menstruation:*
The study also wants to collect data on pre-existing social and cultural presents of menstruation. When the respondents are asked about it, many different social norms surfaced. Surprisingly, the practice of these norms is found to be present in almost equal amounts in both communities (Table 3). The most prevalent of these is the imposition of restrictions on girls/women on going out of the house that they should not talk to men, that they must wear hijabs and burkas, and that they must keep the fact hidden that they are menstruating.

Table 3 Existing Cultural and Social Norms of Families Regarding Menstruation

Cultural and Social Norms Exist in the Family During Menstruation.	**FDMN**	**Host**	**Total**
Start restriction for girl/women cannot go out from home	59%	48%	53%
Girl/women cannot talk with men	37%	24%	30%
Start to wear hijab/Borkha	50%	34%	41%
Keeping hidden of menstruation information	37%	43%	40%
Try to keep it clean and sound	36%	45%	41%
Cannot perform heavy household activities and cocking during menstruation.	53%	26%	38%
The family arranges a religious event within their capacity	39%	16%	27.5%
Restriction for the cultivation	4%	1%	2%
It is prohibited for animal rearing	7%	3%	5%
Cannot see tree/ Can't see the leaves of the tree	8%	3%	5%
Cannot see river/cannel	9%	4%	6%
Keep them separate house and keep separate them from others/husband	32%	12%	21%
They cannot perform prayer	67%	39%	52%
Not Interested to respond	1%	0%	0%
Can't touch baby and will cause diseases	0%	1%	0%

➢ *Access to Materials and Service to Managing Menstruation*

- *Materials use:*

Managing menstruation depends not only on knowledge but also on enabling factors (Financial capacity, product availability, Aid support, cultural issues, supportive environment etc.). The majority (avg. 65%) of the camp and host community adolescent and women report that they are using reusable cloth to manage the menstruation [Figure 14]. In separately 18% camp and 36% in the host women and adolescent report sanitary pads to manage the menstruation period. 68% of community in camp and 61% of host community report that they are using reusable cloth. Using reusable cloth is higher in the camp compare to the host. The Main reason is that women and adolescents received MHM kits in the camp level. But sanitary pad using rate is comparatively high in the host community (36%) compare to the camp (18%). Using cotton/rags (13%) is high in camp and 3 % in the host those are risky practice which can lead to the health risk. Sanitary pad using by adolescent is high in the camp compare to the women. Where as it's slightly low in the Rohingya camp.

Table 4 Materials used for Menstruation Management (Segregated by Adolescent and Women)

Materials use for MHM	**FDMN/Refugee Camp**		**Host Community**	
	Adolescent	Women	Adolescent	Women
Sanitary pad	14%	20%	39%	32%
Reusable cloth	63%	70%	59%	61%
Rags/ cotton/ panties	23%	10%	3%	6%
Don't use any materials	0%	0%	0%	1%

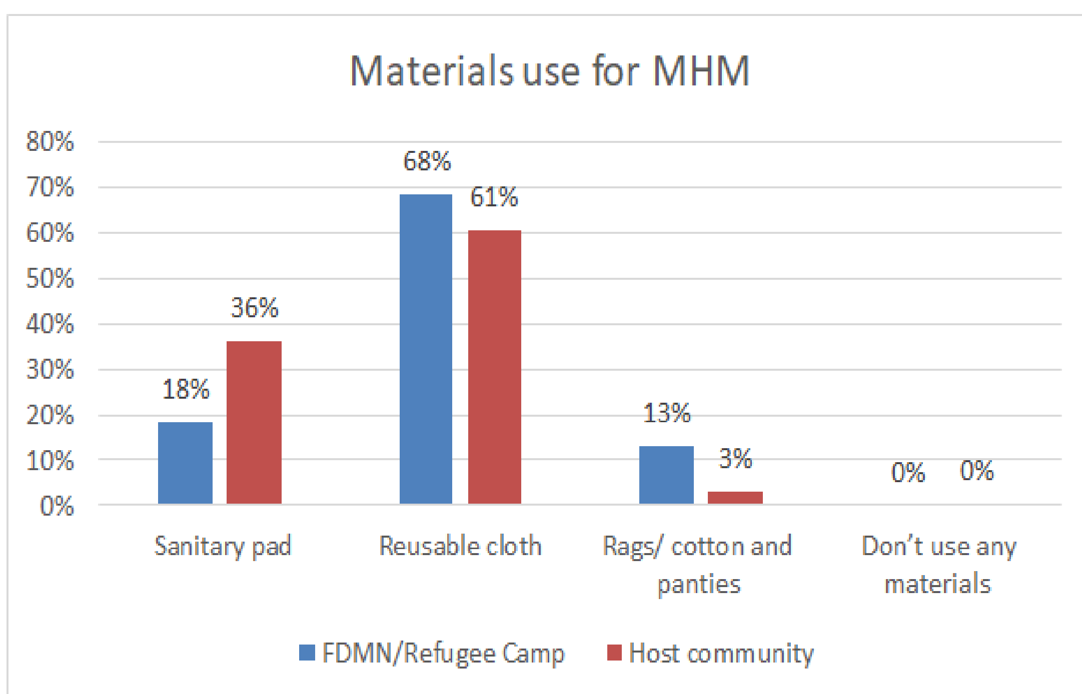

Fig 14 Materials used for Menstruation Management

- *Materials use During Washing of the Reusable Item:*

Among those using old cloth, most respondents (91%) are using soap and water to clean the reusable cloth. 2% reports that they wash the reusable cloth with only water, and 7% uses other materials like detergent powder/ antiseptic [Figure 151]. There is little difference between the host community and camp dwellers; 87% in camps is using soap and 11% is using detergent powder/antiseptic, whereas, in the host community, they are mainly using soap (94%). Maybe there is little effect for the NGO work in the camp, which leads to antiseptic use during reusable cloth washing. Taking care of the person herself is essential during menstruation e.g. bathing, regular wash of reusable cloth, proper storing, etc. Availability of soap is important to maintain the menstruation properly. The study shows that 83% of the FDMN and 92% of the host community have access to the soap [Figure 16]. The gap of the soap is mainly financial and not available near to the living area [Figure 17]. This study also reported that 86% in host community and 44% of the Rohingya refugee change the cloth within 8hours interval [Figure 18].

