BANGLADESH

RESEARCH REPORT

JANUARY 2022

A feasibility study on sexual and reproductive health (SRH) and family planning (FP) information pocketbook for use of Rohingya refugees in Bangladesh

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Acknowledgment

We acknowledge with gratitude the commitment of Grand Challenges Canada (GCC) to its research efforts, since our project was funded by Grand Challenges Canada (GCC), grant number GR-01848. icddr,b is also grateful to the Governments of Bangladesh, Canada, Sweden and the UK for providing the core/unrestricted support.

List of Abbreviations

BCC	: Behavious Change Communication
CHW	: Community Health Worker
CHWG	: Community Health Working Group
CPI	: Community Partners International
DC	: Deputy Commissioner
DFHS	: Directorate General of Health Services
DGFP	: Directorate General of Family Planning
HH	: Household
FDMN	: Forcibly Displaced Myanmar Nationals
FP	: Family Planning
IEM	: Information, Education and Motivation
MCHD	: Maternal and Child Health Division
MoH&FW	: Ministry of Health and Family Welfare
NGO	: Non-Governmental Organization
RRRC	: Refugee Relief and Repatriation Commissioner
SDG	: Sustainable Development Goals
SRH	: Sexual and Reproductive Health
SRHR	: Sexual and Reproductive Health Rights
SRHWG	: SRH Working Group
UHC	: Upazilla Health Complex
UH&FWC	: Union Health and Family Welfare Centre
UNFPA	: United Nations Fund for Population Activities
UNHCR	: United Nations Refugee Agency
WFS	: Women Friendly Spaces
WLCC	: Women Led Community Centers
WRA	: Women of Reproductive Age

Executive Summary

A violent and discriminating event had forced the ill-fated Rohingya people, residents of Rakhine State of Myanmar, to migrate on a large scale to Bangladesh since August 2017. More than 900,000 Rohingya men, women and children fled to Cox's Bazar, Bangladesh and took shelter under the government of Bangladesh. Triggered by the situation, over the years, Rohingya women and girls are facing extensive discrimination against their fundamental human rights, sexual violence, rape, abuse, abduction, and such experiences lead to knowledge and awareness gap about their sexual and reproductive health. The Sustainable Development Goals (SDG) prioritized sexual and reproductive health (SRH) and targeted to ensure access to sexual and reproductive health and rights (SRHR) for everyone, including the forcibly displaced Myanmar nationals (FDMNs) by 2030. Despite the presence of numerous challenges like the geography of the refugee camps, sensitivity regarding the topic, community trust issues, and superstitions, scientists, researchers along with policymakers are working to improve the quality of sexual and reproductive health-related knowledge, attitude and practice among the Rohingya females inhabiting Cox's Bazar, Bangladesh.

An operations research including community-based baseline and endline surveys was performed among the married Rohingya women and girls aged 15-49 years to increase the knowledge and capacity on sexual and reproductive health and family planning issues by introducing a pictorial pocketbook written in the Burmese language. With pictures to illustrate the basic but crucial knowledge on sexual and reproductive health and family planning-related topics such as adolescent health, menstrual hygiene, the ideal time for marriage and pregnancy, family planning methods, antenatal care and postnatal care, danger signs for pregnancy and newborn, the importance of skilled birth attendance, etcetera were described in that pocketbook. These contents were Burmese translation and transliteration of the existing behaviour change communication (BCC) materials by the Information, Education and Motivation (IEM) unit of the Directorate General of Family Planning (DGFP).

Using two-staged simple random sampling, during baseline 340 and at endline, 343 married Rohingya women and girls of reproductive age were selected for the interview. After the data collection and data cleaning, Stata 15 (StataCorp LLC, College Station, TX, USA) was used for analyzing the data.

During both surveys, more than half of Rohingya women and girls were from the age group 20-29 years old, and almost all of them did not have any formal education. Around two-thirds of the respondent's husbands were from the 21-40 years old age group, and the majority were also non-educated. The majority of the females selected for the studies were Muslim and

unemployed. More of the husbands during the endline were unemployed than in the baseline. Almost half of the population had a large family of 5-9 members. They hardly had earning members in the family.

