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Operation research on menstruation hygiene management

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ABSTRACT

The operation research on Menstruation Hygiene Management (MHM) as an initiative approach was designed by MOVE with technical and financial support of HEMAYAT, a baseline evaluation utilized a quantitative approach to collect valuable information concerning the existing MHM conditions using cross-sectional methodology in the selected treatment and control districts, data are collected from women and teenagers using a household questionnaire (quantitative). A household questionnaire formed the backbone of the baseline research and included four sections designed to evaluate knowledge, attitude and current practices in case and control areas in terms of demographics, health-seeking behavior, awareness of MHM, practices, and attitudes towards MHM. A pooled cross-sectional survey used quota sampling with random selection in baseline and end-line assessment was conducted to see the output and outcomes of the approach using Difference in Difference methodology. The Primary Sampling Unit (PSU) reflected the ratio of that district's population and The Secondary Sampling Unit (SSU) were villages, approximately 25 SSU for intervention and 25 SSU for control districts are randomly selected from PSU. The booth study was conducted in four districts of Kabul province, two districts as control (Kalakan and Dehsaba) and two as treatment (Farza and Guldara), for baseline and end-line- a total of 625 respondents from control and 625 respondents from treatment districts were planned to be interviewed, at baseline study, from 1250 planned respondents, about 1224 have been interviewed and about 26 respondents have been missed (rejected, not completed, household vacated/destroyed) and 3 questionnaire missed by the system. The analysis was applied to 1221 respondents' questionnaire. While at an end-line study, 1250 have been interviewed and 3 questionnaires missed by the system. The analysis was applied to 1247 respondents' questionnaire. Following data collection and entry, the transfer of data to the appropriate SPSS database is done for cleaning and analysis. The results of the baseline assessment were used for the bases of the data on knowledge, attitude, practice, and access to sanitary napkins, In line with the operation research ToR, the treatment districts were exposed with a series of activities including community-based health education and outreach in the target population. There is an absolute lack of awareness about sanitary napkins and its usage, in the baseline; about 56.5 % of the respondents are reported not familiar on sanitary napkins and its usage and disposal, though, the end-line assessment shows significant differences in the level of awareness, 86.8 % of respondents are familiar about sanitary napkins and its disposal. The majority of women/girls were not aware of their menstruation before menarche-61.5%, and about 38.5% have information from different sources, so the information was not adequate and that they needed more insight into the topic. The baseline data shows that there are some miss-practices amongst the respondents regarding their personal hygiene including hand washing, washing of the genital areas and washing of the underwear/re-usable pads during menstruation period. As per end-line assessment data, there were significant changes in the personal hygiene (Washing practice of genital area during menstruation from 57.2%-Baseline to 83.8%-end line). There is a similarity in disposal strategies used by the women/girls in baseline vs. end-line and control and treatment districts. The study data revealed that, girls/women are having experience restriction in specific foods, physical activities, social gathering, pray, taking shower and school attendance, the end-line data shows that there are likely changes occurred in attitudes, restriction to women and girls during menstruation decreased from 91.6% at baseline to 76% at end-line study, it seems the MHM project likely impacted the community and family attitudes towards menstruation. Comparison of baseline vs. end-line shows that restriction to bath and shower during menstruation is decreased by 25.2% from baseline, this difference mostly occurred in the treatment group. Overall, increases in demand of sanitary napkins usage, awareness and knowledge of girls/women on menstruation and menstruation management, personal hygiene and health practices and individual, family and community attitudes towards menstruation and menstruation management suggest that the MHM pilot project was successful in promoting

intended objectives. In order to capitalize on current successes, and prepare for a possible future rollout, implementation of the MHM concept in the country is important, so require widely advocacy at a policy level, national and international contribution and community support, there are several recommendations that come out of this analysis.

Keywords— *Menstruation, Menstruation hygiene, Sanitary napkins, Menarche, Baseline, End-line*

1. BACKGROUND

1.1. Significant need for Menstrual Management and Social, Educational, Economic and Health impacts of menstruation

It is crucial for Women of Reproductive Age to feel empowered to engage in regular daily work without much discomfort and other daily activities and not hide away or have limitations in their movements due to menstruation. Lack of menstrual hygiene services can lead to girls missing education activities; due to monthly menstruation/illness, women lose out on economic opportunity. Using unclean rags leads to the growth of unwanted bacteria that could lead to infection, Risk of infection (Sexually Transmitted Infection and Urinary Tract Infections, Candidiasis), the risk of passing on blood-borne diseases such as Hepatitis is higher than normal during menstruation.

Menstruation and menstrual practices are still clouded by taboos and socio-cultural restrictions resulting in adolescent girls remaining ignorant of the scientific facts and hygienic health practices, which sometimes result in adverse health outcomes.

Menstruation is a major part of life for millions of young girls and women worldwide. On average, a woman will menstruate for 3-7 days during a month. However, the needs and challenges faced by many young women and girls as they struggle to manage their menstrual hygiene are largely ignored, especially in Afghanistan. This situation persists despite new developments in recent years.

Ignorance concerning menstrual hygiene management has been identified as a major factor contributing to teenage infections in young people. Menstruation is a female physiological milestone and negative consequences of menstruation are a major gynecological problem in adolescence. Moreover, family beliefs and cultural practices may affect attitudes towards menstruation, which in turn may influence the views of adolescents on menstrual hygiene. In many communities, adolescents tend to underutilize health care services, which may have a significant impact on the physical and social health of those affected. By contrast, there is little knowledge of adolescents' health-seeking behavior in regard to menstrual problems. Availability of such information could be important for the development of appropriate health care services and in the promotion of menstrual hygiene among girls in schools.

There is a lack of research and surveys done to assess the impact of menstruation hygiene in Afghanistan, but recent study conducted by UNICEF/Afghanistan-2016 (Formative Research on Menstrual Hygiene Management in Afghanistan, Knowledge, Perceptions, and Experiences of Adolescent Girls) found that Girls' challenges with menstrual hygiene management (MHM) were related to stress, overcoming shame & fear, managing daily school activities in spite of physical discomforts, limited practical and correct guidance, access, management and disposal of sanitary waste. Girls found these challenges manageable if they are at home instead of attending school. Challenges were determined by limited availability and functionality of school water, hand washing and sanitation facilities; limited access to education in addition to prevalent beliefs and practices within the society; and limited sources and choices of sanitary materials. Cultural norms and beliefs strongly influenced the girl's behavior. At school, girls were known to exhibit social isolation, reduce school productivity and concentration, increase school absenteeism and stress as the potential impact of various challenges faced by girls.

Furthermore, UNICEF was conducted another study in 2012 by HOUSE -et al on Restriction Girls during menstruation-Afghanistan, India and Nepal, shows that in Afghanistan about 29% of girls don't attend to school during menses, about 15% restrictions to them to go some places, 70% restrictions on play and sports, 70% restriction on body wash and 70 % restriction on eating certain foods during their period. These girls are in the main from poorer communities where access to sanitary resources is difficult. For many of these poverty-stricken families, the purchase of sanitary napkins are simply too expensive, and thus receives less priority when compared to other primary needs such as food. The resultant absenteeism during menstruation leads to a critical loss of learning opportunities. On average, about 4 days can be lost each month that a girl should be in school.

According to MOVE health facilities in Kabul rural districts, around half of women and girls do not have access to sanitary napkins, and as an "alternative" to napkins, they have no option but to use rags, unclean old clothes. This raises concern regarding the experiences of women and girls in terms of health and hygiene, productivity, as well as dignity and confidence to be active members of society.

Table 1: Current practices and health risks

Practice	Health Risks
Unclean pads	Bacteria-local infection, enter to uterine
Changing pads frequently	Wet pads-skin infection
Usage of unclean materials to the vagina	Bacteria-Cervix-even infertility
Wiping from back to the front following defecation/urination	Bacteria-from the bowel to vagina, urethra
Unsafe disposal of unclean pads	Risk of infection to others Hepatitis

A lack of alignment between diverse stakeholders is hindering progress on menstrual health, immediate opportunities do not exist to better support adolescent girls' MHM in Afghanistan, including improved access to timely menstruation and puberty education, improved product access and affordability for low-income consumers, integration of girl-friendly features into sanitation design and infrastructure, and political advocacy for improved MHM at the national level.

Due to decades of war and instability in Afghanistan, the economic and social situation is greatly deteriorated. There remain security-related barriers to health system improvement, Limited access to education, low awareness of nutritional practices and insufficient access and availability of health care services has had a disproportionately negative effect on the health status of women and children. Afghanistan is ranked 172 out of 187 countries for its human development index "Human Development Report-2011", Life expectancy at birth for Afghans is (62.3 years for males and 61.5 years for females), and maternal mortality ratio is 327 for 100,000 live births1.