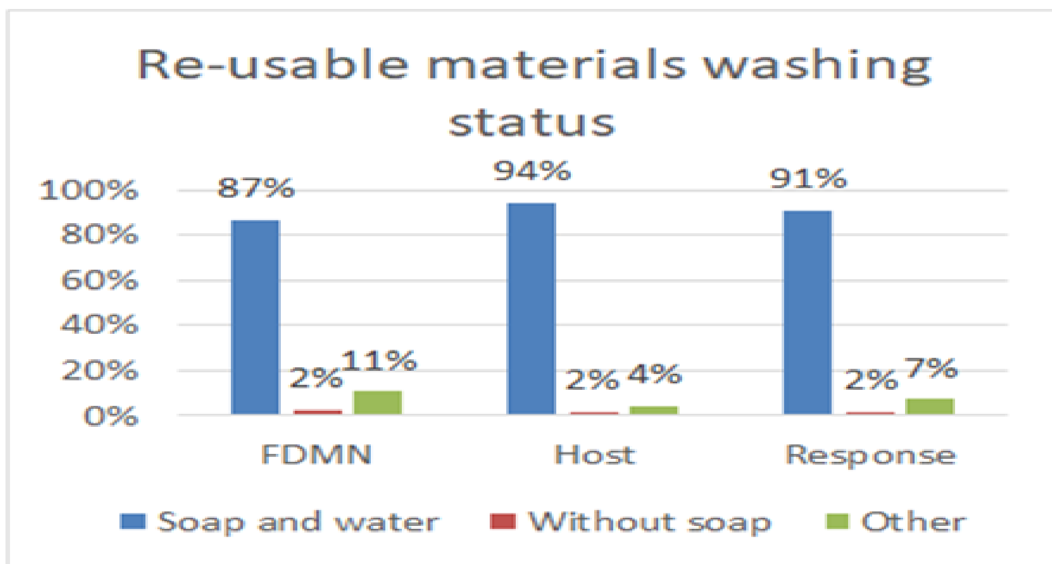

Fig 15 2Materials use During Washing of the Reusable Item

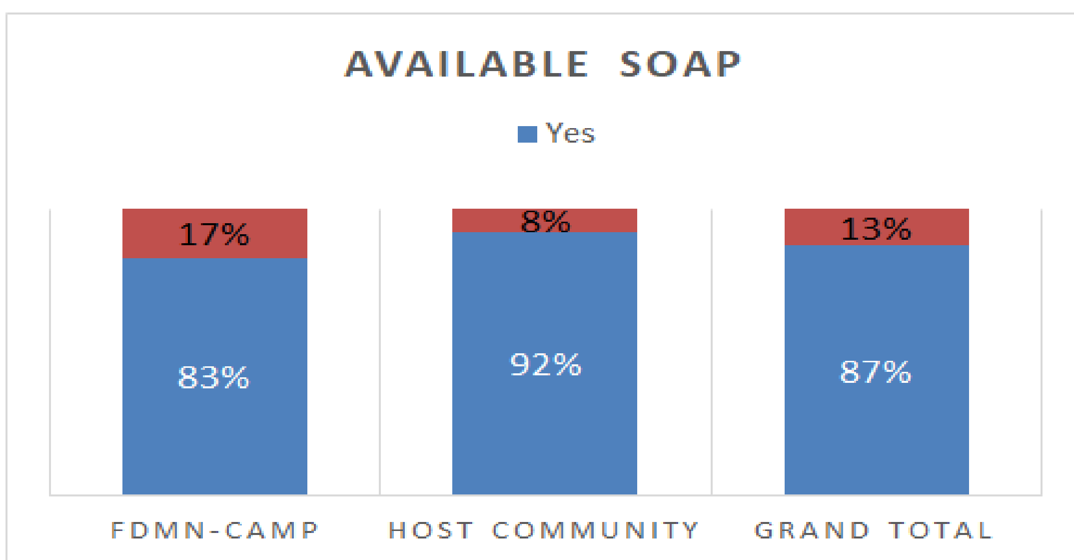

Fig 16 Soap Availability

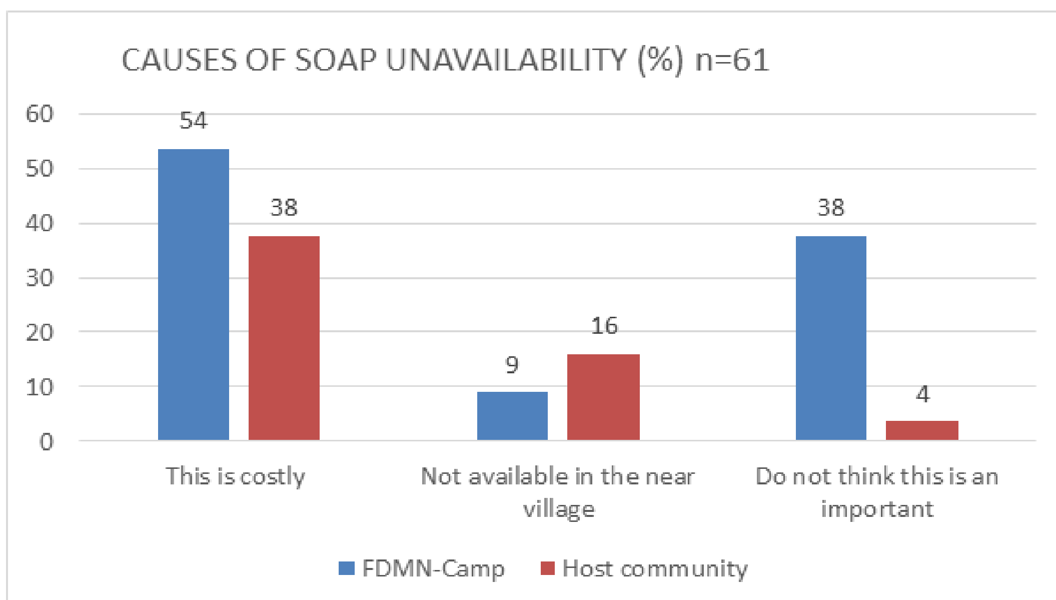

Fig 17 Causes of Soap Unavailability

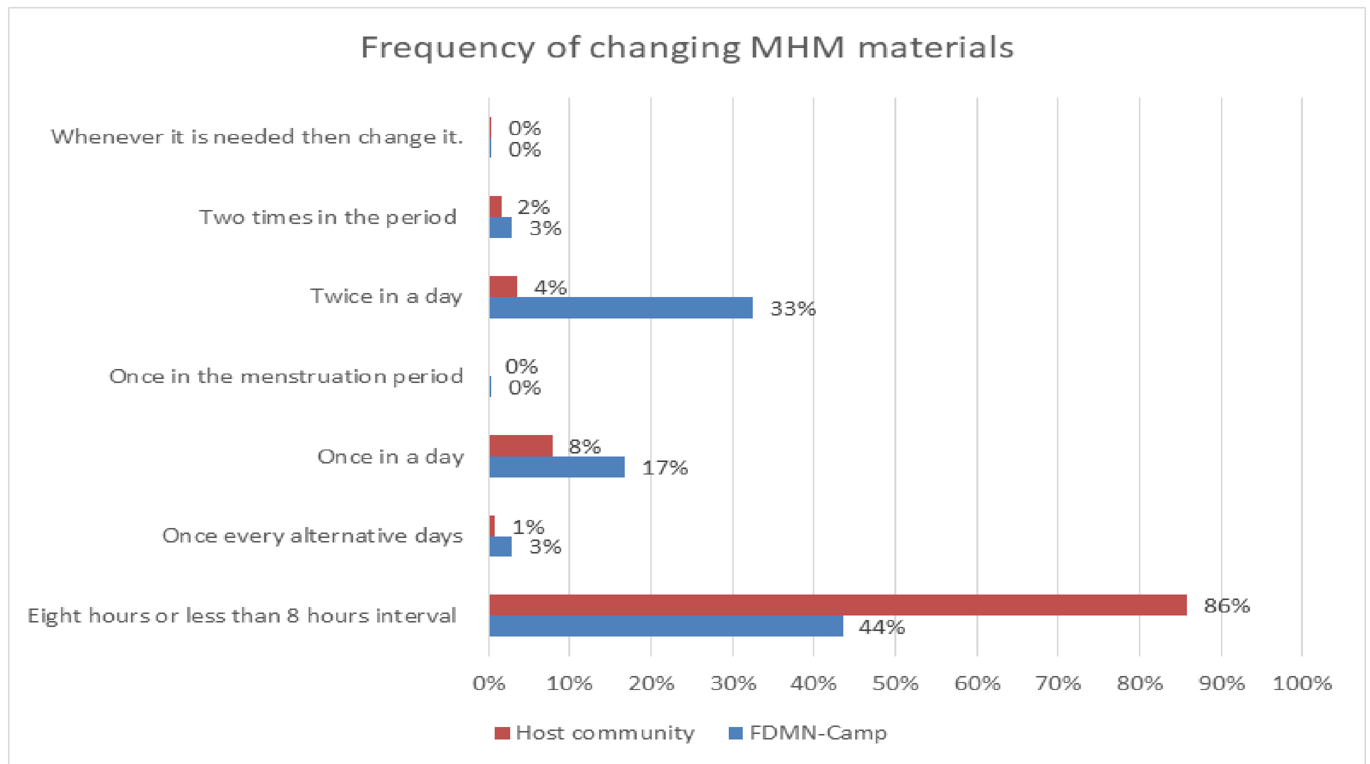

Fig 18 Causes of Soap Unavailability

- *Current Practices of Cleanliness During Menstruation:*

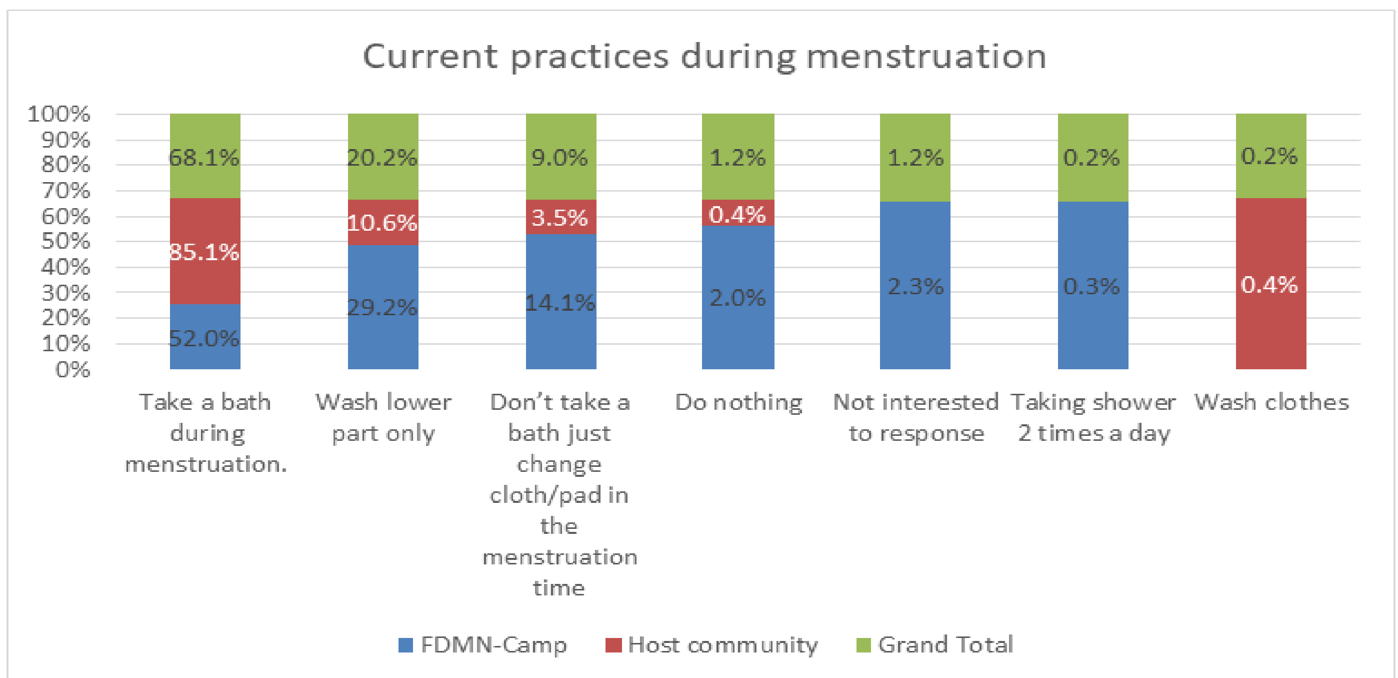

Fig 19 Current Practices of Cleanliness During Menstruation

The majority of the respondents reports that they take baths during menstruation. Host community people (85%) take baths regularly compare to FDMN (52%). The trend of washing the lower part regularly is higher in the camp (29%) compared to the host community (10.6%) [Figure 19].

To know the frequency of the washing/bathing is important to ensure proper management of the menstruation. On average 54% responded among the people who wash/taking bath have a good practice of the regular bathing. Daily washing/bathing rate is high in the host community (78%) compare to camp (35%) [Figure 20].

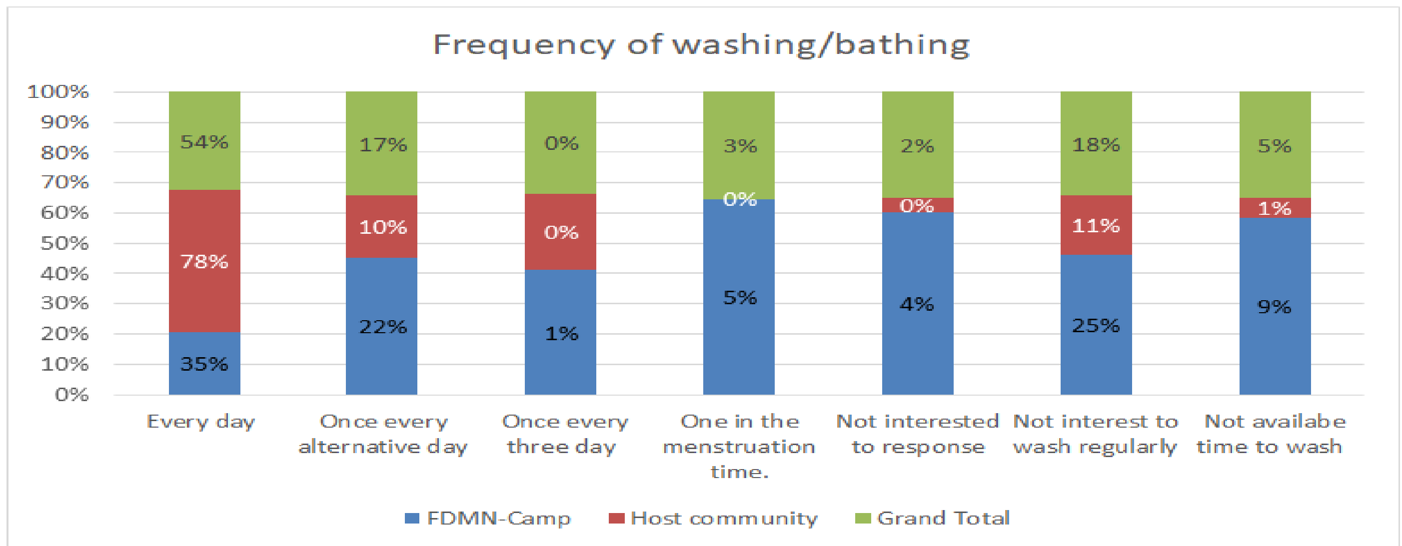

Fig 20 Frequency of Washing and Bathing

➢ *Handwashing Practice During Handling of MHM Materials:*

Handwashing is essential during handling MHM materials; an average of 91% report that they practice handwashing during MHM materials handling. The handwashing practice rate is higher in the host community (98%) than in the camp (82%) [Figure 22]. This is alarming that only 18% of respondents in the Host community 38% and 18% in the camp report that they are practicing handwashing before and after handling of the MHM materials [Figure 21].