Above 80% of the selected Rohingya women lived with their husbands. Most of them were married only once in life. Around 60% of them were married at or above 18 years old during both surveys. However, their knowledge on the ideal time to get married for women (at least 18 years old) increased from 68.5% in baseline to 74.1% in endline. Around 65.6% of participants during baseline experienced adolescent pregnancy. This percentage decreased to 59.2% during endline, which was still high for adolescent pregnancy. Around 67.5% of them in the baseline said they preferred adolescent pregnancy. This percentage decreased to 51.1% in the endline, which was high. Less than 50% of participants knew about adolescent age, though the percentage increased during the endline.

The majority of the participants knew about menstrual hygiene. They used sanitary napkin or cotton more than other menstrual products during baseline. However, at the endline, the menstrual cloth and sanitary napkin usage were reported to be the highest to maintain the menstrual hygiene. Participants who used cloth knew the proper cleaning method of menstrual cloth.

Around 49.7% in the baseline thought 3-5 children is the ideal number of children to have. The percentage of respondents who believed it even increased to 55.7%. On the other hand, only around one-third of the respondents believed that 1-2 was the ideal number of children. The knowledge on the family planning method decreased from 97.1% to 95%. Along with other sources like government or non-government health workers, doctors, yard discussion sessions, neighbours, 3.7% of them in the endline heard about family planning methods from sexual and reproductive health (SRH) and family planning (FP) information pocketbook provided as intervention. Among many family planning methods, the most popular ones were injections, implants, pills, condoms, and IUD. However, only one-fifth of the respondents knew about emergency contraception.

The respondents received support from both their husbands and other family members regarding the usage of the family planning method. Over time, the support from the husband increased from 62.4% to 65.9%, and the support from other family members increased by 7% regarding this matter. According to the interview, they support these usages mainly because of maintaining a small family, good health of mother and child, the better quality of life etc. The religious barrier was still a major reason for people against family planning methods. Another big reason was the fear of side effects.

The majority of the respondents knew about antenatal care, birth preparedness and postnatal care. However, when it came to the number of required antenatal care, they mostly had the wrong information. The knowledge on different components of antenatal care increased over time, except the knowledge on blood pressure. The individual components of birth preparedness mainly decreased among the respondents of two time periods. The knowledge of the danger signs of pregnancy also decreased over time.

The usage of family planning methods increased from 57.6% to 62.1% during the intervention period. Injectables, followed by pills, were the most used family planning methods during both periods. The respondents informed that they received their family planning methods primarily through refugee camp primary healthcare centers, government and private/NGO health workers, pharmacy etc., during both times. Religious prohibition was one of the major causes of not using any family planning method during the endline.

The community health workers (CHW) visited most of the respondents' houses during baseline and endline. Although the CHWs visited the respondent's houses mainly 1-3 times per month during baseline, they increased their visits to 4-5 times monthly after the intervention. During visits, they mostly distributed good health and hygiene products, talked about family planning methods, discussed antenatal care, made a list of pregnant women, etcetera.

Around 87.2% of the respondents knew the pocketbook on sexual and reproductive health and family planning (SRH-FP) issues. Almost all of them received the book, and the CHWs were the main sources. Around 61.2% read the book on their own. Above fifty percent of them read the book at least once a month. From the pocketbook, they mostly learnt about menstrual hygiene, danger signs of pregnancy, family planning, correct age of getting married and having child etc. Less than 50% of them discussed this pocketbook with others. Neighbours, husbands, and brother's wives remained the preferable group of people to the respondents to discuss the pocketbook.

Around 68.2% of respondents who received the book liked the pocketbook. Around 69% of them believed that this book could help people increase their knowledge on SRH-FP matters. Overall, they advised some changes that can be made to make this pocketbook even better, such as making the size larger or making the mirror bigger etc.

Overall, the SRH-FP pictorial pocketbook made significant positive changes in knowledge and practice of several sexual and reproductive health-related matters. However, there are still gaps of knowledge among many married Rohingya women and girls of reproductive age. Due to the COVID-19 pandemic, movement inside the Rohingya camp was strictly maintained during the intervention period, making it difficult to arrange the monthly knowledge sharing sessions planned as part of this project. Future projects and interventions should include plans

for precautions against the COVID-19 pandemic to achieve more success from their intervention.