However, the health situation is improving since 2002. Data from household surveys, between 2003 and 2010, show significant improvement in the coverage of reproductive and child health services, The BPHS continues to serve as the foundation of the Afghan health system. It has provided a strategic focus on high impact interventions; ensured resources are allocated equitably and established a basic structure for the health sector. The Ministry of Public Health (MoPH) has made the BPHS the center of its strategy to improve the health and well-being of Afghans. While there are a major gap in term menstruation hygiene at Government policies and services to population, resources, and capacity to deliver such services, Cultural barriers can make it difficult for women to access health services.

The current challenges in Afghanistan towards menstruation hygiene are summarized as follows:

- Education and Awareness: Lack of education on menarche, puberty, and MHM, and lack the necessary information channels for ongoing support, mentorship, and knowledge.
- Access to sanitary products: High costs and distribution challenges limit the accessibility of disposable pads to low-income girls and women, especially in rural areas. There are no low-cost sanitary pad enterprises.
- Sanitation: Awareness of WASH (water, sanitation, and hygiene) needs for proper MHM exists, but MHM is still not prioritized given significant gaps in access to sanitation facilities in rural, low-income settings.
- Policy: There is no national attention to MHM at all; there is no policy and strategies at general health programs, tools, and guidelines as well as an education program for school girls.

Stakeholders must consider starting a lobbying campaign to bring down the cost of sanitary napkins, pressurize the government to take in account the MHM, Ensure the transfer of knowledge from schools to the household, Propose to the government to make sanitary napkins available in the same manner that condoms are available at clinics. Partnerships with other stakeholders should be developed (media) for positive messaging. Religious and traditional leaders and other relevant stakeholders should be brought into the dialogue on MHM, The promotion of and inclusion of MHM as part of health and hygiene curriculum should be advanced in the health and education sectors.

2. EXECUTIVE SUMMARY

The operation research on Menstruation Hygiene Management as an initiative approach was designed by MOVE with technical and financial support of HEMAYAT, a baseline evaluation utilized a quantitative approach to collect valuable information concerning the existing MHM conditions using cross-sectional methodology in the selected treatment and control districts, data are collected from women and teenagers using a household questionnaire (quantitative). A household questionnaire formed the backbone of the baseline research and included four sections designed to evaluate knowledge, attitude and current practices in case and control areas in terms of demographics, health-seeking behavior, awareness of MHM, practices, and attitudes towards MHM.

MOVE and HEMAYAT selected control and treatment districts based on an equity deprivation index and other factors pertinent to project uptake (for example population, ethnicity, the local language, the presence of BPHS health facilities, the presence of functional HPs, the presence of girls high schools, etc.). Kalakan and Dehsabz districts of Kabul province as control districts and Goldara and Farza districts of Kabul province as treatment districts.

MOVE conducted a pooled cross-sectional survey used quota sampling with random selection, 1250 individuals in baseline and 1250 individuals in end-line.

The Primary Sampling Unit (PSU) reflected the ratio of that district's population and The Secondary Sampling Unit (SSU) were villages, approximately 25 SSU for intervention and 25 SSU for control districts are randomly selected from PSU.

The research protocol, research application (IRB template), questionnaire and informed consent forms made in three languages (English, Dari, and Pashtoo) and other final tools were submitted to the Afghanistan Institute of Public Health-Institutional Review Board (IRB) and taken approval through an official letter.

Following IRB approval, 30 female enumerators were recruited from the MOVE team including health facilities and CBHC program for training who have the experience of such survey before.

The booth study was conducted in four districts of Kabul province (Farza, Gulda, Kalakan, and Dehsabz), two districts as control (Kalakan and Dehsaba) and two as treatment (Farza and Guldara), for baseline and end-line- a total of 625 respondents from control and 625 respondents from treatment districts were planned to be interviewed, at baseline study, from 1250 planned respondents, about 1224 have been interviewed and about 26 respondents have been missed (rejected, not completed, household vacated/destroyed) and 3 questionnaire missed by the system. The analysis was applied to 1221 respondents' questionnaire. While at the end-line study, 1250 have been interviewed and 3 questionnaires missed by the system. The analysis was applied to 1247 respondents' questionnaire

Following data collection and entry, the transfer of data to the appropriate SPSS database is done for cleaning and analysis. The results of the baseline assessment was used for the bases of the data on knowledge, attitude, practice and access to sanitary napkins, In line with the operation research ToR, the treatment districts was exposed with a series of activities including community-based health education and outreach in the target population to promote menstrual health, outreach through Community Health Workers/other community mechanisms, outreach through schools, provision of sanitary napkins ensuring regular availability of sanitary napkins to women/girls in the community, BPHS-HFs and in the schools, training of Community Health Workers, Health Facilities staff in menstrual hygiene and Behaviour Change Communication.

An end-line assessment was conducted to see the output and outcomes of the approach using Difference in Difference methodology.

The results of analyzed data showed that eligible respondents were between the age of 10 and 49, the average age of the respondents was 26 years with a standard deviation of 7.915 years.

Baseline study showed, the majority of the respondents (70.5%) have reported their marital status as "Unmarried" at the time of the interview and 29.6% of the respondents were "married" at the time of the interview, while at end-line reported, 68.7% married and 31.3 unmarrieds.

There is absolutely lack of awareness about sanitary napkins and its usage at all in the baseline assessment; about 56.5% of the respondents are reported not familiar on sanitary napkins and its usage and disposal, while 43.5% are aware of the sanitary napkin and how to use it. Though, the end-line assessment shows significant differences in the level of awareness, 86.8% of respondents are familiar with sanitary napkins and its disposal, only 13.2% are not. There are no big differences in the level of awareness drown from control and treatment setting in baseline and end-line assessments.

The majority of women/girls at the time of baseline assessment who were not aware of their menstruation before menarche-61.5% and about 38.5% have information from different sources, although, the data from the end-line assessment are likely similar, so the information was not adequate and that they needed more insight into the topic.

There are no significant differences on the sources of information about menarche in control and treatment settings in the baseline and end-line assessments, the source of information are included mothers, sisters, friends, teacher, and others. The data from baseline shows, girls and women having a lack of basic information about the organ where bleeding occurs (only 26.7 % known the organ where bleeding occurs). The data from the end-line assessment shows that there are likely increases in the level of knowledge of the respondents because of the MHM project (55.1% known the organ where bleeding occurs).

The study findings revealed that due to the lack of information about menstruation, respondents even don't know the normal days of the period, they know about the duration of the period as they experienced themselves. Data from end-line shows likely increases in the information about normal days of the menstruation by the respondents.

There was similarity on the material they use as menstrual absorbent by girls and women in baseline and end-line assessments, as per baseline assessment, the common menstrual materials used by women/girls including, sanitary towel, sanitary napkins, new clothes, old washed cloth, few of them are using pad + old washed cloth, pad + new cloth and other menstrual cloth, most of them used washed old clothes while in some respondents reported nothing to use any materials as absorbent during menstruation. The data from end-line assessment shows that there was a big difference in the use of sanitary napkins.

The baseline data shows that there are some miss-practices amongst the respondents regarding their personal hygiene including hand washing, washing of the genital areas and washing of the underwear/re-usable pads during menstruation period. As per end-line assessment data, there were significant changes in the personal hygiene particularly handwashing, washing of the genital areas and washing of the underwear/re-usable pads during menstruation period (Washing practice of genital area during menstruation from 57.2 %-Baseline to 83.8 %-end line).

According to baseline and end-line assessments, there are no differences in control and treatment settings as well as baseline vs. end-line study in regards to hand washing practices.
There is a similarity in different disposal strategies used by the women/girls in baseline and end-line basements as well as control and treatment districts. There is no big difference in the disposal strategies seen at end-line vs. baseline study as well as treatment vs. control settings.

The study data revealed that, girls/women are having experience restriction in specific foods, physical activities, social gathering, pray, taking shower and school attendance, the end-line data shows that there are likely changes occurred in attitudes, restriction to women and girls during menstruation decreased from 91.6% from baseline to 76% at end-line study, it seems the MHM project likely impacted the community and family attitudes towards menstruation.

The baseline and end-line assessment revealed that, the women/girls are following a specific diet during menstruation and avoid some fruit, beverages, vegetable, and spicy and sour food, as per baseline assessment, about 78.5% girls reported food and drinks restriction during their period, they are told by their families if they eat some sort of foods and drink cold water, they will become sick. While at end-line assessment, about 59.1% of respondents are reported food and drinks restriction during their period, there are likely changes occurred from baseline vs. end-line.

Comparison of baseline vs. end-line shows that, restriction to bath and shower during menstruation is decreased by 25.2% from baseline, this difference mostly occurred in the treatment group, surveyors also added that some women in the community have this belief that it is not good to take shower during menstruation as it will bring them harm or become sick.