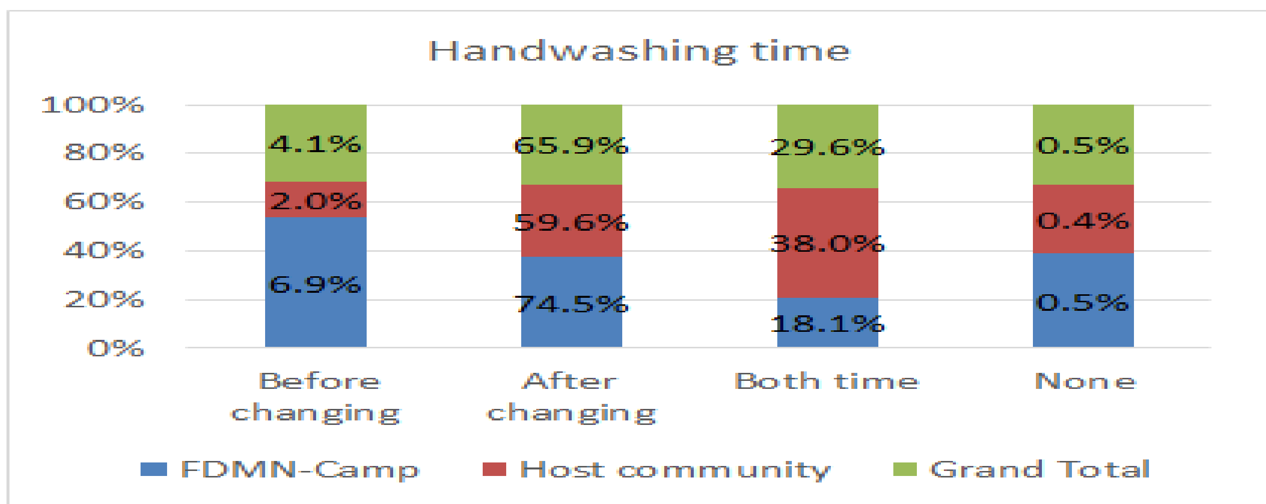

Fig 21 Handwashing Timing During Handling of MHM Materials Handling

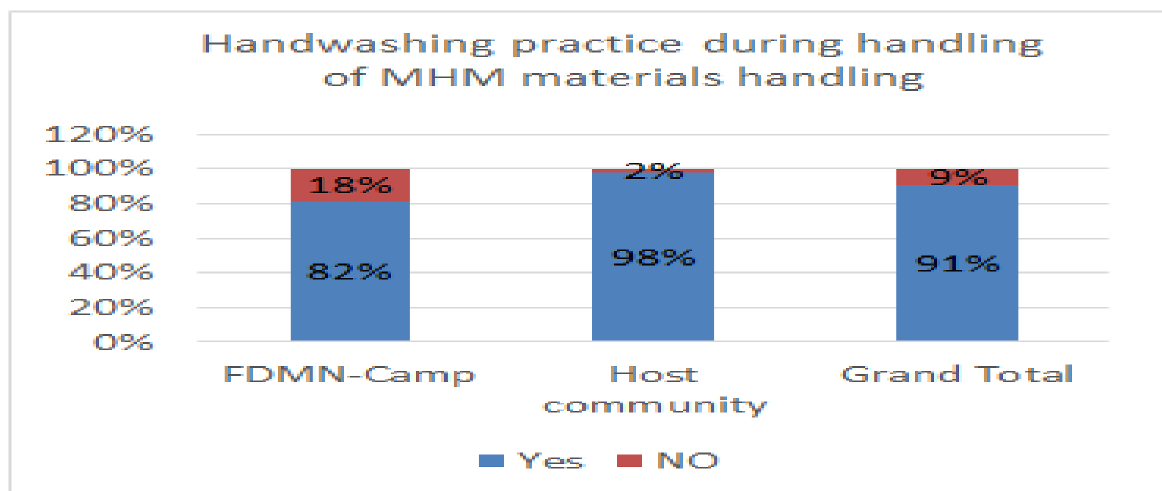

Fig 22 Handwashing Practice During Handling of MHM Materials Handling

- *Medical Problems Associated with Menstruation:*

This is common that some women and adolescent have medical problem in relation with menstruation. Most common are abdominal pain and waist pain, uterus becomes blowing or swelling and urinary infection and itching /skin disease. In most cases, they don't go to the doctor for treatment unless it becomes serious. Hygienic behavior is vital to avoid skin disease/ itching, and urinary infection.

Table 5 Negative Experience on the Menstruation

Medical problems associated with menstruation (n=30)	FDMN-Camp	Host Community	Total
Abdominal pain and waist pain	0%	16%	10%
Uterus becomes blowing or swelling	73%	42%	53%
Vomiting, and stomach ache	0%	37%	23%
Urinary infection and Itching /Skin disease	27%	5%	13%

- *Drying Place of Reusable Cloth:*

The studies show that majority of the women and adolescent girls are using re-usable cloth which need to wash and dry appropriately. Due the cultural, social barrier and taboo, still, women and adolescent girls are not following appropriate process for drying menstrual hygiene management cloth. It is found that 49% at host community and 35% in the camp are drying the MHM cloth under the sunlight, which process supposed to follow by the all women an adolescent [Figure 23].

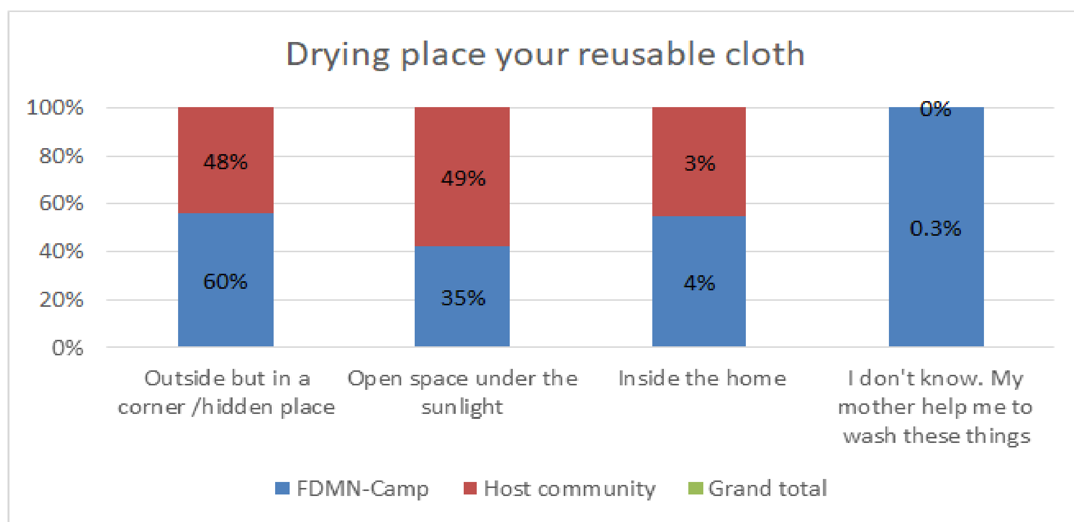

Fig 23 Drying Place of Your Reusable Cloth

- *The Reason of Not Drying MHM Cloth under the Sunlight:*

Though they cited that the main reason for not drying the cloth under the sunlight properly is feeling shy and uncomfortable if the cloth is seen by any male (89% in the host community and 45% in the camp) [Figure 24]. At the camp level, another notable response is that there is not minimal space (50%) to dry it under the sun.

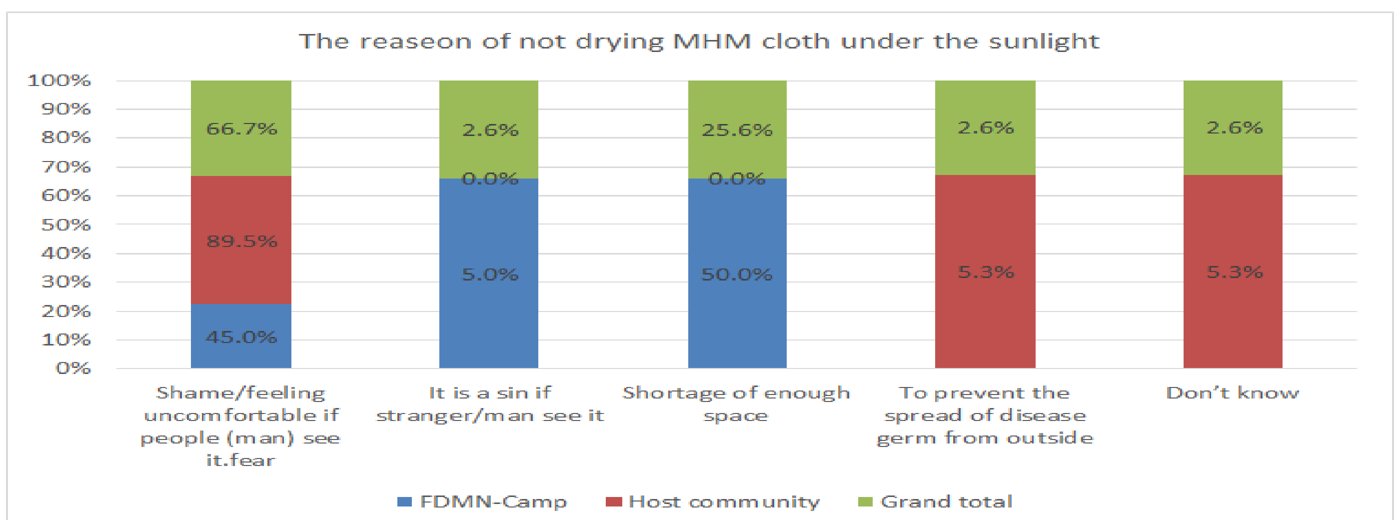

Fig 24 3The Reason of Not Drying MHM Cloth under the Sunlight

- *MHM Materials Covering Status and Reason while Drying:*

Ideally, this is not good practice; drying reusable material under the sun is essential to ensure a germ-free cloth. However, they face this due to current cultural and social beliefs/taboos. They also report practicing it due to shame (if people see it); this high rate in the host community (68%) compared to the camp. They also consider it a sin if people see the reusable cloth, and to avoid gene/ghost, they are trying to hide the cloth [Figure-26].

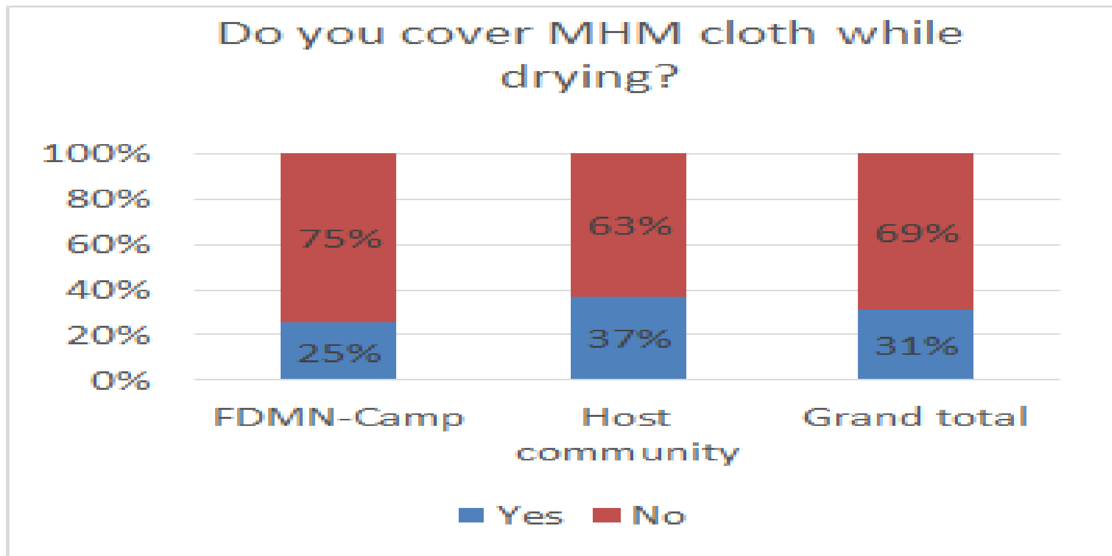

Fig 25 MHM Materials Covering Status

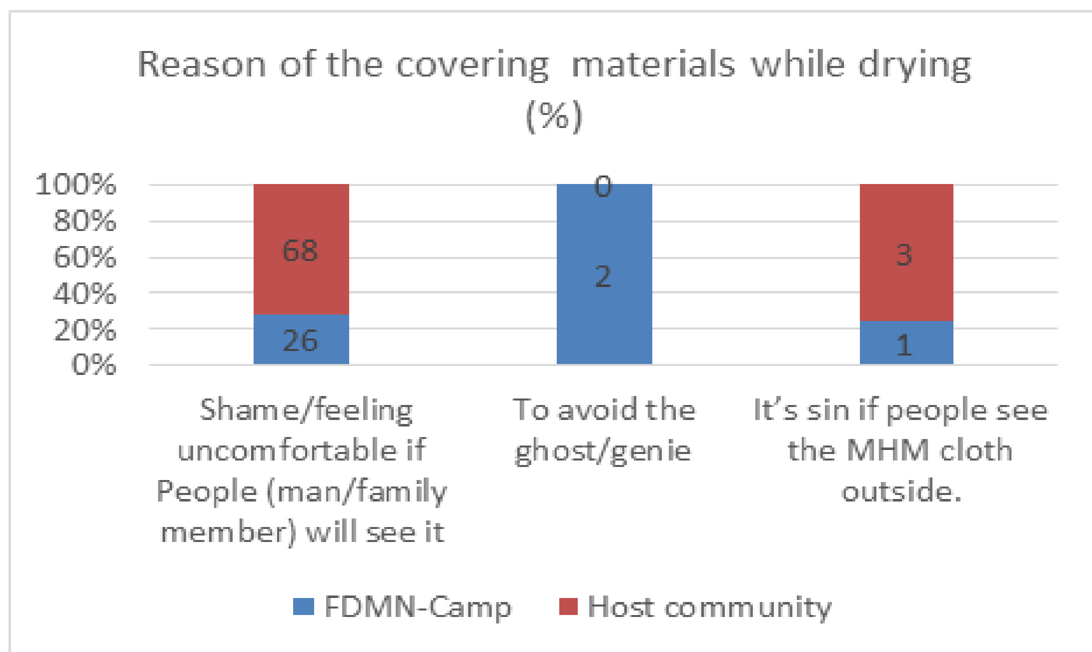

Fig 26 Reason of MHM Materials covering while drying

There are some cultural issues noticed in the study that 25% of the camp and host community (37%) of women and adolescent girls are cover their MHM cloth while drying under the sun [Figure 25].