Background

The Rohingya refugee crisis is not new to Bangladesh. After the initiation of the Emergency Immigration Act by the military government of Myanmar in 1978, the Muslim Rohingyas began migrating from the Rakhine State, Myanmar, to Bangladesh since the last few decades. In 2011, the United Nations Refugee Agency (UNHCR) indicated that more than a quarter-million of Rohingya refugees were already dwelling in Bangladesh; among them, only 11% were recognized, and the rest were either unrecognized (14%) or undocumented (75%) by the Bangladesh government and other national and international non-government organizations (1, 2). To make matters worse, the armed conflict and violence of August 2017 in Rakhine State triggered an influx of more than 700,000 additional Rohingyas. During humanitarian emergencies, rape, abuse, sexual violence, abduction become highly prevalent, leaving women and girls the most susceptible group. To add insult to injury, years of systematic discrimination, deprivation from fundamental human rights, and targeted violence resulted in significant knowledge gaps, lack of awareness, and superstitions on women's sexual and reproductive health in the Rohingyas (3, 4).

Although, sexual and reproductive health (SRH) is one of the compulsory prerequisites to ensure individual and community-level health, well-being and fundamental human rights. Besides, the Sustainable Development Goals (SDG) also targeted that by 2030 everyone would have access to sexual and reproductive health and rights (SRHR) (5). Even so, estimation suggests that one in every three forcibly displaced Rohingya women got married before the age of 18 and due to limited access to sexual and reproductive health services, one-third of death cases of women of reproductive age (15-49 years) accounted for pregnancy, childbirth and puerperium deaths (6, 7). The irony is that 60% of the women of reproductive age (WRAs) deaths occurred in the community (7). Along with these barriers, the geography of the refugee camps, sensitivity regarding sexual and reproductive health, community trust issues, superstitions, etcetera wreaked a challenging environment for the scientists, researchers, and policymakers to intervene to improve the quality of the SRHR among the (forcibly displaced Myanmar nationals) FDMNs (8).

Bangladesh is currently home to 191,552 Rohingya families, totaling 913,660 Rohingya people (9). The great majority of the people in this humanitarian group were female (52%), and among them, more than half were women of reproductive age (15 – 49 years). Also, data suggests that one in every ten displaced women were pregnant (9, 10). More than 40% of the Rohingya women knew about the minimum number of antenatal care (ANC) necessary in one pregnancy; however, one in five women did not possess any knowledge about the minimum number of ANC. Of the ever-pregnant Rohingya women, only around 43% received the world

health organization recommended minimum of four antenatal care (ANC) visits during one episode of pregnancy, yet most of the last birth (85.2%) took place at home. On top of that, some risk factors like lack of health post, transporting mother to the health facility, emergency night-time labor, security, etcetera were baffling the improvement of the reproductive health services (11).

Although 90% of Rohingya refugee women were well aware of a minimum of one modern family planning method, recent survey findings illustrated that the contraceptive prevalence rate in the Rohingya community was just 51%, and a surprising sharp 13% drop was observed in the uptake of contraceptive methods for every one year decrease in age at first marriage. The level of academic qualification of the Rohingya women did not affect the uptake of the family planning method. Thus, it supports the idea that this displaced group of women did not have any proper comprehensive understanding of short or long term contraceptives and continued to spread misinformation about the contraceptive methods in the community due to the criticism from the husband or the religious view (12).

In any humanitarian emergency, two-way communication was considered one of the most predominant barriers in limiting the miseries of the displaced population. Concomitantly, the two-way communication with the Rohingya refugees still remains a crucial hindrance in developing the ability, knowledge, and capacity of SRHR among the Rohingya women and girls (13). Two out of every three Rohingya could not read or write, and more than one-third (36%) of the Rohingya did not understand the Chattogram dialect of the Bengali language, which the service providers more commonly used (14). 98% of Rohingya preferred their language for receiving information was the Burmese language which was significantly different from the Chattogram dialect of the Bengali language. According to the Translators Without Borders recommendation, the mixed methods communication, i.e., written and illustration of the information, could be the most efficacious methods of conveying information and developing concepts; and to attain and sustain the capacity of a large group of the population like Rohingya refugees, individual brochures, booklets, flyers, etcetera, were preferred rather than the large posters, banners, and signages.

By considering the need for sexual and reproductive health and family planning (SRH-FP) knowledge among the married Rohingya women and girls of reproductive age inhabiting Cox's Bazar, Bangladesh, this research project was implemented with an aim to increase the knowledge and capacity of the Rohingya women by introducing a pictorial pocketbook on sexual and reproductive health and family planning issued in the Burmese language. Thus, to achieve good SRHR health outcomes and ensure a better quality of life for the Rohingya population inhabiting Bangladesh as refugees.