3. LITERATURE REVIEW

MOVE began the baseline assessment with a review of relevant literature. The purpose of the review is to identify and evidence on which areas of MHM approaches have been applied to, what changes can be expected from this approach as well as any results towards, challenges and deciding factors for roll-out/scale up in future.

The review led by MOVE's technical team and has used to provide an overview of the current situation in the proposed areas of implementation, within the parameters of evidence available.

At the end-line survey, a review of relevant new literature provided by Afghanistan-Ministry of Education, UNICEF, and other relevant institutions were undertaken.

3.1. IRB approval

The research protocol, research application (IRB template), questionnaire and informed consent forms made in three languages (English, Dari, and Pashtoo) and other final tools were submitted to the Afghanistan Institute of Public Health-Institutional Review Board (IRB) for ethics approval, following to submission of the application, an assigned committee from IRB members reviewed the application and their comments are considered and the final revised application is re-submitted. The IRB formally approved the study through issuing a letter of approval. The MOVE with the support of APHI-IRB conducted one-day training with enumerators on the assessment and ethical aspect of the study following IRB guidelines.

The tools were piloted before data collection began to identify any potential issues in questionnaire wording or enumerator understanding. A copy of the final questionnaire is attached to this report.

4. METHODOLOGY

The aims of the baseline assessment were to collect valuable information concerning the existing MHM conditions in the selected treatment and control districts in term of awareness, attitude and practice towards menstruation hygiene, furthermore, to assess access of women and girls to sanitary napkins.

The aim of the end line study was to understand changes in menstruation hygiene management including changes of the women/girls, the communities and families awareness, changes in community and family attitudes and changes in current miss-practices towards menstruation management between baseline and end line. The analysis also examines changes in access of women and girls to sanitary napkins through family, health centers, health posts and schools through the MHM project. The assessment of progress towards these changes was captured through the end-line household survey, one year after the start of project implementation.

The baseline and end-line study utilized a quantitative approach applied the cross-sectional approach, data are collected from women and teenagers using a household questionnaire (quantitative). The study design is a controlled community trial with intervention and control arms of the 4 districts of the Kabul province (2 treatment and 2 control districts). Intervention and control arms were included in the study design to strengthen the study and validity of its findings.

The methodology for the comparison of baseline vs. end-line assessments to see the output and outcomes of exposure is the Difference in Difference methodology.

4.1. Household Questionnaire

A household questionnaire formed the backbone of the baseline and end-line researches and included four sections designed to evaluate demographics, knowledge, attitude and current practices in intervention and control areas in terms of demographics, health-seeking behavior, awareness of MHM, practices, and attitudes towards MHM, the study also assessed the women/girls access to the sanitary napkins. The household questionnaire consisted of 32 questions divided to knowledge, practice, and attitude and have been administered by trained enumerators.

The objective of the baseline questionnaire is to establish the characteristics, care-seeking behaviors, awareness, practices, and attitudes of populations in control and treatment areas before the MHM scheme begins. Collecting baseline information allows for a comparative analysis of changes in MHM utilization between treatment districts, where the MHM pilot program implemented MHM activities, and control districts, where MHM activities not implemented. Baseline statistics allowed us for an assessment of the effects attributable to this program, with all other variables being equal between control and treatment areas.

The objective of the end line study was to understand changes in menstruation hygiene management including changes of the women/girls, the communities and families awareness, changes in community and family attitudes and changes in current miss-practices towards menstruation management between baseline and end line. The household questionnaire covered the following topics:

- Demographics
- Menstruation awareness
- Current practices for management of menstruation
- Population attitude toward menstruation management

The analysis uses the simple analytical technique to understand the effect of the MHM project and uses a simple comparison of means to calculate the average difference between control and treatment groups on outcomes of interest (Difference in Difference).

4.2. Piloting the questionnaire

The research tool is piloted in the implementation area to ensure that appropriately tailored and collected the desired information, the team analyzed the results of the pilot process and modified the questionnaire accordingly. The process of pre-testing seeks to ensure that the research tool adhere to the following principles:

- **Simplicity:** Given the diversity of the target population in terms of educational attainment, the questions are designed in ***the*** local language and simple with situational examples in order to provide a concrete frame of reference and easy guide.
- **Acceptability:** Poverty, health, coping strategies, and violence against women can be sensitive topics. we have seek to put questions that which trigger respondent bias or high refusal rates and reformulated them to solicit the same information in a more culturally-sensitive manner.
- **Comprehensiveness:** We ensure that any open-ended or multiple choice questions allow for a representative range of possible answers. This mitigated conceptual biases that sometimes occur and narrow the scope of insight.
- **Utility:** The finalized tools, we translated and back-translated the questionnaire to guarantee that accurately and precisely render intended meanings in the languages used by the different populations surveyed. We will also submit a field report listing findings and modifications.

4.3. Selecting control and treatment areas

MOVE and HEMAYAT selected control and treatment districts based on an equity deprivation index and other factors pertinent to project uptake.

The following selection criteria were considered for determination of control and treatment districts:

- Population size
- Ethnic groups
- local language
- Availability of BPHS health facilities
- Availability of Female Community Health Workers at functional HPs
- Availability of girls high schools

The control and treatment districts are:

Location of the treatment and control Districts

Treatment Districts	Control Districts
Goldara	Kalakan
Farza	Dehsabz

The same approach for the selection of treatment and control districts for baseline and end- line assessment is applied, MOVE used the list of villages already using for EPI and CBHC programs to select villages, and we used a random selection of villages in combination with participatory mapping. The combination is required to obtain a more comprehensive list and, therefore, a more representative sample of the district populations. Without full census data population proportion size sampling is not possible, therefore randomization of villages was chosen.

5. SAMPLE SIZE

MOVE conducted a pooled cross-sectional survey, evaluated individuals in the treatment and control areas at two different points in time: baseline and end line. The most appropriate sampling methodology to respond to succeed in achieving the minimum necessary sample size at the final round of research is quota sampling with random selection, broken down as follow:
Baseline: 1250 individuals
End line: 1250 individuals
This sample size allows for disaggregation between control and treatment groups at the district level at a confidence interval of 95% and a margin of error inferior to 5.

For calculation of sample size the following formula was considered:

$$n = \frac{Z^2\ 1 - \alpha/2\ P(1-P)}{d^2}$$

Where,
P= estimated proportion
d= desired precision (sampling error)

$$\text{SE } (Z^2\ 1\text{-}\alpha/2) = 1.96$$

- To calculate the sample size, 95% confidence level (1.96 standard errors), with an estimated proportion of 50% and 5% desired precision was considered.
- The obtained sample size is 384.
- In order to adjust for variances of socio-economic variables in different districts, the sample size was adjusted for the estimated design effect of 1.5.

- The obtained sample size turned to be 576.
- Further, a buffer of 5 % has been factored for possible non-response by target respondents.
- The final calculated sample size was 604.
- A similar procedure is used for the calculation of both intervention and control districts.
- Hence there were 604 women aged 10-49 years in intervention districts and 604 women aged 10-49 years in control districts.

The minimum sample size required per level of disaggregation, here for control area, is 604 and treatment area is 604 (rounded up to 625 in order to anticipate the discarding of survey data and maintain a quality sampling). This sample size allows for a statistically valid, representative sample to allow for conclusions to be drawn at the district level. Given the differences in impact at the district level and the requested level of disaggregation, it was not possible to reduce the sample size for treatment and control groups per area as this would result in a non-representative sample and a lack of statistical rigor and internal validity at the district level in analyzing results.

In baseline and end-line, the sample sizes of 1250 are divided equally between beneficiaries living in treatment districts and beneficiaries meeting the criteria but living in control districts or areas.

5.1. Sampling Breakdown

The same sampling breakdown was applied at baseline and end-line assessments, for the purposes of this research, the community-level samples distributed according to probability proportional to size sampling. The sample size at the district level Primary Sampling Unit (PSU) reflects the ratio of that district's population. The Secondary Sampling Unit (SSU) were villages randomly selected from within the PSU, approximately 25 SSU for intervention and 25 SSU for control districts are randomly selected from PSU. Within each SSU, we used systematic random sampling to select the households to be included in the survey with approximately 25 households interviewed within a given SSU.

5.2. Training of enumerators and MHM project operation team

Following IRB approval, for the baseline assessment, 30 female enumerators were recruited from the MOVE team including health facilities and CBHC program for training who have the experience of such survey before. One day training was carried out; the training was led by principal investigator and co-investigators, with support from the IRB and project manager.

Similarly, for the end-line assessment, 25 female enumerators were recruited from the MOVE team including health facilities and CBHC program for training who have the experience of such survey before. One day training was carried out; the training was led by principal investigator and co-investigators.