- *Storing Practice and Process of Reusable Cloth:*

It is essential to properly manage re-usable cloths by cleaning, drying, and storing them. The majority of the women and adolescents keep re-usable materials separately. It is high in the host community (66%) compared to camp (49%) [Figure 27]. However, there is a practice to keep it with ordinary cloth (as usual), 23% in camp and 8% in the host community. In addition, there is a risky practice in the storing process: they keep the re-usable cloth in the corner of the room (camp 28% and host-26%). It is observed that most of the cases are not hygienic, and there is a possibility of germs transmission. In addition, they also keep it with the used polyphone, which is not marinating hygiene, and there is a high possibility for the transmission of the germs [Figure 28].

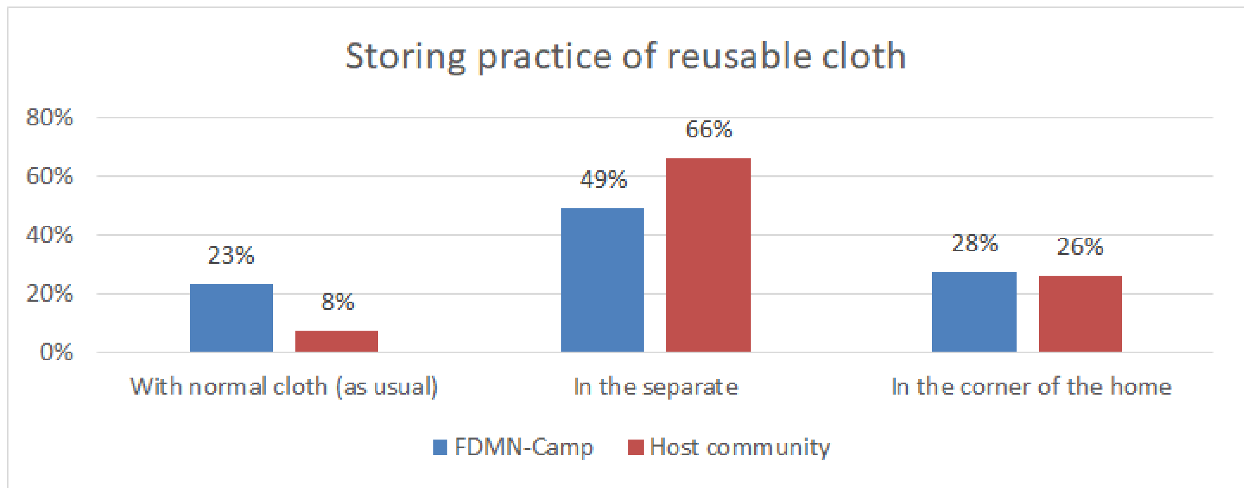

Fig 27 Storing Practice of Reusable Cloth

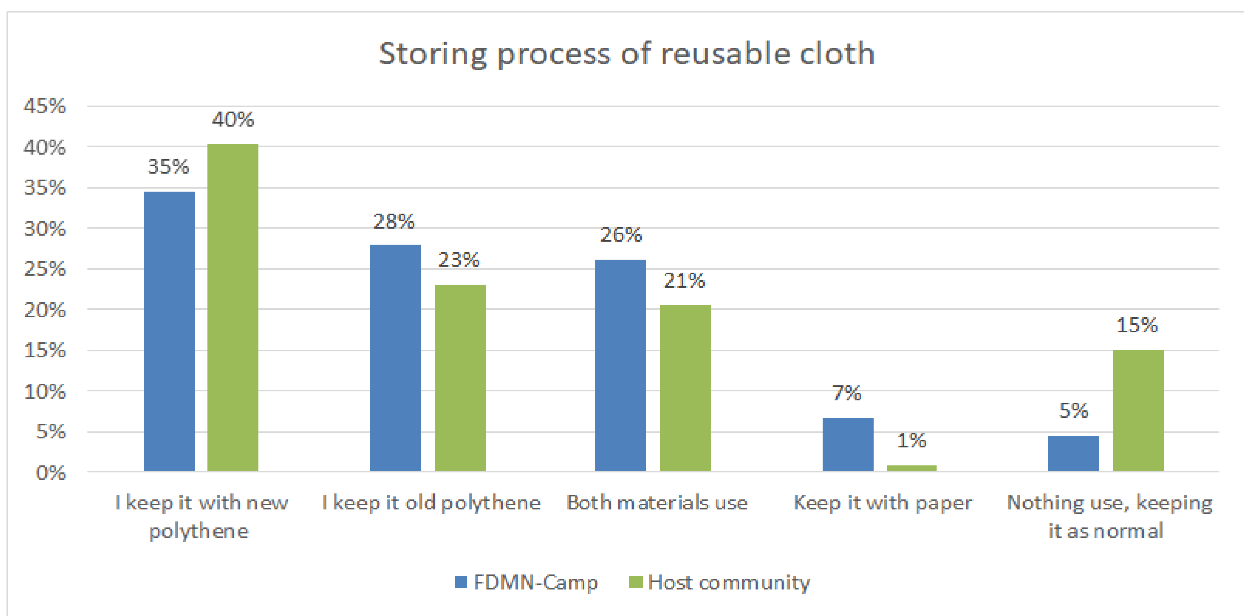

Fig 28 Storing Process of Reusable Cloth

- *Availability of MHM Materials:*

The study was conducted during peak time of COVID-19, and the data collectors tried to collect information on the available materials for the MHM. It is high (76%) in the camp compared to the host (71%), but the 24% and 29% gap is high in terms of proper menstruation management [Figure 29].

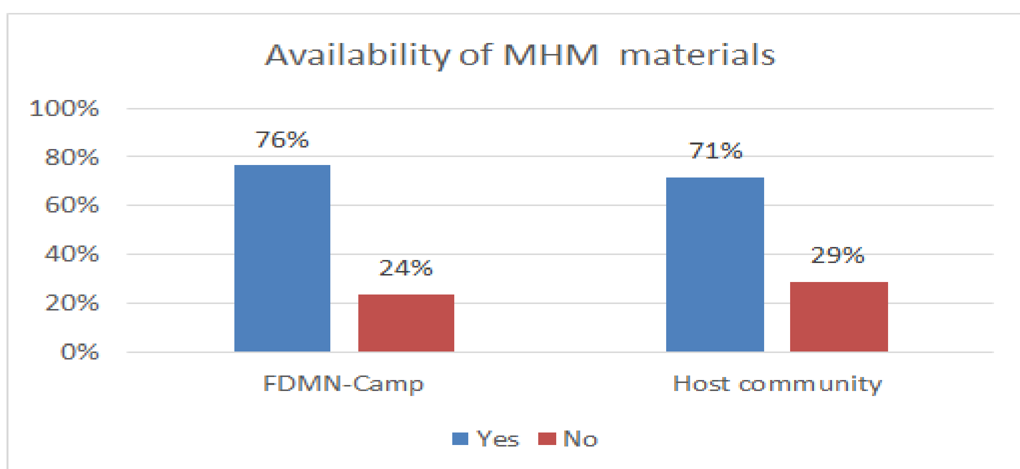

Fig 29 Availability of the MHM Materials

- *Reason for the unavailability of the materials:*

The respondents (26%) who reported that they faced challenge to manage MHM material within time due to costly of the product (44% of the host and 22% in the camp). Not get regular aid support (35% in the camp, 23% in the host), parents don't think MHM materials are essential (10% in camp and 9% in host). There are no available sources of materials closed to HHs, and not enough people to support them buy materials. Those all are concern issues to ensure MHM materials on time [Figure 30].

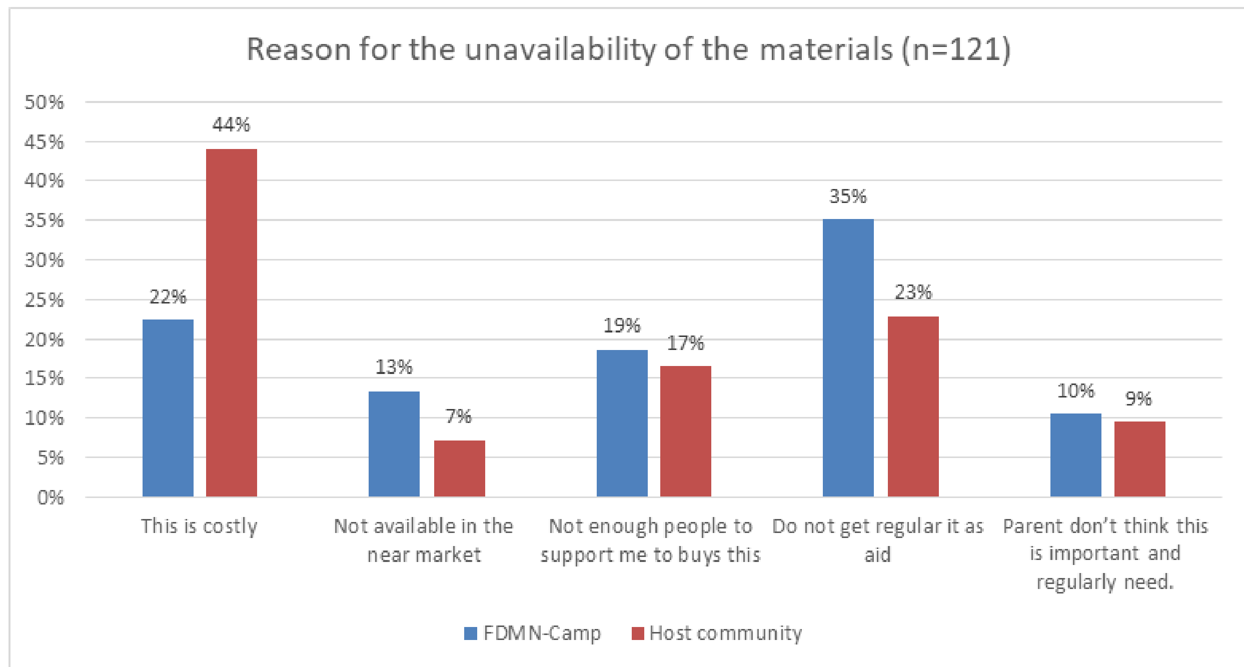

Fig 30 Reason for the Unavailability of the Materials

- *Sources of MHM Materials:*

The study reports that 74% response have access to the MHM materials and the main sources of those martials is NGO in the Rohingya camp (95%) but it's very low in the host community (4%) [Figure 31]

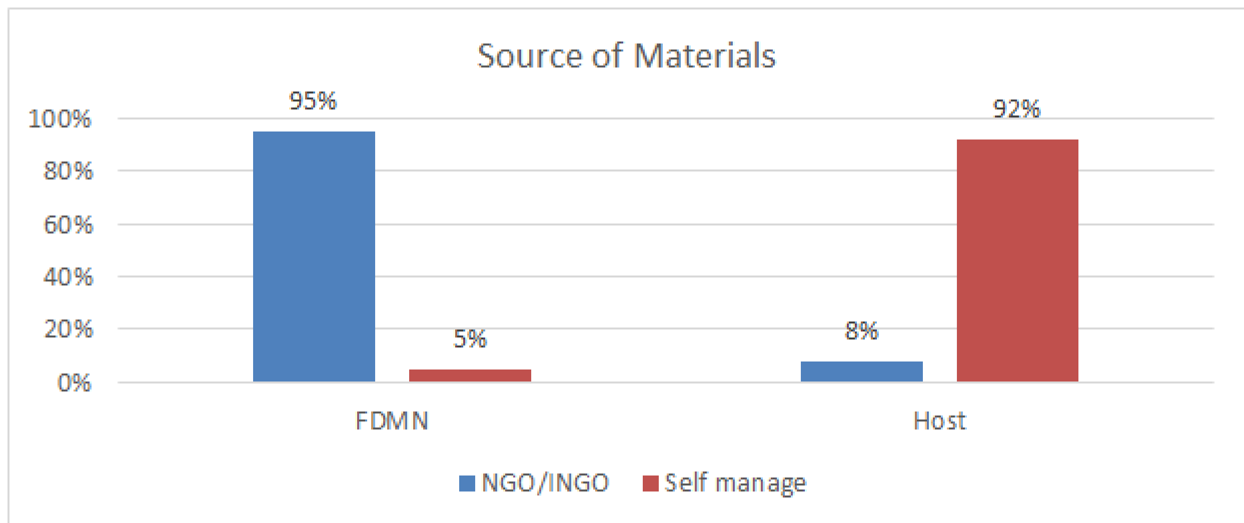

Fig 31 Sources of MHM Materials

- *Managing MHM Materials:*

As per study report around 73.5%(avg.) have access to the regular MHM materials without challenge as we know menstruation is normal biological process, adolescent and women are experiencing it in a monthly basis. So, supportive environment would be helpful to manage it properly, especially support to collect the materials and its disposal as well others required support during period time. But in reality support from male is very low. As per the study results male support to manage the MHM materials is only 7% in the Rohingya camp and 17% in the host community. NGO support at doorsteps is also high in the Rohingya camp. This makes sense that NGO activities are very high in the camp compared to the host community (2.1%).