Objectives

General objective:

- This research project aims to assess the feasibility, acceptability, and utility of a pictorial pocket book on sexual and reproductive health (SRH) and family planning (FP) issues in Burmese language among the married Rohingya women and girls residing in the refugee camps at Cox's Bazar, Bangladesh.

Specific objectives:

- To assess the feasibility of using and acceptability of a pictorial pocket-book on sexual and reproductive health (SRH) and family planning (FP) issues in Burmese language among the married Rohingya women and girls residing in the camps at Cox' s Bazar, Bangladesh.
- To document the utility of the SRH-FP pictorial pocket book among the married Rohingya refugee women and girls.

Methods

Study design

This was an operations research with community-based baseline, and endline surveys targeted the married Rohingya refugee women of reproductive age (15-49 years).

Study setting

The study was implemented in one of the selected Rohingya refugee camps of UNFPA Women Friendly Spaces (WFS)/ Women-Led Community Centers (WLCC) facilities through collaboration with UNFPA at Kutupalong, Cox's Bazar, Bangladesh.

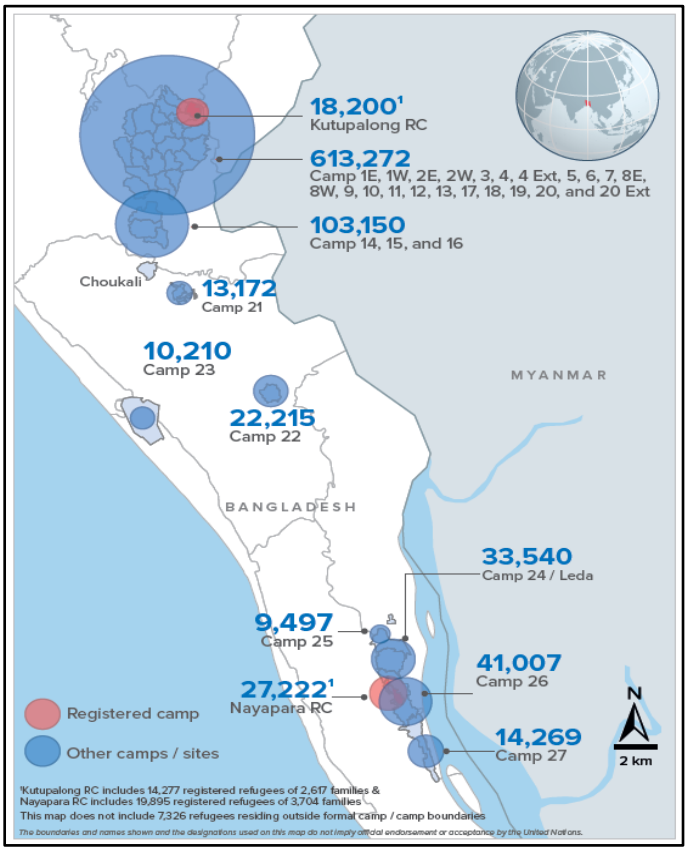

Figure 1: Refugee population density, UNHCR, Population Fact Sheet (31 August 2019)

Although more than 50 organizations have been working on SRH in Rohingya refugee camps in Cox's Bazar, the UNFPA was the leading organization from the SRH working group (SRHWG) in the camps (15, 16). The UNFPA Rohingya Humanitarian Response has been providing sexual and reproductive health (SRH) and gender-based violence (GBV) services, including safer pregnancy and childbirth, mobile health teams, safe spaces, psychosocial support, dignity kits, contraceptives, the harmful practice of child marriage, lifesaving maternal health medicines, and life skills and livelihood training to women and young people (17). More than 300,000 married Rohingya women of reproductive age were residing in a total of 34 Rohingya refugee camps at Cox's Bazar(on an average 9,285 women per camp) (Figure 1) (15, 18).

UNFPA, in collaboration with World Food Programme (WFP), inaugurated 10 WLCCs to train and support both women and girls, boys and men from refugee and host communities. Also, 'Girl Shine' sessions were conducted for adolescent girls in UNFPA supported WFS addressing child marriage, safety mapping, pubertal changes, comfortable and uncomfortable

touch and safety (adolescent girls), power at home (caregivers). Currently, 14 camps had UNFPA WFS/WLCC facilities (Figure 2) (19).