The enumerators were trained on the study objectives, research methods, sampling and procedures to ensure the quality of data throughout the data collection. They were also trained on the procedures and the content of the questionnaire as well as administration techniques. In the training, all groups were tasked to conduct role-plays and practice the questionnaires among themselves. Ensuring an understanding of tools also required a basic understanding of MHM concepts.

Following the training, the project manager designed a quality assurance plan for monitoring field staff and the timeliness of data collection. This quality assurance plan factored in a series of surprise spot check visits and direct monitoring.

6. DATA COLLECTION

Following the training, the surveyors are deployed under the supervision of the project manager/MOVE-M&E unit and administered the tool to individuals randomly selected in their houses, according to the Kish method, the system for transportation of data was sorted, as well as administrative issues, including review of each staff, review of the agreement on confidentiality and respect to ethical protocols. Mitigation of risks and security protocol was also discussed.

6.1. Data Collection Approach

The survey was conducted on a sex-segregated basis. In other words, only female field enumerators were conducted survey with female respondents, data are checked for quality in real time reducing mistakes and increasing capacity to monitor.

6.2. Selection of Respondents

As communities in Afghanistan do not have a practice of maintaining a list of households, the enumerators were select households through a 'random walk protocol.' Starting from a landmark such as a mosque, bridge, or school, surveyors were stopped at every third house on the street and turn right around in a clockwise manner (enabling them to survey households that are on the main street as well as households located on small streets). In rural areas where no landmarks exist, surveyors were traveled through the village and stop at every third house to complete the sample. Respondents in both the treatment and control areas randomly selected based on the following inclusion (eligibility) criteria:

- Aged 10-49
- Girls attained menarche
- Be a permanent member of the household (i.e. not a visitor)

The enumerator excluded the respondents who have not met the eligibility criteria, the exclusion criteria are as follows:

- Women/Girls who are not willing to participate in the study.
- Women/Girls under the age of 10 years old.
- Women/Girls above the age of 49 years old.

- Women/Girls are not present in the household in the survey time.
- Women/Girls who are guest or visitors in the household at the survey time.
- Male members of the household.

Enumerators were asked to list all women in the household that meet the above criteria. The enumerator was prioritized selecting a woman who has already had menstruation. Females were approached by female enumerators in their homes. Enumerators followed a random walk protocol whereby enumerators started from a predefined landmark. Enumerators were stopped every three houses in the street and turn around in a clockwise manner (allowing to survey households that are on the main street as much as on small streets). This protocol allows for a purely random sample are selected, thus maximizing the representativeness of the sample.

If the eligible respondent is not willing to take the survey, the identified household was replaced with the nearest household to the right of the original household, which called "substitute household 1." while the first substitute household be unavailable for interview or refuses, then the nearest household to the left of the original household is selected and is called "substitute household 2." Enumerators were instructed to substitute "substitute household 2" with "substitute household 3," if required.

6.3. Ethical Research

MOVE strongly adhered to a do-no-harm approach in conducting baseline and end-line assessments.

Informed Consent: MOVE committed to informing potential research participants of the nature and objectives of the survey researchers were conducted. Enumerators informed participants that the survey will be conducted in a private location and assure them of the anonymity of their responses. Special care is taken to ensure that research participants in control districts are in no way under the impression that participation in the research is an indication of or precursor to impending support. Given the sensitive nature of this research, MOVE was consent of all survey respondents before their participation in the research protocol. Consent is predicated on a comprehensive understanding of the nature and purpose of the research as presented in the inform stage. Preference was shown for obtaining written consent; however, for those participants who are illiterate, MOVE instruct enumerators to verbal consent. In addition to the initial consenting, enumerators have monitored participant's behavior during the course of the survey and periodically renew consent during the course of the survey.

7. ANALYSIS

7.1. Database Design

The database was designed in Excel- C program and delivered in real-time through manual entry, the database established through links and a total of 10 staff entered the completed survey forms. Submitted data are checked for quality and other considerations in real-time to allow for adjustments in the survey, which is also changed in the database, entered data from the database transferred to SPSS, with no risk of data loss or corruption in the interim.

7.2. Data Cleaning and Processing

Following data collection and entry, the transfer of data to the appropriate SPSS database is done; SPSS avoids double-data entry. The database is capable of cross-checking data entry errors and rectifying any identified problems. Data cleaning simultaneously done and identified contradictions and inconsistencies in the survey forms in SPSS (eligibility criteria), discarded entries with missing information and identified typos, misunderstanding of the question, etc.

7.3. Data Analysis

The collected data have analyzed. This evaluation utilized pooled cross-sectional data measuring two different population sets at baseline and end-line to evaluate the impact of the project, findings presented in tables, charts, and graphics. For keeping research data, cleaned data, variables and values, data delivered in Excel-C and SPSS will be kept for future use.

7.4. Quality Control

The principal investigator and co-investigators and project key staff with the direct support of MOVE M/E department maintained quality assurance procedures to guarantee high-quality outputs, MOVE's multi-layer M&E system takes advantage of its staffing structure, which maintains a strict separation between project staff and quality assurance staff. The strategies took for the quality of data collected including the remote management of data collection and remote monitoring, spot check and application of reliability test to guarantee the quality and validity of data.

Quality assurance commenced at the beginning with the establishment of strong working relationships, the research team has taken significant actions and mobilized its human resources to recruit high-quality data collectors with positive records of past performance and experience with researching sensitive subjects, a total of 30 data collectors for baseline and 25 data collectors for end-line assessment were recruited. To have quality data collected and to minimize the risks, we conducted training for field data collectors on the background of research, data collection method, and ethical protocol is indispensable to achieving positive outcomes and reliable results. The training was satisfactory with more than 90% based on the post-test result.

A planning meeting was conducted by the principal investigator/Co-investigators, MOVE program officers, MOVE-Kabul/SEHAT-BPHS team, project key staff and MOVE M/E department, the baseline and end-line assessments plan was developed, based on the plan, a total of 6 teams for baseline and 5 teams for end-line were formed including 4 data collectors and 1 team facilitator (each team consist of 5 members), each team provided with required questionnaires, pen, markers, list of the villages and households information, for better arrangement of team transport, one vehicle was provided for each team.

The coordination activities were the responsibility of Kabul/SEHAT-BPHS team, these activities were conducted prior to the conduction of the assessment, the district governors, health facilities and the community shuras are informed through official letters. The team facilitators were responsible for team members, coordination at the village level, sampling of the households at the secondary sampling unit (village), the list of villages have already provided to each team, the team facilitator supported the team members in marking of the households and assigned team members to start interviews with eligible respondent as well as taken mitigation action for any challenges or risks during the assessment. The facilitators also applied remote management and direct management of the data quality through direct spot checks; he/she also collected filled questionnaires from the data collectors at the end of the day and checked all responses, coding, and completeness of the questionnaires. Dedicated quality assurance staff monitors the performance of quantitative data collection from beginning to end, a minimum of 20% of survey cross-checked, to ensure quality field work by M/E department through surprise visits.

The remote management of data was another strategy which one monitor was assigned for each district, He/she was responsible for all teams assigned for said district, the monitors defined the team roles and have direct contacts by the phones provided and provided any support needed the team at the village level. The phone numbers of principal investigator and co-investigators were put at each questionnaire and emphasized all data collectors to direct communicate if they face any miss-understanding or miss-clarification of the questionnaire.

The application of reliability test was another strategy to improve the reliability of results; 5% of re-survey was planned and conducted to guarantee the quality of data collected.

M & E and HMIS department cross-checked the outputs and analysis of data to guarantee statistical validity and analytical rigor, all written deliverables, and quality data and accuracy were peer-reviewed by a minimum of two senior staff, including Program and General Directors.

7.5. Comparability of Treatment VS Control Districts

The difference-in-difference method used for the analysis of comparability between control and treatment groups, the analysis allows for a comparison of groups that are significantly different.

To establish the comparability of the treatment and control groups, the analysis examined observable differences in variables expected to affect program uptake. Selection of the variables was driven by findings from the literature review including demographics (age, sex, and level of education), knowledge/ level of awareness, current MHM practices and family and societal attitudes towards MHM.

The following formula is used as estimator of Difference-in-Difference:

$$Y\ (Treatment) = Y\ (Post) - Y\ (Pre)$$
$$Y\ (Control) = Y\ (Post) - Y\ (Pre)$$
$$DID = Y\ (Treatment) - Y\ (Control)$$

8. FINDINGS

8.1. Baseline study

The study was conducted in four districts of Kabul province (Farza, Guldara, Kalakan, and Dehsabz), two districts as control (Kalakan and Dehsabz) and two as treatment (Farza and Guldara). Total of 625 respondents from control and 625 respondents from treatment district was planned to be interviewed, from 1250 planned respondents, about 1224 have been interviewed and about 26 respondents have been missed (rejected, not completed, household vacated/destroyed). There were 3 questionnaires missed by the system, so the analysis was applied on 1221 respondents' questionnaire.