Table 6 Managing Pad/Materials

Get Support to Manages MHM Material	FDMN-Camp	Host Community
Father	1.5%	6.2%
Mother	17.5%	14.5%
Sister	19.6%	12.0%
Brother	2.4%	1.2%
Person herself	21.7%	47.3%
Neighbor	0.3%	4.6%
From NGO (Doorsteps)	33.0%	4.0%
Don't use pad	0.6%	0.8%
Husband	3.0%	9.5%
Sister in law	0.3%	0.0%

- *MHM Materials Disposal Status:*

Disposal of the materials is significant in the proper management of waste. Improper management of the waste will increase the environmental pollution/risk. Management practice also depends on different factors; e.g. available space of changing materials and disposal site, etc. Studies show that 21% of women and girls in the camp dispose it in the garbage bin and it is 20% in the host community. People have some space around the HHS to bury the menstrual materials in the host community, but this is 17% at the camp level. However, some harmful and risky practices in both areas (camp and host) need to be considered as severe concerns. Throwing disposal in the open space is high (10%) compared to the host community (3%), throwing in the drain is also high (21%) corresponding to the host. Disposal in the latrine is also very high in the camp (17%) compared to the host community (9%). Disposal in the latrine and drain leads to severe issues considering the functionalities of the latrine and drainage in the camp level, the negative impact will be very high compared to camp [Figure 32]. The study considers further questions on the disposal of the materials, especially to know the current practice and cultural issues; the results show that majority of the women and adolescent girls report they use extra materials (camp 69% and host community 65%) to wrap the MHM materials [Figure 33] e.g. Using paper (24% in camp and 17% in the host), polythene (63% in the host and 53% in the camp). Though using polythene is harmful to the environments as per study findings they use polythene to avoid the ghost/Jinn/genie [Figure 34].

- *Current Practice During Changing Materials Disposal:*

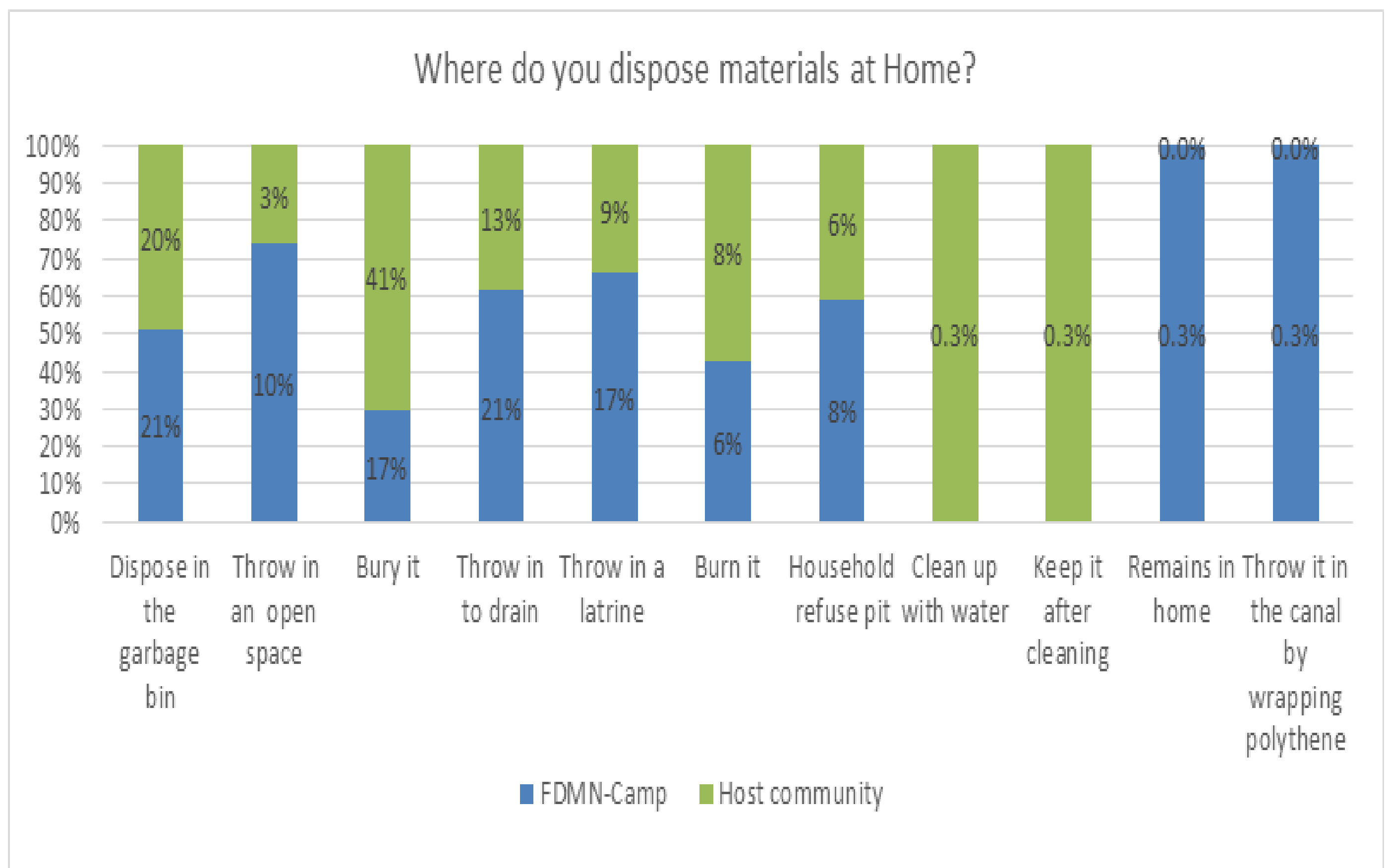

Fig 32 MHM Materials Disposal Status

- *Materials use for Wrapping During Disposal:*

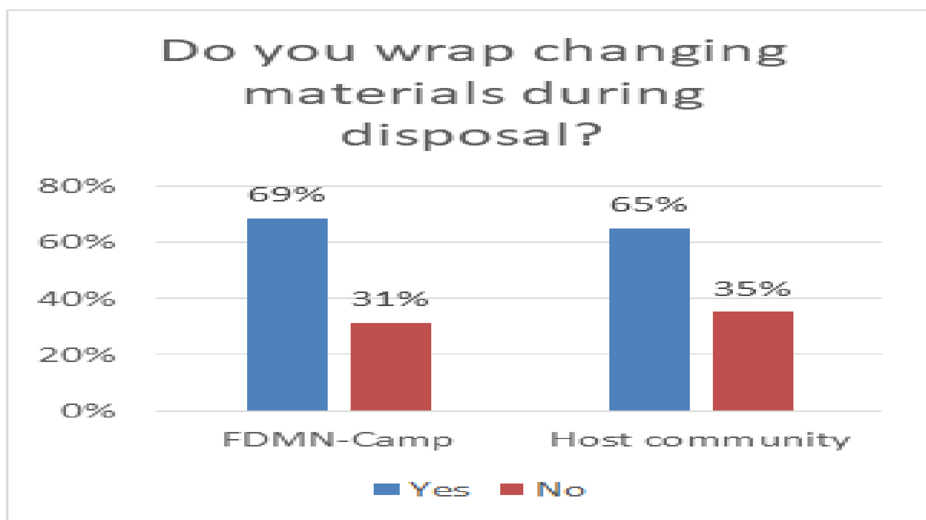

Fig 33 Wrapping Status of the Materials During Disposal

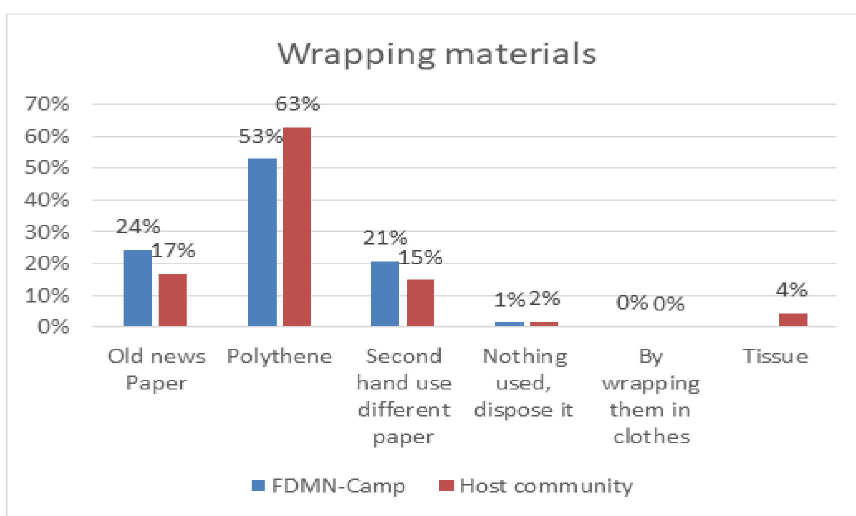

Fig 34 Materials use During Wrapping the Materials

- *Difficulties at Home During Managing and Disposal:*

People are managing menstruation considering the availability of materials, facilities to manage it and contextual situation but in terms of the satisfaction, still there is gaps. They face difficulties to manage it at HHs level. The study reports that 9% camp and 10% host community people face problem to manage the menstruation [Figure 35].