The Innovation: A pictorial pocket book on SRH-FP related information in the Burmese language

A pictorial pocketbook on SRH and FP related issues in the Burmese language was developed. The SRH-FP pocketbook contained concise information on adolescent health issues; menstrual hygiene; early marriage and pregnancy; modern methods of contraception; ante-natal care; birth preparedness; skilled attendance at birth; neonatal health issues; and post-natal care.

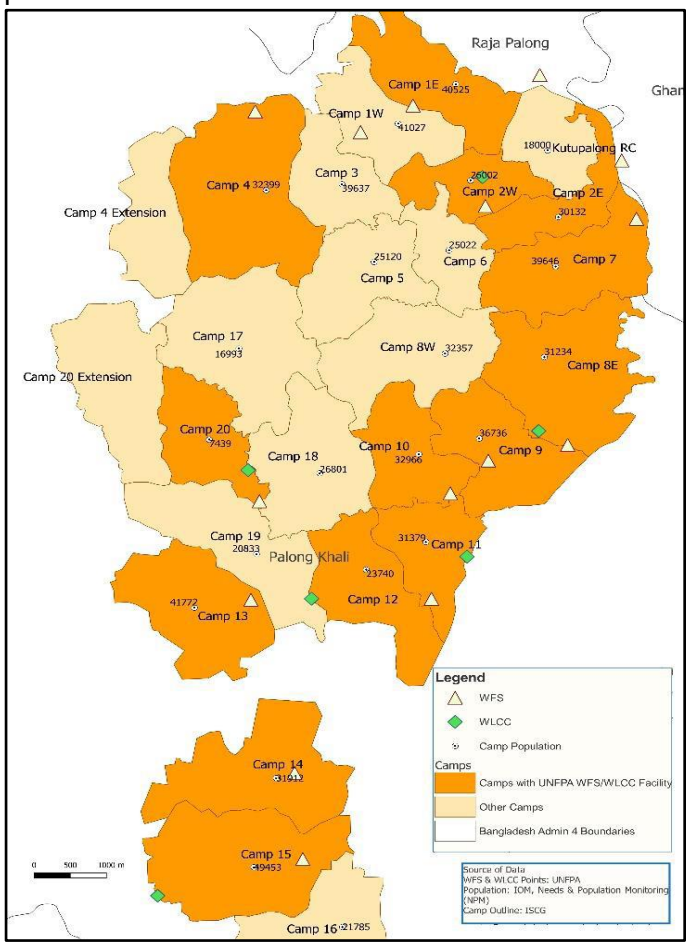

Figure 2: UNFPA-WFS/WLCC facilities

The SRH-FP pocket-book used pictures to illustrate concepts described in the text. The contents in the pocketbook were adopted from the existing BCC (Behaviours Change Communication) materials of the Information, Education, and Motivation (IEM) unit of the Directorate General of Family Planning (DGFP). The pocketbook cover had been adorned with a mirror and decorative jewels and attached to a key chain ring on one end to make it attractive and practical to women and girls. As there was no standardized script for the Rohingyas, the information shared in Bengali in the existing BCC materials of IEM, DGFP were translated to Burmese and then transliterated using Burmese script to maximize users' comprehension of the material. The SRH-FP pocketbook

as delivered to all married Rohingya refugee women and girls aged 15-49 years residing in the camp in Cox's Bazar who were selected to implement this project.

Community Health Workers (CHWs)

Nearly 30 health sector partners implement community outreach activities in the Rohigya refugee camps. These activities were coordinated through a Community Health Working Group (CHWG) under the health sector, responsible for strengthening and standardizing health outreach activities. The co-chair team included UNHCR and Community Partners International (CPI) (16). CPI has been working in partnership with Rohingya communities to train and equip a network of Rohingya Community Health Workers (CHWs). These CHWs travel from house to house in their neighbourhoods, educating households on how to stay healthy, helping them understand the health services available, distributing health and hygiene supplies, monitoring health and referring those in need of care to suitable health facilities (20). The CHWs also encouraged women in labour to go to health facilities and sometimes even bring them to health facilities (15).