The overall differences between treatment and control districts likely affect outcomes of interest shown in below, when comparing the overall sample from the baseline data, treatment groups are significantly similar to measured variables, but differences at the district level, which these differences will likely impact MHM service uptake, specifically use of sanitary napkins, level of awareness and family and society attitudes towards menstruation hygiene.

8.2. End-line study

The end-line study as same as baseline study was conducted in four districts of Kabul province (Farza, Guldara, Kalakan, and Dehsabz), two districts as control (Kalakan and Dehsabz) and two as treatment (Farza and Guldara). Total of 625 respondents from control and 625 respondents from treatment district was planned to be interviewed, from 1250 planned respondents, about 1250 have been interviewed. There were 3 questionnaires missed by the system, so the analysis was applied on 1247 respondents' questionnaire.

In the overall sample, there are significant differences between treatment and control groups for all variables examined.

8.3. Demographics

Eligible respondents were between the age of 10 and 49. The youngest respondent was 11 years old while the oldest respondent has reported her age as 49 years. However, as seen in Figure below, the majority of respondents are younger which convergence to the left quartile (75^{th} percentile), it seems the majority of respondents are between 18-49 years old.

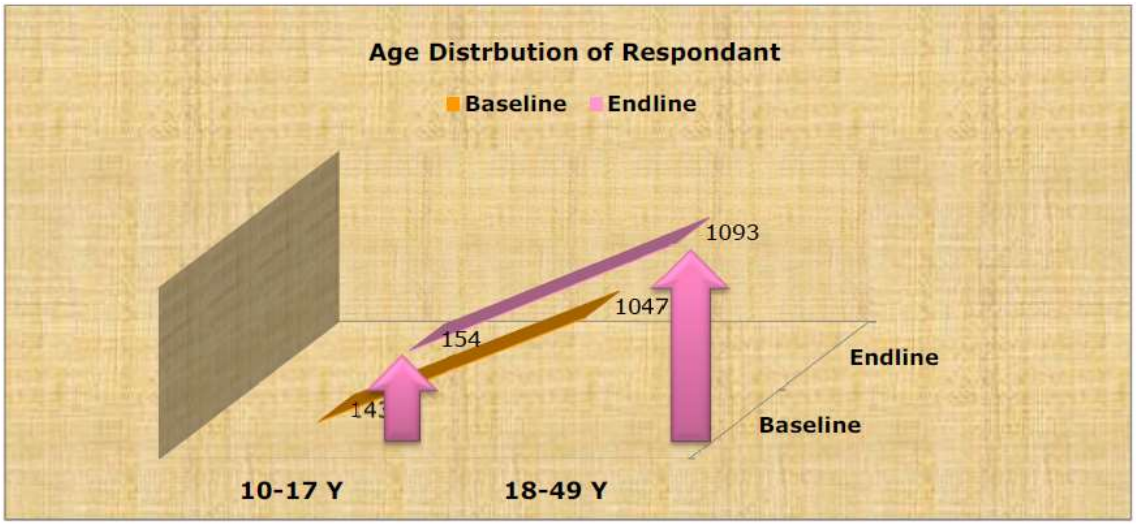

Fig. 1: Age distribution of respondents

The baseline data shows, that the majority of the respondents (70.5%) have reported their marital status as "Unmarried" at the time of the interview while 29.5% of the respondents were "married" at the time of the interview, while at the end-line, there were significant differences as data shows, majority of the respondents (68.7%) have reported their marital status as "Married" and 31.3% of the respondents were "Unmarried" at the time of the interview

Table 2: Marital status

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)
Baseline	Married	361	29.5	186	175	30.8	28.3
	Unmarried	860	70.5	417	443	69.2	71.7
End-line	Married	857	68.7	395	462	63.5	73.9
	Unmarried	390	31.3	227	163	36.5	26.1
	Unmarried	-470	-39.2	-190	-280	-32.7	-45.6

There is significant similarity on the respondent's level of education in baseline vs. end-line assessments, Majority (baseline-76% and end-line 73.3%) of the respondents in both treatment and control groups have reported illiterate, 11.1 % of the respondents in baseline and 8.6% of respondents in end-line have reported about receiving some sort of formal education (Completed primary school), while only 2.0% of the respondents in baseline and 1.8% of respondents in end-line have reported about receiving advanced education (12+).

Table 3: Frequency distribution of respondents' education level

	Education Level	Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	
Baseline	Primary School	135	11.1	69	66	11.4	10.7
	Secondary School	74	6.1	38	36	6.3	5.8
	High School	63	5.2	29	34	4.8	5.5
	Advanced (12+)	25	2	12	13	2.0	2.1
	Illiterate	924	76	455	469	75.5	75.9
Baseline	Primary School	108	8.7	58	50	9.3	8.0
	Secondary School	110	8.8	79	31	12.7	5.0
	High School	90	7.2	64	26	10.3	4.2
	Advanced (12+)	23	1.8	11	12	1.8	1.9
	Illiterate	916	73.5	410	506	65.9	81.0

8.4. Access to Sanitary Pads

The results from baseline assessment showed that about 82.9 % of women/girls don't have access to sanitary pads, while 17.1 % of women/girls have easy access to sanitary pads through their own money or provide by their families, there are no support in regards to increasing access of women/girls to sanitary napkins by the schools, health facilities, and community, there is no difference was documented regarding the access of women/girls in control and treatment settings.

There are significant differences seems from the end-line assessment data, access to sanitary pads increased from 17.1 % to 52.4% and the treatment group increased from 17.6% to 80.5 % because of the MHM project contribution to women/girls through health facilities, health posts, and schools. The data from the baseline shows that, there is no difference between control and treatment group in regards to access to sanitary pads but seems some increases in control group as well at the end-line study (16.5% at baseline to 24.5%), the reason is contamination of MHM project to control district as the districts are neighboring districts and located near to each other.

Table 4: Access to clean pads during menstruation period

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	Did (%)
Baseline	Do not	1013	82.9	497	516	82.4	83.5	-1.1
	Do	208	17.1	106	102	17.6	16.5	1.1
End-line	Do not	593	47.6	121	472	19.5	75.5	-56.1
	Do	654	52.4	501	153	80.5	24.5	56.1
Deference in Do not		-420	-35.3	-376	-44	-63.0	-8.0	-55.0
Deference Do		446	35.3	395	51	63.0	8.0	55.0

The baseline data shows that male members of families are not supportive of women/girls during menstruation period, the results shows that few percent of family members (male) help women/girls for getting easy access to clean pads during menstruation period (17.1%), the women/girls who have easy access to sanitary pads about 9.5% are providing by their own money and similar 7.2 % of family members (male) pay money to women/girls for purchasing clean pads during menstruation period.

Table 5: Women/Girls access to clean pads during menstruation

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	School	0	0	0	0	0	0	0
	Health Facilities	0	0	0	0	0	0	0
	Market by own money	117	9.5	70	47	11.6	7.8	3.8
	Provide by family	90	7.4	38	52	6.3	8.6	-2.3
	Other	4	0.2	0	4	0.0	0.7	-0.7
End-Line	School	50	4	50	0	8.1	0.0	8.1
	Health Facilities	356	28.5	356	0	57.6	0.0	57.6
	Market by own money	61	4.9	5	56	0.8	9.1	-8.3
	Provide by family	193	15.5	27	166	4.4	26.9	-22.5
	Other	8	0.6	0	8	0.0	1.3	-1.3
Deference in Deference	School	50	4	50	0	8.3	0.0	8.3
	Health Facilities	356	28.5	356	0	59.0	0.0	59.0
	Market by own money	-56	-4.6	-65	9	-10.8	1.5	-9.3
	Provide by family	103	8.1	-11	114	-1.8	18.9	-17.1
	Other	4	0.4	0	4	0.0	0.7	-0.7

8.5. Awareness

There is an absolute lack of awareness about sanitary napkins and its usage at all in the baseline assessment, there are no big differences between control and treatment settings, about 56.5 % of the respondents are reported not familiar on sanitary napkins and its usage and disposal, while 43.5 % are aware of the sanitary napkin and how to use it. Though, the end-line assessment shows significant differences in the level of awareness, 86.8 % of respondents are familiar with sanitary napkins and its disposal, only 13.2% are not. There are no big differences in the level of awareness drown from control and treatment setting in baseline and end-line assessments.