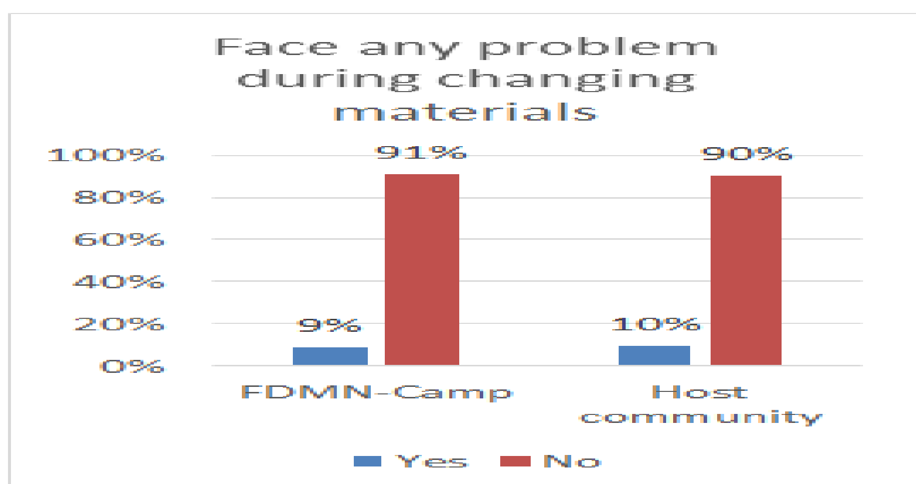

Fig 35 Face Any Problem During Changing Materials

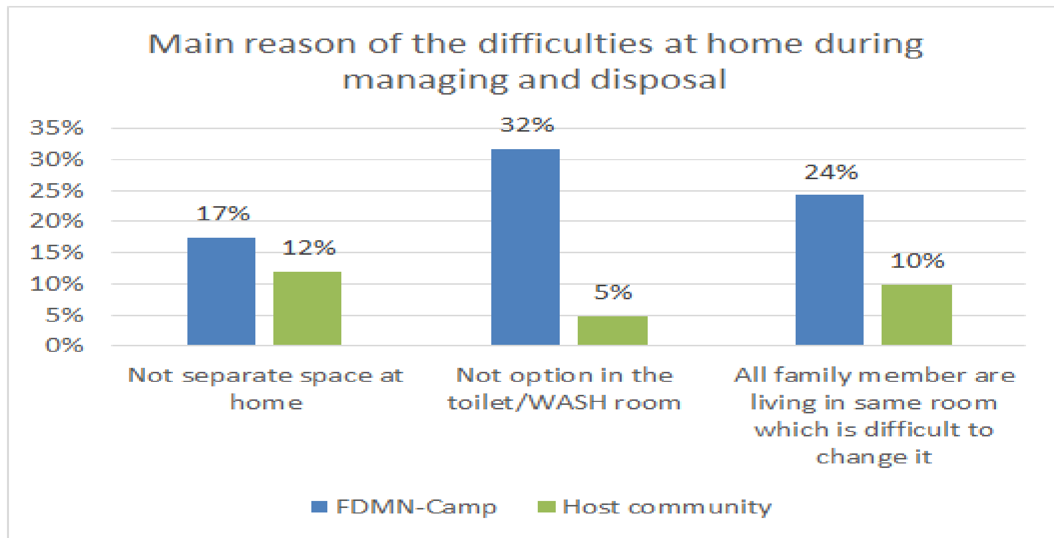

Fig 36 Main Reason of the Difficulties at Home During Managing and Disposal

Almost 10% of the respondent reported that they face problems managing menstruation. During the COVID-19 peak situation, the majority of people stayed at home, which also created barriers to managing menstruation properly. As a result, almost 17% of women and girls report they had faced difficulties during menstruation management due to lack of enough space at houses, which is less in the host community (12%) compare to the camp [figure 36]. It is true that in the camp people are living with very limited space, which is comparatively high in the host community. There also some reason e.g. there are limited options for changing MHM materials at latrine. Due to COVID-19, most of the HHS members, mainly male, were at home, which is also a significant barrier to managing menstruation properly

➢ *Access to WASH*

- *Access to Water to Manage Menstruation and Limitation:*

Access to water is essential to manage menstruation properly; the study shows that, on average, 92% of women and girls have access to water. The reasons are different in the camp and host community in teams of limited access (8%) to the water. In the camp, all mention (7%) that water sources are far from the HHS, but in the host community, they report that there are limited water sources, water point is so far from the house, etc. [Figure 37].

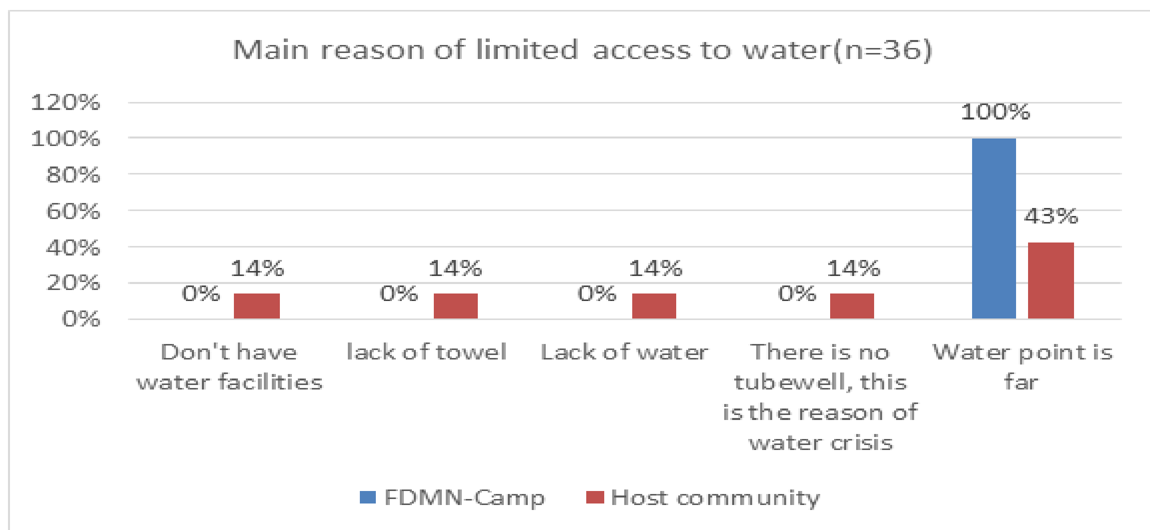

Fig 37 Main Reason of the Limitation to Access to Water

- *Comfort use of the WASH Facilities:*

Comfort use of the WASH facilities (latrine, washroom, tube well, waste disposal, etc.) is significant in protection, gender inclusion, and dignity as human. Almost 86 % (average) of women and adolescents in the camp and host community express their satisfaction with existing WASH facilities. However, to ensure access to the WASH facilities, we need to consider some proper initiatives to reduce the dissatisfaction (around 14%) with WASH facilities [Figure 38].

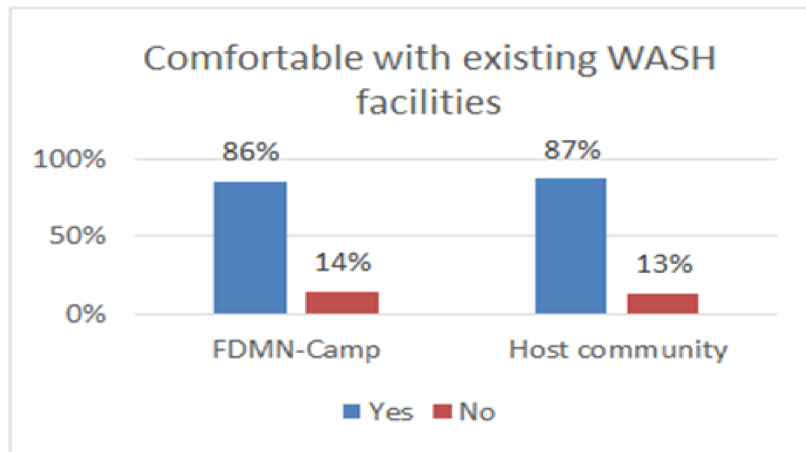

Fig 38 Comfort use of the WASH Facilities

* *Participation in the MHM awareness education:*

In the context of Bangladesh, most of the case we consider 10-49 age for the menstruation but it can be different case by case. But still 3% in the camp and 4% in the host community women and adolescent girls believe that menstruation never end once it starts. There is scope to work to increase the knowledge on menstruation. 80% women and girls in the camp report that they participated in the MHM awareness session whereas only 40% women and adolescent report that they did not participated in the any MHM awareness session [Figure 39]. In the host community responded got the MHM information from the schools (27%) whereas it is 9% in the camp [Figure 39].

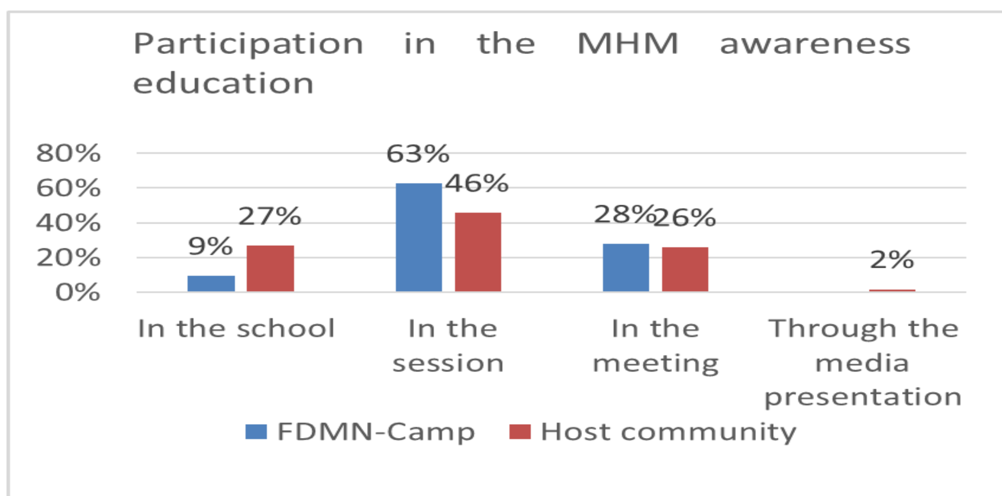

Fig 39 Participation in the Session

V. DISCUSSION

➤ *Knowledge, Attitude and Experience on the Menstruation:*

Knowledge of menstruation before puberty is imperative for girls. Proper orientation on menstruation is important for adolescent girls to avoid experience a severe drop in self-confidence through puberty. Therefore, all-women and girls need to know about menstruation and its management system for women's health improvement.

The study shows [Figure-7] on average 35% of the of the respondents in host community and 31% of the FDMN (Camps) have few basic sense regarding menstruation that can relate with the proper knowledge on menstruation. There are still some significant issues need to be considered for the improvement of the proper menstruation.

20% of the FDMN cannot explain anything regarding menstruation whereas it is 10% in the host community.

21% of the FDMN and 22% of the host community have misconception and religious myth regarding the menstruation.

Major misconception is that woman/girl discharge bad/contaminate blood during menstruation.

Main religious-belief is that menstruation is blessing of Allah.

In this study, 41% FDMN in the Rohingya camp and 46% in the host community do not have proper prior information regarding menstruation [Figure 8]. Another study with Rohingya refugee (FDMN) also reported almost similar results with current study, in camp it is 49% [26]. However, the results are not high differ from the other

countries, especially 32.5% in Garhwal, India (Aaradhana Bandhani-March 2019) [8]; 50% in Afghanistan [9]; 49% in Pakistan [11].

In the current study, 65% of the of the respondents in the host community and 69% [Table-1] of the FDMN have not good sense on menstruation which can relate with the proper knowledge on menstruation and they have misconceptions. Around 28% of females and adolescents believe that they discharge bad/ contaminated/ impure blood. Regarding the attitude on menstruation still 6% in the FDMN considering it a bad thing, whereas 7% in the host community reported negative attitude. Some reason they reported that menstruation is a painful process (waist pain and abdominal pain); that they had to stay in a separate bed/ rooms during the menstruation period; they believe menstruation blood is impure; inability to perform their prayers; and they release of bodily fluids that made them painful/uncomfortable [Figure-9].

Those gaps are also found in some previous study in the camp and host community as well as in other countries. In the camp, in terms of knowledge, only 8% had “Good” knowledge, and 12% had a basic understanding [25]. Nearly 36% of adolescent girls lack of basic menstruation knowledge before menarche [20]. Similarities in Nigeria found 28.4% viewed menstruation as release of ‘bad blood’ [28]. In Bangladesh many people believe menstrual blood polluting and also believe the menstrual body as impure and impious [13]. In the camp level similar study found with the Rohingya refugee(FDMN) where reported that men are the part of clean class and women are the part of dirty class. Because women have period but men don’t have a period [20]. In the camp level, there are a significant number of NGO and INGO’s are working with support from UN and other donors. But still initiative of awareness on menstruation is important.

Further, the study unearths that 44% [Figure 8] of the entire respondent pool feel fear during this transformative period of their lives. This finding is very important and highlights the dire obligation of MHM learning, and awareness of adolescents. In comparison with the others studies, results are almost similar with the current study information reported in Pakistan; average 59% women and girls had experienced fear during the menarche [22].

The primary sources of information regarding menstruation are mothers and other family members. In the host community, majority of the respondents report first hearing or learning about menstruation from their mother (32%), but it is grandmother (27%) in the refugee camp [Figure 10]. If we consider mother and relatives (others family members), it is almost 75% (79% in the host and 74% in the camp) [Figure -10]. This study results are also similar to the others study, mothers and relatives 60% in Bangladesh [13], 42% in Bhutan [10], 67% in Pakistan [11], 60.2% in Riyadh city [12].