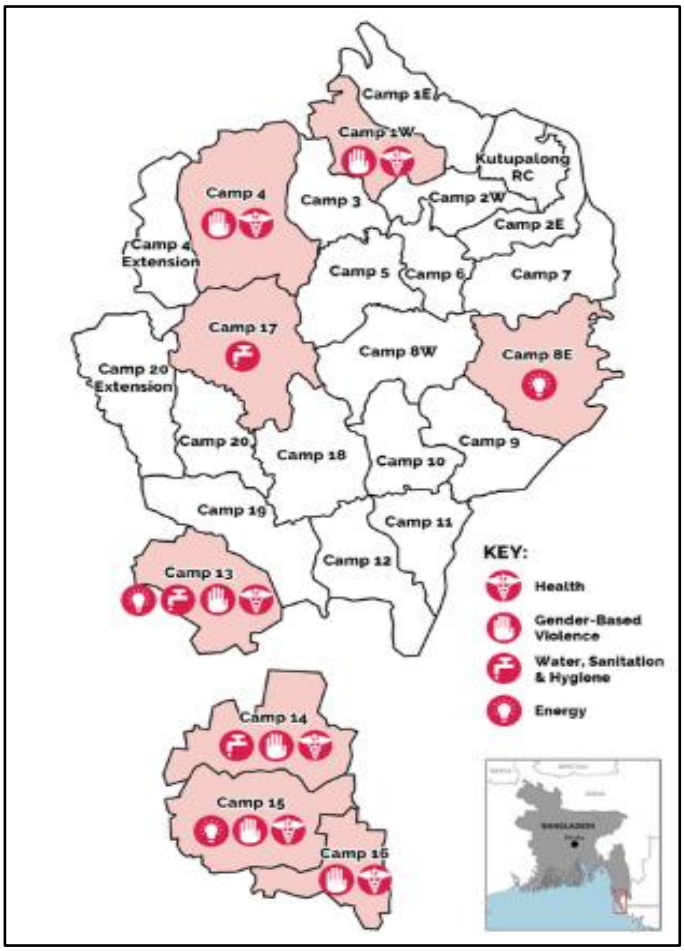

Figure 3: CPI Service Coverage in Rohingya Refugee Camps in Cox's Bazar, Bangladesh

Project Implementation

The study period was between August 2019 to December 2021 and the project was implemented in six different phases as described below –

Phase I: Adaptation of DGFP's existing BCC materials in Burmese language

In Phase I, following activities had been done:

- icddr,b with support from the IEM unit of DGFP and an expert on the Burmese language, translated and adapted the existing SRH-FP materials appropriate for the Rohingya refugees setting.
- SRH-FP information/messages for the unmarried boys/girls and the men were also included as a content of the pocketbook.
- Arranging technical committee meetings with key relevant stakeholders and experts to review the preliminary SRH-FP pictorial pocket book and study implementation plan.
- Revising the SRH-FP pocketbook and study implementation plan based on recommendations from the technical committee meetings.
- Receiving approval of the translated SRH-FP pocket book from the technical committee and IEM unit of DGFP.
- Printing the SRH-FP pocket book in the Burmese language.
- Providing training to the baseline data collectors, pretesting the baseline and endline data collection tools at a similar setting other than the original study site.
- Revising the data collection tools after the pretest and preparing the team for the baseline data collection.
- Introducing the project to the icddr,b project staff and implementing the plan to all the staff at UNFPA WFS/WLCC facility in the selected Rohingya refugee camp.

Phase II: Baseline survey

In Phase II, a baseline survey was carried out to assess the target population's current SRH-FP knowledge and practices in the selected Rohingya refugee camp in July 2020. Using the two-stage simple random sampling method, samples were selected for data collection during the baseline survey. Major activities under this phase were as follows –

Step 1: Identifying married Rohingya women and girls aged 15 - 49 years

The field team started their data collection by spinning a bottle at the central location of the selected Rohingya refugee camp at Kutupalong, Cox's Bazar, to determine the first household based on the direction of the bottle. All households in the direction determined by spinning the bottle were visited, and each eligible, currently married Rohingya woman and girls of reproductive age (15-49 years) in the selected household were invited to participate in the study. If a selected household had two or more eligible

women/girls, one was randomly selected by lottery method. If an eligible woman /girl lived in a selected household but was absent at the time of the visit, the field team had obtained information on her availability from other household members, their neighbours or the people adjacent to the household and scheduled a further visit. The process of identifying currently married women and/or girls of 15-49 years was repeated until the required sample size was obtained.