Table 6: Level of awareness about safe pad and how to use and dispose

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	690	56.5	366	324	60.7	52.4	8.3
	Yes	531	43.5	237	294	39.3	47.6	-8.3
End-line	No	165	13.2	28	137	4.5	21.9	-17.4
	Yes	1082	86.8	594	488	95.5	78.1	17.4
Deference in Deference	No	-525	-43.3	-338	-187	-56.2	-30.5	-25.7
	Yes	551	43.3	357	194	56.2	30.5	25.7

The majority of women/girls at the time of baseline assessment who were not aware of their menstruation before menarche-61.5 % and about 38.5 % have information from different sources, although, the data from the end-line assessment are likely similar, so the information was not adequate and that they needed more insight into the topic. Girls reported wanting more information to help them manage menstruation more effectively.

Table 7: Information of women/girls on menstruation before attainment of first menstruation.

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	751	61.5	342	409	56.7	66.2	-9.5
	Yes	470	38.5	261	209	43.3	33.8	9.5
End-line	No	583	46.7	236	347	37.9	55.5	-17.6
	Yes	664	53.3	386	278	62.1	44.5	17.6
Deference in Deference	No	-168	-14.8	-106	-62	-18.8	-10.7	-8.1
	Yes	194	14.8	125	69	18.8	10.7	8.1

There are no significant differences on the sources of information about menarche in control and treatment settings in the baseline and end-line assessments, the source of information are included mothers, sisters, friends, teacher, and others. The data from baseline shows, girls and women having lack of basic information about the organ where bleeding occurs (only 26.7 % known the organ where bleeding occurs), knowledge about the cause of menstruation, the risk of sexual relation during menstruation and how long last every menstruation normally. The data from the end-line assessment shows that there are likely increases in the level of knowledge of the respondents because of the MHM project (55.1 % known the organ where bleeding occurs).

Table 8: Knowledge about the organ where bleeding occurs

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	Did (%)
Baseline	Uterus	326	26.7	175	151	29.0	12.4	16.6
	Bladder	85	7	53	32	8.8	13.4	-4.6
	Kidney	160	13.1	77	83	12.8	14.4	-1.6
	Do not know	650	53.2	298	352	49.4	15.4	34.0
End-line	Uterus	687	55.1	491	196	78.9	16.4	62.5
	Bladder	64	5.1	24	40	3.9	17.4	-13.5
	Kidney	20	1.6	2	18	0.3	18.4	-18.1
	Do not know	476	38.2	105	371	16.9	19.4	-2.5
Deference in Deference	Uterus	361	28.4	316	45	49.9	4	45.9
	Bladder	-21	-1.9	-29	8	-4.9	4	-0.9
	Kidney	-140	-11.5	-75	-65	-12.4	4	-8.4
	Do not know	-174	-15	-193	19	-32.5	4	-28.5

The women and girls don't have information about the special need of nutritional, psychological and social care of women of reproductive age and how to manage if they face heavy pain or skin rash during menstruation.

Table 9: Knowledge of the cause of menstruation

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline Assessment	Physiological	192	15.7	92	100	15.3	16.2	-0.9
	God given	588	48.1	262	326	43.4	52.8	-9.3
	Disease/Infection	50	4.1	32	18	5.3	2.9	2.4
	Do not know	391	32.1	217	174	36.0	28.2	7.8
End-line Assessment	Physiological	627	50.3	501	126	80.5	20.2	60.4
	God given	431	34.6	93	338	15.0	54.1	-39.1
	Disease/Infection	41	3.3	2	39	0.3	6.2	-5.9
	Do not know	148	11.9	26	122	4.2	19.5	-15.3
Deference in Deference	Physiological	435	34.6	409	26	65.3	4.0	61.3
	God given	-157	-13.5	-169	12	-28.5	1.3	-27.2
	Disease/Infection	-9	-0.8	-30	21	-5.0	3.3	-1.7
	Do not know	-243	-20.2	-191	-52	-31.8	-8.6	-23.2

Having information about the physiology of menstruation is important for women/girls to manage their menstruation. The findings from baseline indicated a lack of information and low awareness among respondents about menstruation. The study findings revealed that due to the lack of information about menstruation, respondents even don't know the normal days of the period, they know about the duration of the period as they experienced themselves. Data from end-line shows a likely increase in the information about normal days of the menstruation by the respondents.

Table 10: Awareness about the normal duration of menstruation

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline Assessment	2 days	97	7.9	67	30	11.1	4.9	6.3
	3-5 days	577	47.2	303	274	50.2	44.3	5.9
	3-7 days	461	37.8	176	285	29.2	46.1	-16.9
	Do not know	86	7.1	57	29	9.5	4.7	4.8
End-line Assessment	2 days	65	5.2	17	48	2.7	7.7	-4.9
	3-5 days	480	38.5	208	272	33.4	43.5	-10.1
	3-7 days	625	50.1	365	260	58.7	41.6	17.1
	Do not know	77	6.2	32	45	5.1	7.2	-2.1

Deference in Deference	2 days	-32	-2.7	-50	18	-8.4	2.8	-5.6
	3-5 days	-97	-8.7	-95	-2	-16.8	-0.8	-16.0
	3-7 days	164	12.3	189	-25	29.5	-4.5	25.0
	Do not know	-9	-0.9	-25	16	-4.3	2.5	-2.8

Most of the girls and women reported that they only received information regarding the onset of menstruation and duration, they don't know how to manage menstruation. Women/Girls are not aware of what to do when they face any skin rashes pre-menstruation syndrome symptoms. Fewer of them know what to do when they face such symptoms. However, the information was considered inadequate.

Table 11: Women/Girls information on management of Pre-menstruation Syndrome Symptoms

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline Assessment	Consult with health worker	91	7.5	49	42	8.1	6.8	1.3
	Take pain killer drugs	231	18.9	119	112	19.7	18.1	1.6
	Use hot packs	12	1.0	1	11	0.2	1.8	-1.6
	Use traditional medicines/food	326	26.7	159	167	26.4	27.0	-0.7
	No action	483	39.6	244	239	40.5	38.7	1.8
	Do not know	78	6.4	31	47	5.1	7.6	-2.5
End-Line Assessment	Consult with health worker	276	22.1	237	39	38.1	6.2	31.9
	Take pain killer drugs	237	19.0	124	113	19.9	18.1	1.9
	Use hot packs	33	2.6	23	10	3.7	1.6	2.1
	Use traditional medicines/food	329	26.4	117	212	18.8	33.9	-15.1
	No action	357	28.6	120	237	19.3	37.9	-18.6
	Do not know	15	1.2	1	14	0.2	2.2	-2.0
Deference in Deference	Consult with health worker	185	14.7	188	-3	30.0	-0.6	29.4
	Take pain killer drugs	6	0.1	5	1	0.2	0.0	0.2
	Use hot packs	21	1.7	22	-1	3.5	-0.2	3.3
	Use traditional medicines/food	3	-0.3	-42	45	-7.6	6.9	-0.7
	No action	-126	-10.9	-124	-2	-21.2	-0.8	-20.4
	Do not know	-63	-5.2	-30	-33	-5.0	-5.4	-0.4

8.6. Practice

There was similarity on the material they use as menstrual absorbent by girls and women in baseline and end-line assessments, as per baseline assessment, the common menstrual materials used by women/girls including, sanitary towel (2%), sanitary napkins (16.4%), new clothes (13.9%), while 54.3% are using old washed cloth, few of them are using pad + old washed cloth, pad + new cloth and other menstrual cloth, most of them used washed old clothes while in some respondents reported nothing to use any materials as absorbent during menstruation. The data from end-line assessment shows that there was a big difference in the use of sanitary napkins.

Table 12: Material used as menstrual absorbent

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline Assessment	Sanitary towel	25	2.0	16	9	2.7	1.5	1.2
	Sanitary napkins	200	16.4	101	99	16.7	16.0	0.7
	New cloth	170	13.9	84	86	13.9	13.9	0.0
	Old washed cloth	664	54.4	305	359	50.6	58.1	-7.5
	Pad + old washed cloth	106	8.7	70	36	11.6	5.8	5.8
	Pad + new cloth	30	2.5	10	20	1.7	3.2	-1.6
	Nothing	22	1.8	13	9	2.2	1.5	0.7
	Any other	4	0.3	4	0	0.7	0.0	0.7
End-Line Assessment	Consult with health worker	27	2.2	2	25	0.3	4.0	-3.7
	Sanitary napkins	654	52.4	480	66	77.2	10.6	66.6
	New cloth	108	8.7	24	84	3.9	13.4	-9.6
	Old washed cloth	314	25.2	100	322	16.1	51.5	-35.4
	Pad + old washed cloth	121	9.7	9	112	1.4	17.9	-16.5
	Pad + new cloth	19	1.5	5	14	0.8	2.2	-1.4
	Nothing	4	0.3	2	2	0.3	0.3	0.0
	Any other	0	0.0	0	0	0.0	0.0	0.0
Deference in Deference	Consult with health worker	2	0.1	-14	16	-2.3	2.5	-0.2
	Sanitary napkins	454	36.1	379	-33	60.4	-5.5	54.9
	New cloth	-62	-5.3	-60	-2	-10.1	-0.5	-9.6
	Old washed cloth	-350	-29.2	-205	-37	-34.5	-6.6	-27.9
	Pad + old washed cloth	15	1.0	-61	76	-10.2	12.1	-1.9

	Pad + new cloth	-11	-0.9	-5	-6	-0.9	-1.0	-0.1
	Nothing	-18	-1.5	-11	-7	-1.8	-1.1	-0.7
	Any other	-4	-0.3	-4	0	-0.7	0.0	-0.7

Knowledge and awareness about menstruation affect the women/girls practices on the management of their menstruation, the baseline data shows that there are some miss-practices amongst the respondents regarding their personal hygiene including hand washing, washing of the genital areas and washing of the underwear/re-usable pads during menstruation period. As per end-line assessment data, there were significant changes in the personal hygiene particularly hand washing, washing of the genital areas and washing of the underwear/re-usable pads during menstruation period (Washing practice of genital area during menstruation from 57.2 %-Baseline to 83.8 %-end line).