In terms of idea on germs transmission, 31% of respondents reports that they have an idea about the transmission of the germs (Table 2). Though it is a huge gap between camp and host communities (camp-18% and host 41%). Regarding the reasons of transmission of the germs, their primary responses are - using unclean clothes; imperfect drying cloth; long time unchanged pad/ cloth etc. Secondary reports also show that improper management of the menstruation can lead the growing up the bacteria. And presence of bacteria into the urethra may reason urinary tract infections (UTIs). The UTIs can be deadly as it can even affect in the kidneys if left untreated and harmful bacteria may cause an infection if it contacts with the genital tract [26].

- *Existing Social and cultural norms in the camp and host community regarding menstruation:*

This is very common that there are different cultures and norms/ taboos/ stigmas exist regarding menstruation around the globe. In most cases, those taboos/ stigmas are very harmful to women and adolescent girls. This study has also found some existing culture and stigma in the camp and the host community. The most common of these is the restrictions on girls/ women on going out of the house (59% in the camp 49% in the host) [Table-3]. This is also similar to Sierra Leone that 42.7% of girls face restrictions during menstruation [15].

This study also reports that during menstruation keep them in separate house and keep separate them from others/ husband (21%) [Table 3]. In Sierra Leone, 23.3% face seclusion [15]. In Nepal, some area follows two major types of traditional practices, the seclusion practice (Chhaupadi) and the separation practice (completely separate the women in a separate house during period and it is strictly followed for 5–7 days of the periods) [21].

This study also reports that women and adolescent girls cannot see tree/ cannot see the leaves of the tree; restriction for the cooking (15%); keeping hidden of menstruation (40%); start to wear hijab/ Borkha (41%); cannot touch baby and will cause diseases [Table 3]. In Sierra Leone, about 18.4% of girls were restricted from doing household activities, and secondary study also shows those similarities in the Rohingya refugee camps, restriction in the certain food (9.90%); sleeping with all family members only 4.95%; touching cattle 5.94%; girls cook food during menstruation 11.88% [25].

Those results are almost similar in different area in the world. For example, in Tanzania, people believed that if others see the menstrual cloth then the owner of the menstrual cloth will be cursed [16]. Another study in India showed 74.67% of girls were not allowed to attend religious functions. The current study reports that 52% of women and adolescent girls cannot perform prayer during the period [Table 3]. In the camp, there is a restriction on religious activities (36.63%) [25]. this belief is not only among Muslims but also found in other religions. In Kerala (India), women of menstrual age were not allowed to enter the temple as its presiding deity. Temple authorities justify it as ‘tradition’ [24]. In Malawi, during menstruating, women cannot engage the harvest crops, e.g. tomatoes and peppers,

as it is believed that if they harvest crops, the plant will die. Also prohibited the women to irrigate crops during menstruation, they believed that if their blood will drip onto the plants in the procedure, it will be contaminated which will kill the crop. Almost similar results were found in this study 5% of women and girls are prohibited from animal rearing; restriction for cooking is 15% restriction for cultivation (2%) [Table]. The similarity was found in in Char Bramagacha, Bangladesh, menstruating women are not allowed to use the kitchen and cannot observe/perform religious practices for fear of contamination [19].

All these findings indicate that, still proper awareness and sensitization on menstruation is essential for both community (Rohingya and Host community).

Support from the HHs member is essential in managing, collecting, and disposal of menstrual management materials. Still, there is gap and support from males regarding the management of the menstruation is not significant in the camp and host community. Current study reported that 92% of adolescent's girls and women dispose of the MHM materials themselves, which is very high compared to the camp, 58% of women and adolescents [Table 6].

This current study tries to discover the cultural matters and taboos in host community and camp. The report shows that 53% of women and females dispose of the materials at a suitable time due to fear of man/if a man sees it, then it is uncomfortable for them. Therefore, there is still scope to take initiative for them to sensitize and aware the male and female regarding menstruation and its process and important support.

In terms of the availability of the MHM materials, it is high (76%) in the camp compared to the host (71%). Though data was collected during high time of COVID 19, there was restriction on movement and gathering for the distribution, but we need to consider 26% gap as it is high in terms of proper menstruation management.

➢ *Current Practice on Menstrual Hygiene Management:*

- *Managing Menstruation:*

Materials or absorbent to manage menstruation is vitally important. There are different absorbents/materials available in the market (cloth, pad, cup, etc.). Some women use old/new cloth as absorbent. The study results show that the majority (65%) of the camp and host community adolescents and women report that they are using cloth (FDMN 68% and Host 61%) to manage menstruation [Figure 14]. Using reusable cloth is high in the both area but it is higher in the camp (68%) compare to the host (61%). The main reason is that women and adolescents received MHM kits at the camp level. The reusable clothes are included in the MHM kits considering the tradition and cultural issues.

But sanitary pad using rate is comparatively high in the host community (36%) compare to the camp (18%) [Figure 14]. The study report shows that source of MHM kits 95% is from NGO/INGO in the refugee camp and 08% from NGO in the host community [Figure 15]. The host community people are not aid-dependent. They need to purchase absorbent materials. As there is the option of choice, they purchase sanitary pads if they can afford. Their practice of using rags/cotton (13%) in camp and 3% in the host is also found in the study which is a very risky practice to lead the health risk [Figure 14].

This study's results are similar with another study, 50% of adolescent girls and 64% of women used old cloth in Bangladesh [19]. A similar study was done in India; the majority of the girls prefer cloth pieces relatively than sanitary pads as menstrual absorbent, and only 38% of girls use sanitary pads during menses [8]. But there is a difference in Pakistan; 68.7% used commercially available sanitary napkins/pads [11].

Another study declines the common ratio (41.3%). Sanitary pad was used by 32.7% of the respondents, while 14.4%, and 10.7% used clothes as menstrual materials [28]. There are quite dissimilarities in another study where it is reported that sanitary pad using rate is high compare to current study and national study. Around 67% of women in the Rohingya camps and 44% in the host community report that they, or other women in their household, use sanitary napkins [27]. Among them 75% used sanitary pads, which they got mostly as relief material [26].

It is common that using old cloth ratio is very high in the camp and host community, this is no problem at all but maintaining hygiene is important. So, proper use of the re-usable cloth is significant. Soap and other materials, cleaning, drying, and storing practice are important to manage the menstruation safely.

The study shows that the majority of respondents, 87% in camp are using soap and water to share/clean the reusable cloth and 94% are following same process in the host community. 2% report that they Wash reusable clothes only [Figure 16]. In secondary study, it is 52% for adolescent girls and 62% for women who washed/cleaned their clothes with soap and water [13]. Another study also reported that they clean the reusable cloth with soap and water 40% [26]. and washed with only water is 15.84% in the camp [25].

Majority of the respondents (68%) report taking baths during menstruation. 85% of women and adolescents in the host community and 52% of FDMN have bathing practiced during menstruation [Figure-19]. But the frequency of the washing/bathing rate is higher in the host community (78%) than in the camp (35%) [Figure-20]. Trend of washing lower part regularly is high in the camp (29%) compared to the host community (10.6%). Only changing pad/cloth is high in the camp (14%) compared to the host community (3.5%) [Figure -19]. Daily bathing depends on the access to the water and comfortable use of the facilities. In the camp, most of the latrines and bathing are communal which is not comfortable for frequently use. Though the majority of the FDMN have a bathing space inside the house, they

frequently collect the water from communal water point/network which is also a challenge. In the host community, majority have private bathing spaces (though there are issues of the hygienic or not) that is why they have access to take bath regularly.

A similar study was also found in different counties where the daily bathing frequency is not high compared to this study's results. In Pakistan, 58.2% were not taking baths during menstruation [11]. In the USA, 30% of 193 urban women in Texas (mean age 23 years) intentionally limited bathing during their menstrual period, compared with only 11% of comparable age in California [14].

In the current study, the majority of respondent report that they use soap (66%) during genital washing/ bathing. The soap use rate is high in the host community (78%) compared to the camp (53%). Handwashing with soap is essential to prevent transmission of the disease. Average 91% reports that they practice handwashing during MHM materials handling. The handwashing practice rate is high in the host community (98%) compared to the camp (82%) [Figure-22]. This is alarming that only 38% in the host community and 18% in the camp report practicing handwashing before and after handling the MHM materials [Figure-21]. This is almost similar with secondary study in the camp, a study with the camp residents reported that washing hands before and after changing absorbents is 25.74% [25]. The secondary report also shows that 70% reported washing hands after changing their menstrual pad in Texas, while 94% did so in California [14].

To ensure cleanliness and maintain hygiene regular bathing is important, in the current study, 78% women and adolescent in host community and 35% in the camp are taking bathing regularly [Figure 20]. This is low in the camp level. It can be assumed that in the camp level bathing facilities are communal which can be one of the major barrier for them not taking bath regularly.

This study also reported that 86% in host community and 44% of the Rohingya refugee change the cloth within 8hours interval [Figure 20]. In the Sierra Leone, 22.3% of girls change pads twice a day and 75.7% of girls change it more than thrice a day [23]. In Nigeria, the most common frequency of change of absorbent was twice a day [28].

This is common that some women and adolescents have medical problem in relation with menstruation. Most common are abdominal pain and waist pain, Uterus becomes blowing or swelling and Urinary infection and itching /Skin disease [Table 5]. To avoid this situation, family support is very important. The secondary study data shows that the commonest medical problem encountered amongst the respondents as reported abdominal pain/discomfort, waist pain [28].

To change the MHM materials, a separate space/ comfort area is critical in the home or outside the house. The study shows that 17% in camp and 12% host community reported that they are face difficulties due to limited space at home [Figure 36]. Similarity found in the national baseline survey- 18% of adolescent girls and 16% of women report privacy problems when changing menstrual clothes at home [13]. In the camp level, bathing house is alternative to change and manage the menstruation materials but 32% (Rohingya) reported that there is provision for MHM materials change in the bathing house. There is a significant information that due to COVID 19 majority of the people stayed at house which created difficulties to manage the menstruation at hose (24% in camp and 10% in the host community) [Figure 36].

The studies show that most women and adolescent girls are using re-usable cloth that needs to be washed and dried appropriately. However, due to cultural, and social barriers and taboos, women and adolescent girls are still not following appropriate processes for drying menstrual hygiene management cloth. The results show that 49% of the host community and 35% in the camp are drying the MHM cloth under the sunlight [Figure 23], which is supposed to follow by all women and adolescents. They cited that the main reason for not drying the cloth under the sunlight properly is feeling shy and uncomfortable if the material is seen by any male (89% in the host community and 45% in the camp) [Figure 24]. At the camp level, another notable response is that there is minimal space (50%) to dry it under the sun [Figure 24]. 25% of the camp and 37% host community women and adolescent girls cover their MHM cloth while drying under the sun [Figure 25]. Ideally, this is not a good practice. Drying reusable cloth under the sun is very important to ensure germ-free of the cloth. This is what they face due to current cultural and social beliefs/ taboos. They also report practicing it due to shame (if people see it); this high rate in the host community (68%) compared to the camp. They also consider it as a sin if people see the reusable cloth, and to avoid gene/ghost they are trying to hide the cloth [Figure 26]. Properly managing re-usable cloth by cleaning, drying, and storing is important. The studies show that most women and adolescents keep re-usable materials separately. It is high in the host community (66%) compared to camp (49%) [Figure 27]. However, there is a practice to keep it with regular cloth (23% in camp and 8% in the host community) [Figure 27].

There is a risky practice in the storing process: they keep the re-suable cloth in the corner of the room (camp 28% and host-26%) [Figure 28]. It was observed that in most cases, that place is not hygienic, and there is the possibility of germs transmission. In addition, they also keep it with the used polyphone which is not marinating hygiene, and there is a high possibility for the transmission of the germs.

- *Disposal of the Menstrual Materials:*

Disposal of the MHM materials is critical in terms of the proper waste management. Improper management of the waste will increase the environmental pollution/risk. Management practice also depends on different factors; available space, disposal site, etc.; The studies show that 21% of women and girls in the camp dispose it in the garbage bin, which is 20% in the host community. In the

host community, people have some space around the HHS which is to bury the menstrual materials, but this is 17% at the camp level. However, there is some bad and risky practice in both area (camp and host), which need to consider as serious concern issues. Throwing in the open space is high (10%) compared to the host community (3%). Throwing in the drain is also high (21%) compared to the host. Dispose in the latrine is also very high in the camp (17%) compared to the host community (9%) [Figure 32]. Dispose in the latrine and drain is led to severe issues considering the functionalities of the latrine and drainage. In the camp level, the negative impact will be very high compared to host community.