Step 2: Administration of a structured questionnaire to the randomly selected samples

Four female data collectors collected baseline data using a structured questionnaire from 340 randomly selected married Rohingya refugee women and girls that met the project inclusion criteria and agreed to participate in the study. A Field Supervisor regularly supervised data collection activities of the data collectors.

Phase III: Training of the Community Health Workers (CHWs) and distribution of the SRH-FP pictorial pocket book through them

The CHWs working in the selected Rohingya refugee camps were trained on different contents of the SRH-FP pocket book. After the training, the pocketbook was distributed among all the married Rohingya refugee women and girls aged 15-49 years in the selected camp, where the baseline survey was conducted.

In addition to their regular responsibilities during routine household visits, the CHWs provided with comprehensive information on SRH-FP issues illustrated in the pocketbook to the married Rohingya refugee women and girls. The CHWs were competent in guiding the women to visit the proper service provider to receive SRH-FP services. The women and girls were encouraged to ask questions on the contents of the pocketbook. CHWs also selected enthusiastic peer educators from the target population who agreed to discuss the pocketbook with their peers.

Phase IV: Monitoring of field implementation activities

After baseline data collection, the data collectors visited the households and worked with CHWs to ensure proper distribution of the pictorial pocketbook among all the target populations in the selected camp. They also identified peer educators and trained them on the SRH-FP pocketbook.

There was a plan to arrange weekly courtyard sessions with the married Rohingya women and girls aged 15-49 years to further discuss the contents of the SRH-FP pictorial pocketbook

by the CHWs and the peer educators. However, the plan failed due to the lockdown, and movement restriction was applied because of the COVID-19 pandemic.

Phase V: Endline survey

To evaluate feasibility, acceptability, and utility, the information from randomly selected 343 married Rohingya refugee women and girls aged 15-49 years using a structured questionnaire were also collected in July 2021. Samples were drawn from the group of women and girls among whom the SRH-FP pocket book was distributed. The sample selection was made independently by a statistician based on a computer-generated random sequence.

Phase VI: Analysis and dissemination of evaluation findings

A final analysis of the baseline and endline data during this phase and drafted a final report. We held a stakeholder meeting to report on using the SRH-FP pictorial pocketbook, gained feedback from the users and stakeholders, discussed recommendations for future use of the pocketbook to the married Rohingya refugee women and girls residing in all the refugee camps at Cox's Bazar.

Sample Size Calculation and Outcome (Primary and Secondary) Variable(s)

Sample size calculation

The sample size was determined considering 34% estimated prevalence of contraceptive use as a proxy indicator of utility of the SRH-FP pictorial pocket-book among the target population.

Assuming 5% error, 95% confidence level, 5% non-response rate, design effect at 2.0 and change in contraceptive use up to 50%, the total sample size was around 340 married Rohingya women aged 15-49 years. This study estimated the sample size using STATA 15.0 (Stata Corp LP, College Station, TX, USA).

Outcome variables

Primary outcome variable:

Improvement in sexual and reproductive health knowledge and family planning of the married Rohingya refugee women and girls aged 15-49 years.

Secondary outcome variable:

Increase utilization of modern contraceptive methods.

Quality Assurance of Collected Data

Following steps were taken to assure the quality of data collection throughout the study:

- Recruitment of efficient and experienced personnel for data collection.
- Extensive training of project staff on the data collection tools.
- Pretesting of the data collection tools.
- Regular monitoring and supervision of data collection activities by the Field Supervisor and frequent field visits by the central research team.
- Spot checking by the Field Supervisor and the central team; this picked out 5% of random samples for examination to ensure high quality.
- Field level scrutiny of every completed interview schedule, initially by the Field Supervisor and another data collector for completeness and consistency.
- Unscheduled visits by the central research team to the study sites to observe interviews, review completed questionnaires, and provide necessary advice to the interviewers.

Training of field team and pre-testing of data collection tools

The interviews were conducted by a dedicated field team consisting of four data collectors supervised by a Field Supervisor. The central research team was responsible for training the field staff on data collection methods. The duration of the training was two weeks, including classroom training, mock interviews, and field practices. The intention of each question was explained and illustrated through mock interviews, where one interviewer was interviewed another in front of the class.

Because this study dealt with married Rohingya refugee women aged 15-49 years and there was a chance of them feeling emotionally or physically stressed at the time of the interview, the data collectors were well-trained in approaching the respondents in a manner that ensured their comfort. During providing training, special attention was dedicated to the ethical principles of researching human subjects, especially the confidentiality of information obtained and privacy of the study participants, including obtaining informed consent (voluntary participation, right to withdraw).