Table 13: Washing practice of genital area during menstruation period

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	522	42.8	266	256	44.1	41.4	2.7
	Yes	699	57.2	337	362	55.9	58.6	-2.7
End-line	No	202	16.2	33	169	5.3	27.0	-21.7
	Yes	1045	83.8	589	456	94.7	73.0	21.7
Deference in No		-320	-26.6	-233	-87	-38.8	-14.4	-24.4
Deference in Yes		346	26.6	252	94	38.8	14.4	24.4

According to Baseline and end-line assessments, the most of respondents used to wash hands after changing their pads and under-wears or washing their under-wear and re-usable pads with soup and water, but fewer still not following personnel hygiene particularly hand washing practice after changing the pads or underwear. There are no differences in baseline and end-line study as well as control and treatment settings in regards to hand washing practices.

Table 14: Handwashing practice of women/girls after changing the pad

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	118	9.7	37	81	6.1	13.1	-7.0
	Yes	1103	90.3	566	537	93.9	86.9	7.0
End-line	No	62	5	17	45	2.7	7.2	-4.5
	Yes	1185	95	605	580	97.3	92.8	4.5
Deference in No		-56	-4.7	-20	-36	-3.4	-5.9	2.5
Deference in Yes		82	4.7	39	43	3.4	5.9	-2.5

There is a similarity in different disposal strategies used by the women/girls in baseline and end-line basements as well as control and treatment districts. Baseline data show that depending on the type of facilities available, 22.9 % are burring the used pads and 38.7 % are burning the used pads. In some instances, they thrashed used pads in dustbins or open areas which are a danger for the spread of infections in the society. There is no big difference in the disposal strategies seen at end-line vs. baseline study as well as treatment vs. control settings.

Table 15: Disposal practice of used pads after changing the pad

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline Assessment	Burial	280	22.9	153	127	25.4	20.6	4.8
	Burning	473	38.7	230	243	38.1	39.3	-1.2
	Hidden place	173	14.2	61	112	10.1	18.1	-8.0
	Garbage pot	181	14.8	81	100	13.4	16.2	-2.7
	Open place	59	4.8	30	29	5.0	4.7	0.3
	Other	55	4.5	48	7	8.0	1.1	6.8
End-line Assessment	Burial	333	26.7	201	132	32.3	21.1	11.2
	Burning	551	44.2	326	225	52.4	36.0	16.4
	Hidden place	170	13.6	61	109	9.8	17.4	-7.6
	Garbage pot	115	9.2	25	90	4.0	14.4	-10.4
	Open place	31	2.5	6	25	1.0	4.0	-3.0
	Other	47	3.8	3	44	0.5	7.0	-6.6
Deference in Difference	Burial	53	3.8	48	5	6.9	0.6	6.4
	Burning	78	5.5	96	-18	14.3	-3.3	13.0
	Hidden place	-3	-0.6	0	-3	-0.3	-0.7	-0.4
	Garbage pot	-66	-5.6	-56	-10	-9.4	-1.8	-7.6
	Open place	-28	-2.3	-24	-4	-4.0	-0.7	-3.3
	Other	-8	-0.7	-45	37	-7.5	5.9	-1.6

8.7. Attitude and Behaviors

The baseline data revealed that, there is no difference was observed regarding attitude and behaviors in different targeted community, girls/women are having experience restriction in specific foods, physical activities, social gathering, pray, taking shower and school attendance, about 91.6 % of respondents reported some sort of restriction during menstruation period, while only 8.4 % of them did not report any restriction during their period. While the end-line data shows that there is likely changes occurs in attitudes towards menstruation, restriction to women and girls during menstruation decreased from 91.6% from baseline to 76% at the end-line study, it seems the MHM project likely impacted the community and family attitudes towards menstruation.

Table 16: Restrictions on women/girls during menses

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	103	8.4	30	73	5.0	11.8	-6.8
	Yes	1118	91.6	573	545	95.0	88.2	6.8
End-line	No	299	24	216	83	34.7	13.3	21.4
	Yes	948	76	406	542	65.3	86.7	-21.4
Deference in No		196	15.6	186	10	29.8	1.5	28.3
Deference Yes		-170	-15.6	-167	-3	-29.8	-1.5	-28.3

The baseline and end-line assessment revealed that, the women/girls are following a specific diet during menstruation and avoid some fruit, beverages, vegetable, and spicy and sour food, as per baseline assessment, about 78.5 % girls reported food and drinks restriction during their period, they are told by their families if they eat some sort of foods and drink cold water, they will become sick. While at end-line assessment, about 59.1% of respondents are reported food and drinks restriction during their period, there are likely changes occurred from baseline vs. end-line.

Table 17: Restriction of food/drinks during the menstruation period

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	Did (%)
Baseline	No	262	21.5	95	167	15.8	27.0	-11.3
	Yes	959	78.5	508	451	84.2	73.0	11.3
End-line	No	510	40.9	390	119	62.7	19.0	43.7
	Yes	737	59.1	232	506	37.3	81.0	-43.7
Deference in No		248	19.4	295	-48	46.9	-8.0	54.9
Deference Yes		-222	-19.4	-276	55	-46.9	8.0	-54.9

In most of the cases in baseline assessment, about 72% of women and girls reported that they do not take shower during menstruation; only 28% of them reported taking shower during their period, there is slightly difference showed by the end-line data, restriction to bath and shower during menstruation is decreased by 25.2% from baseline, this difference mostly occurred in the treatment group, surveyors also added that some women in the community have this belief that it is not good to take shower during menstruation as it will bring them harm or become sick.

Table 18: Restriction of bath and wash during menstruation period

		Frequency	Percent	Treatment (Freq)	Control (Freq)	Treatment (%)	Control (%)	DiD (%)
Baseline	No	342	28	147	195	24.4	31.6	-7.2
	Yes	879	72	456	423	75.6	68.4	7.2
End-line	No	663	53.2	454	209	73.0	33.4	39.6
	Yes	584	46.8	168	416	27.0	66.6	-39.6
Deference in No		321	25.2	307	14	48.6	1.9	46.7
Deference Yes		-295	-25.2	-288	-7	-48.6	-1.9	-46.7

9. CHALLENGES AND LESSON LEARNT

The baseline and end-line assessments encountered some operational challenges such as security, cultural barriers, harsh geography and road closure to capture household's information. However, there were no substantial constraints in undertaking the questionnaire that would have compromised the validity of the data and the findings.

The main challenge was likely to include defining the sample selection strategy, the desired number of respondents are increased from 400 to 625 for control and treatment districts, considering 1.5 design effect and 5% buffer to have more representation, these increases are recommended by the IRB, these revisions affected the timeline of the assessment and number of enumerators.

Though there were very few households that had to be replaced, these replacements are because of the inclusion criteria and rejection of interview by the respondents or destruction of the houses. At baseline and end-line, the same eligibility criteria applied. MOVE has revised some of the questions to make more understandable into the household questionnaire to determine program reach and its effects on the access to sanitary pads.

The difference-in-difference approach was established and widely adopted. It provided widely comparison between control and treatment areas. However, it is reliant on the comparisons of changes over time. Considering that given the short time period between baseline and end-line, and the complex factors are influenced access to sanitary pads and result of the pilot project.

10. LIMITATIONS

As the operation research was included in the project within the ceiling of the project fund affected the project, such financial limitation was contributed by MOVE and we hope these limitations do not disturb the program timelines.