In the other developing and LDC situation is almost the same. For example, in India, the method of disposal of the used material, 64.5% threw in a dustbin, 25% of girls threw it on the roadside, while 10.5% burned their clothes [8]. In Bangladesh 23% said throwing the MHM materials into the latrine [13]. The study considers further questions on the disposal of the materials, especially to know the current practice and cultural issues. The results show that the majority of the women and adolescent girls report, they use extra materials to wrap the MHM materials e.g. paper (24% camp and 17% host community), polythene (63% in the host and 53% in the camp). Though using polythene is harmful to the environments [Figure 33-34]. The study (Table-6) also wanted to collect data on supporting a person at the HHS level who manages the sanitary pad or cloth for the women and girls during the mensuration period. 47% of women and girls in the host community manage it by themselves, whereas it is 22% in the camp. Access to the MHM materials is very important to manage the menstruation properly.

According to the study report, 73.5% of people can easily access the standard MHM materials. But to collect and manage it favorable environment is very important, Especially support from husband and other family member is very helpful to manage menstruation properly. But, in practice, male support is relatively scant. According to survey findings, just 7% of men in the Rohingya camp and 17% of men in the host community provide support for managing MHM materials.

The women and adolescents who report a gap in MHM materials and the main reason for it, is the high cost. 44% of the host and 22% in the camp believe that menstrual hygiene management product is very costly. 35% in the camp, and 23% in the host seem they are aid-dependent. Women and adolescents in the camp and host community report that parents don't think MHM materials are essential (10% in camp and 9% in host). There is no available source close to HHs, and not enough people to support them to buy materials. Those all are concern issues to ensure MHM materials are on time [Figure 30].

- *Access to WASH Facilities to Manage Menstruation and Limitation:*

The majority of the women and girls use the same facilities for urination during menstruation. Access to water is vital to managing menstruation properly. The study shows that, on average, 92% of women and girls have access to the water [Figure 37]. The reasons are different in the camp and host community in teams of limited access (8%) to the water. In the camp, all mention (7%) that water sources are far from the HHS, but in the host community, they report that the reason for limited water sources is, water point is so far from the house. In Tanzania, studies have revealed that girls who attend schools without suitable water supply and sanitation facilities choose to remain at home during menstruation [17]. Besides, 90% of the schools lack water supply, lack separate toilets for boys and girls and the existing toilets lack privacy [16].

- *Comfort use of the WASH Facilities:*

Comfort use of the WASH facilities (latrine, washroom, tube well, waste disposal, etc.) is significant in terms of protection, gender inclusion, and dignity. Almost 86 % (average) of women and adolescents in the camp and host community express their satisfaction with existing WASH facilities. However, to ensure access to the WASH facilities, we need to consider some proper initiatives to reduce the dissatisfaction (around 14%) with WASH facilities [Figure 43].

- *Participation in the MHM Awareness Education:*

In the Bangladesh context, most of the cases, we consider 10-49 age for menstruation, but it can be different case by case. But still, 3% in the camp and 4% in the host community women and adolescent girls believe that menstruation never ends once it starts. Therefore, there is scope to work to increase the knowledge of menstruation. 88% of women and girls in the camp report participating in the MHM awareness session. In contrast, only 40% of women and adolescents said they did not participate in any MHM awareness session in the host community. So there is scope for the Government and non-government to work to address the Gap in the host community.

➢ *Key Point to Consider:*

- On average 35% of the of the respondent in host community and 31% of the FDMN have good sense on menstruation which can relate with the proper knowledge on Menstruation. There is still a knowledge gap and misconception regarding mensuration. 45% host and 49% in the camp people have misconception regarding menstruation.
- Mother and others family member are main source of information so; they can be also primary audience for the MHM programme.
- Still, some respondent believe that menstruation is dirty things and men are only clean. So proper awareness is needed to ensure the proper knowledge

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- Improper management of the menstruation can lead to the bacterial infection, this is still gap, so discussion on the results of the improper menstrual hygiene management can be considerable in the awareness activities.
- The study extracted that 40% of the entire respondent pool felt fear during this transformative period of their lives. Negative effect creates a mental health hazard. 7-8% of women have a negative attitude regarding menstruation which can lead to health risks for women and adolescents. Proper orientation can reduce the negative perspective on menstruation.
- That majority of the respondent have 1st experience of the menstruation at the of 12 (82%). There was minimum age 11 (10%) and maximum age 14 (3%) report as 1st experienced age of the menstruation. Awareness programme can be considered for those age groups.
- Still, a primary source of menstruation information is family, but it is time to scale up to consider all relevant area where girls and women have proper access, e.g. we can consider school, mosque, media, etc.
- 69% don’t have appropriate idea germs transmission, but bacterial infections can lead to a variety of illnesses; incomplete drying cloth, long time not change pad, using dirty clothes can cause abdominal pain, etc.
- Majority of the camp and host community beneficiaries use old cloth to manage the menstruation period. Due to cultural and social barriers and taboos, women and adolescent girls are still not following the appropriate process for drying menstrual hygiene cloth. So proper cleaning, drying, and storing of menstrual materials are essential.
- Proper orientation on MHM with all (male-female) to create a supportive environment is indispensable to reduce the taboo and stigma.
- There is a risky practice in the storing process: they keep the re-suable cloth in the corner of the room. That cloth can be contaminated at any time through different kits/insects. Storing practice of the MHM cloth in the old polythene is also risky in germs transmission.
- 25% of the camp and host community (37%) of women and adolescent girls are cover their MHM cloth while drying under the sun. Ideally, this is not good practice; drying reusable material under the sun is important to ensure germ-free material. This is what they are facing due to current cultural and social beliefs/taboos.
- 38% in the host community and 18% in the camp report that they are practicing handwashing before and after handling the MHM materials. This is a severe issue to consider.
- Support from a family member is crucial during menstruation in women and adolescent girls. Because 44% in the camp and host community, women and girls report that they had experienced different complications (e.g. uterus swelling/blow and itching, abdominal pain and waist pain and vomiting, etc.).
- Inadequate separate room for changing the materials is a contributor factor to do improper management WASH facilities construction can be considered menstrual hygiene management issues.
- MHM materials disposal practice is not good in the camp and host community. Dispose of in the open space, drainage, or latrine create another hazard in terms of environment and larine functionalities. We need to consider it in MHM education.
- Using polythene during disposal is also risky in terms of environmental pollution. The results show that most women and adolescent girls report using extra materials to wrap the MHM materials e.g. paper (24% camp and 17%), polythene (63% in the host and 53% in the camp). Though they are using polythene is harmful to the environment.
- At the camp level, MHM is depend on NGO/INO/UN aid.
- There is still a gap in the male involvement to support females and women in both areas. Around 7% [Father (1.5%), Brother (2.4%), Husband (3%)] male engage for the MHM martials collection in the refugee camps whereas 17% [Father (6.2%), Brother (1.2%), Husband (9.5%)] male engage for the MHM martials collection in the host community.
- During the menstruation period, different restrictions (e.g. cannot go out, stay in the room, separate from the husband, cannot see the tree, restrict the cooking, cannot touch the baby, cannot talk with the man, etc.) for the women and adolescent are harmful to them. These will have a negative impact on the mental health of those women and adolescents.
- Females in the camp have a private bathing space in the HHS, whereas the host community has a bathing/toilet outside of the home. But inside the bathing space at household is risky in terms of maintaining health and hygiene issues.
- Access to water for all to manage menstruation is critical. Tough waster gap is not still high but ensuring water in the changing place is still gap. So camp or host community we need to ensure it.
- In terms of satisfaction with using the WASH facilities is still a gap; almost 16% of women and girls report that they are not comfortable using it for menstruation management.
- 24% camp and 45% host community report that they have privacy problem at house due to limited private space and it was high in the host community due to COVID-19 lock down. On the others hand 43% camp and 18% in the host community report same privacy problem/limited space to change materials in the latrine/wash room.
- Participation in the education on menstruation is high in the camp (80%) due to GO and NGO intervention, but this is very low in the host community (40%). Therefore, we need to consider access to the MHM education for all types of audience.

VI. RECOMMENDATIONS

- Initiative for the awareness among the mothers, adolescents and men in the camp and host community is important to reduce social stigma and taboos which have a negative effect that creates a mental health hazard.

- Initiatives by INGO and NGO for the low cost WASH facilities by addressing menstrual hygiene and to ensure access to the water and sanitation facilities for proper manage of the menstruation.
- Initiative for the social entrepreneur for the MHM product production can be good to ensure access to materials in the report area.
- Male involvement in the MHM process is significantly low. Only 1.5% are male (father), and 2.4% are brothers in the camp supporting the women and adolescents with the collection of sanitary pads. Whereas the same scenario is visible in the host community, 6.2% (father) and 1.2 %. Proper orientation on MHM can involve the male supporting the female to manage the MHM materials.
- Involve the religious leader about the menstruation and its management, so that people can take it easily as normal process.
- Awareness on the drying, storing and not using polythene is very essential to improve the situation.
- WASH facilities especially toilet with provision of changing the MHM materials is important.
- Access to the soap in the rural area is important, market based activates in the reported area can be supporting.
- Awareness message in the school and media is important. In the study main sources of information is mother but school and media can play vital role to increase the knowledge.
- Need to work with religious leader they can aware the man in the religious programme so that male can create favorable environment for the menstruation manage.
- Provide more culturally suitable learning opportunities to the women and girls about menstruation, puberty and their bodies.

VII. CONCLUSION

Proper management of menstruation is required for a healthy life but it is identified that managing menstruation in the camp and host community is still a challenge. Though there are some improvement in the knowledge and practice, still there is a knowledge gap in both target areas. Traditional beliefs taboos and rituals influence menstruation management. The limitation of access to the materials and WASH service is also a challenge to manage menstruation properly. To improve the situation there is no alternative but to educate all stakeholders not only adolescents, girls, and women but also husbands, mothers in the law, fathers in law, and other male groups to reduce the cultural barrier and taboo. To reduce the accessibility gap for the materials and WASH service, the initiative for the social entrepreneur to produce the materials locally to ensure reasonable cost in the host community. The camp dwellers need to ensure timely distribution of the MHM materials and WASH facilities functional considering comfortable use by the adolescent girls and women. Engagement in the MHM product production in the camp can be supportive of the access to the materials.

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Table 7 Data Collection Team

Milky Barua	National University, Bangladesh, Social worker	Data collection, Ukhiya
Md. Faridul Islam	National University, Social worker	Data collection, Matarbari
Tarakun Nahar Tuhin	National University, Bangladesh, Social worker	Data collection and entry, Host and camp
Arpita Devi	Chattogram BGMEA Institute of fashion of Technology	Data entry
Animesh Barua	Cox’s Bazar Polytechnic Institute, Cox’s Bazar Bangladesh, Social worker	Data entry
Nayma Akther	National University, Socail worker	Camp and Kutubdia
Farhana Habiba	National University, Social worker	Cox’s Bazar Sadar
Azizul Haque	National University	Data entry
Tamim Khan	Chattogram BGMEA Institute of fashion & technology	Data entry
MD Mehraj Hossain Shovon	Chattogram BGMEA Institute of fashion of Technology	Data entry
Jusnahar Begum	National University, Social worker	Data collection form Host community and Camp
Jesmin Akther	National University, Social worker	Data collection from Rohingya Camp
Aleya Ferdusy	National University, Social worker	Camp
Nasima Akter	National University, Social worker	Camp
Tania Akter	National University, Social worker	Camp
Sabaz Sultana	National University	Host - Matarbari

Nusrat Seddiqa	National University	Host - Matarbari
Latifa Khanom	National University	Host - Matarbari
Montahena Hassnat Toni	National University	Host-Kutubdia
Tasmin Sultana	National University	Host-Kutubdia
Jannatul Ferdous	National University	Host-Kutubdia

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