11. CONCLUSION

Overall, increases in demand of sanitary napkins usage, awareness and knowledge of girls/ women on menstruation and menstruation management, personal hygiene and healthy practices and individual, family and community attitudes towards menstruation and menstruation management suggest that the MHM pilot project was successful in promoting intended objectives. In order to capitalize on current successes, and prepare for possible future rollout, implementation of the MHM concept in the country is important, so require widely advocacy at the policy level, national and international contribution and community support, there are several recommendations that come out of this analysis.

11.1. Access to Sanitary Pads

Cost of sanitary pads affects the easy access to sanitary pads, which were cited a reason for not using sanitary pads, while all girls indicated the use of pads as the most preferred material for use during menstruation.

At the baseline assessment, the most respondents did not experience any family or societal support/care during menstruation, there is no menstruation hygiene management program at schools, public and workplace for women/girls, they don't have access to sanitary pads by the schools, health facilities, family and community, while fewer women/girls have easy access to sanitary pads through their own money or provided by their families, while at the end-line assessment, there are significant increases in the family and societal support and easy access of Girls/women to sanitary pads through the project (Health facilities, schools and health posts). So it has been concluded that implementation of MHM programs at the national level will contribute to the reproductive health burden and changes to cultural norms and community believe towards menstruation hygiene. There was difference were documented regarding the source of sanitary pads. Local shops, pharmacies, and local stores were reported as the main sources of getting sanitary pads.

11.2. Knowledge of Menstruation

At the baseline, there was no different views expressed by respondents regarding knowledge of menstruation in control and treatment districts, while at the end-line, significant increases regarding the knowledge of the women/girls seen, which the knowledge component of the MHM project widely affected the level of awareness/knowledge, the sources of information regarding menstruation where adolescent girls obtained are similar, girls often preferred getting information from people that trusted the most. Sources of information as mentioned by girls included mothers, sisters, friends, teacher, and others, while the information by different sources was not adequate and that they needed more insight into the topic. Girls reported wanting more information to help them manage menstruation more effectively. The enumerators found girls were feeling shy when asking questions about menstruation during the survey, most of girls reported that they did not have information about menstruation prior they attained menarche (Baseline).

The baseline assessment data shows, girls and women having lack of information about the organ where bleeding occurs, knowledge about the cause of menstruation, the risk of sexual relation during menstruation and how long last every menstruation normally. They don't have information about special need of nutritional, psychological and social care of women of reproductive age and how to manage if they face to heavy pain or skin rash during menstruation, while the end-line assessment data shows, that the respondents have more information about the menstruation, menstruation hygiene and special need of nutritional, psychological and social care of women of reproductive age.

In some cases, at the baseline assessment the enumerators indicated that due to the low level of awareness about menstruation among community members, menstrual management practices is poor among women in general and adolescent girls in particular. They noted that girls often do not maintain good hygiene during menstruation and they indicated that women and girls are at risk of infection that may lead to got infectious diseases, while at the end-line assessment, such cases became very few.

11.3. Practices

The baseline assessment data shows, there was similarity on the material they use as menstrual absorbent by girls and women. Some of the common menstrual materials used by women/girls included a sanitary towel, sanitary napkins, old washed cloth, pad + old washed cloth, pad + new cloth and other menstrual cloth and most of them used washed old clothes while in some respondents reported nothing to use any materials as absorbent during menstruation. However, the end-line assessment data shows that significant increase in the demand of girls and women in the use of sanitary pads provided by the MHM project.

Personnel hygiene of women/girls during menstruation is restricted and they avoid washing vaginal areas, their hands with water and soup. There are miss-practices about the changing of menstrual materials, pads, and underwear during menstrual days, washing of the reusable pads/ underwear and hands with water and soup after changing the pad/underwear (baseline assessment), though, there are significant changes seen on the personal hygiene during menstruation at the end-line assessment.

Most of the women/girls are noted that they experience Premenstrual Syndrome Symptoms including Headache, Backache, Lower abdominal pain, Fatigue and weakness, Mood swings and so on, If they face severe pain or skin rash during menstruation, they mostly manage themselves and use hot pack , traditional medicines/food (Chawa, Litti) or take pain killer drug.

Disposal of menstrual materials differed among users of usable and re-usable pads, Women/girls who are using reusable menstrual cloths often wash used materials and dry them through sunlight, iron, dark place, and hidden place and keep their re-usable pads after changing the pad for reuse in safe/unsafe and hidden places. The data shows that some of the women/girls keep their re-usable pads in unsafe and hidden places.

The women/girls are practicing different strategies to dispose of used pads. Depending on the type of facilities available, girls sometimes buried them and in some instances, they burned the pads. In some instances, they thrashed used pads in dustbins or open areas which is a danger for the spread of infections in the society.

11.4. Attitude and Behaviors

The baseline assessment shows, there is a lack of menstrual management materials, they do not have easy access to clean pads during menstruation period, in some cases who have access, they get the sanitary pads from the local market by their own money, there is a lack of family support and most importantly facilities for affected girls' on ability to deal with stressful situations associated with menstruation. School girls did not have access to information and social support if they were at school. However, following the implementation of the MHM pilot project, access to the sanitary pads and family/societal support increased (End-line assessment). There is no menstruation related education in school curricula.

No difference was observed regarding attitude and behaviors in different targeted community, girls/women are having experience restriction in specific foods, physical activities, social gathering, pray, taking shower and school attendance, they followed a specific diet during menstruation and avoid some fruit, beverages, vegetable, and spicy and sour food, girls reported that they are told by their mothers if they drink cold water or eat sour food or fruit like lemon, they will become sick and have "Gazak" in their body.

Except a few women/girls, most of them did not take shower during menstruation. In some cases, women/girls were not allowed to participate in different ceremonies including funeral ceremony, social events and Graveyard/Ziarat, Lack of awareness among girls/community and stigma associated with menstruation affects cultural believes and practices.

Regarding that the menstruation disturb girls/women daily routine, most of the respondents reported that menstruation affect their routines including, Going to ceremonies, Graveyard/Ziarat, social events, school and to work, it affect their house chores, pray and fasting as well as absenteeism and restriction to school attendance during menstruation, there was the same feeling among women/girls from intervention and non- intervention.

In most of the cases, women and girls reported that they do not take shower during menstruation; surveyors also added that some women in the community have this belief that it is not good to take shower during menstruation as it will bring them harm or become sick.

Community behaved to determine some type of activities women/girls could not engage during menstruation. Women/Girls did not participate in household work including washing, cooking, laundry, and household cleaning. This was particularly reported in Farza district, that families do not allow girls and women to cook and huge the newborns indicting they are not clean (Baseline assessment).

Girls mentioned that they did not engage in physical activities/play outside; they reported that family members think it is not good for them to engage in outside activities as they are now grown adults.

12. ACKNOWLEDGMENT

The Operation Research on Menstruation Hygiene Management as an innovative project has initiated by MOVE WELFARE ORGANIZATION with the support of JPIHGO/HEMAYAT, baseline and end-line evaluations utilized a quantitative approach to collect valuable information concerning the existing MHM conditions in the selected districts, data collected from women and teenagers using a household questionnaire (quantitative). The operation study conducted in 4 districts of Kabul province in Afghanistan. The operation study designed with technical input from study core team and project operation team. MOVE led and implemented the project, conducted the research study (Baseline and end-line assessments), analyzed interpreted and prepared the reports with full coordination with relevant stakeholders.

I believe this has been the result of the committed research team and incredibly devoted volunteers from Kabul-BPHS team. I thank you all for support in the implementation of the operation research.

For me, this has been a very satisfying study and I look to resolving more studies, undertaking more developing to our values and our mission in the future.

We place on record our sincere thanks to the partners and stakeholders for their diligent support and guidance, without their support such study was not possible, once again I want to extend my thanks to the MoPH-RH department, MoPH-Health promotion department, MoPH-IRD, MoPH-HMIS department, Kabul- PPHDs, District Authorities.

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12.1. The study core team members

No	Name	Qualification	Title	Role in the study
1	Abdul Malok Khalili	MPH/MD/DLDP	General Director	Principle Investigator
2	Abdul Latif Rashed	MPH/MD/MBA	Program Director	Co-Investigator
3	Fahima Aram	Ob/Gyn (Kabul Medical University)	Chief/Lecturer	Co-Investigator
4	Manizha Khalili	Ob/Gyn (Kabul Medical University)	Lecturer	Co-Investigator
5	Deeba Shekaib	Ob/Gyn (Kabul Medical University)	Lecturer	Co-Investigator
6	Sumaira Yaftali	Ob/Gyn (Kabul Medical University)	Lecturer	Co-Investigator

12.2 List of Institutions facilitated implementation of the study

- Kabul Medical University
- MOVE WELFARE ORG
- District Education Office
- JHPIGO/Hemayat
- MoPH/APHI/IRB/RH/Health promotion/HMIS/Kabul-PPHD
- SEHAT/Health Facilities /HPs

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