The field team was also trained to listen and observe while maintaining neutrality and without displaying any judgmental attitude towards the information they received from the respondents. All investigators underwent the NIH/FHI research ethics course and certification as a matter of course.

Pre-testing was done to address any issues related to the data collection tools and make the data collectors benefit from the practical administration of the tools in a real field situation. As pa part of pre-testing, 10 interviews on survey questionnaires were done.

Classroom sessions were arranged to review pre-tested questionnaires and checklists and discuss problems followed each day of field practice.

Field monitoring, spot checking and back checking

The central research team established an effective monitoring and supervision system. Frequent visits to the field sites and spot-checks of data collection using a standard checklist. The data collectors were expected to ask questions properly (as they had written), ask for and receive consent from all respondents, follow the skips/guidance as directed in the questionnaire. All these issues were checked by the central research team while monitoring the field activities. At the end of each day's monitoring visit, the research team compiled their feedback and shared it with the field team.

For a handful of randomly selected households, re-checks were arranged. The research team asked respondents 2-4 questions (which was not time-sensitive) from the survey questionnaire. The answers were then compared with the original survey data.

Early data checking

The data management team collected the first 100 data from the household survey and went through this for providing feedback to the interviewers for the better quality of data sets.

Data Analysis

Data was edited and entered into a purpose-designed database. After entry, the data cleaning process was done. The cleaned data had been stored on a computer drive with restricted access. For storage and analysis, these were transferred into Stata 15 (StataCorp LLC, College Station, TX, USA). Hard copies of the questionnaires had been kept at the icddr,b archives and archived in accordance with internal data regulatory guidelines. Data analysis was conducted in Stata 15 (StataCorp LLC, College Station, TX, USA). Descriptive statistics were done; bivariate measurement was used to identify the variations into results among the two time periods. The intervention was considered to be effective if significant change in the key outcome indicators were observed during the endline survey than during the baseline survey. P-value less than 0.05 were considered as statistically significant.

The feasibility of the intervention was measured by the proportion of married Rohingya refugee women and girls aged 15-49 years independently and correctly using the pictorial pocket-book; the proportion of community health workers (CHWs) independently and correctly disseminating SRH-FP information to the target population using the pictorial pocket-book; and the proportion of peer educators independently and correctly disseminating SRH-FP information to the target population using the pictorial pocket-book.

The acceptability was measured by the proportion of married Rohingya refugee women and girls aged 15-49 years with favourable impression to the pocket-book as a way of improving knowledge on SRH and FP.

The utility was measured by the proportion of married Rohingya refugee women and girls aged 15-49 years using the pictorial pocket book to gain SRH and FP information and the differences in the proportion of married Rohingya refugee women and girls aged 15-49 years using any contraceptive methods between baseline and endline period.

Data Safety Monitoring Plan (DSMP)

All interview notes were kept in a password protected electronic data storage system only accessible to the research team. The hard copies of the questionnaires would be destroyed to ensure confidentiality. Literature review and extractions were made from publicly protected research and reports.

Ethical Assurance for Protection of Human rights

Obtaining IRB clearance

The study protocol was submitted to the icddr,b Institutional Review Board (IRB) for clearance to ensure technical and ethical aspects be taken care of. Informed written consent had been obtained from all interviewees before conducting the interviews. In the case of illiterate respondents, they had been asked to give consent verbally, and thumbprints would be obtained.

The consent process clearly explained the purpose of the study, the type of information to be collected, the risks and benefits from participation in the study, mechanisms for maintaining the confidentiality of the information, their rights of voluntary participation and withdrawal, and sources of additional study-related information. The respondent was given the opportunity to ask questions.

Before implementing field activities, we obtained necessary approval from the Refugee Relief and Repatriation Commissioner (RRRC), Cox's Bazar, and the Deputy Commissioner's (DC) office, Cox's Bazar.

Data confidentiality

A unique identification number was assigned to each respondent; no names appeared on any documents apart from the informed consent forms. The consent forms had been kept separate from the completed questionnaires. Data was stored in a computerized database. Access to the dataset was limited only to the study lead or designated persons.

Potential harm to researchers and respondents during field work

Some of the respondents might have experienced violence and aggravation recently and maybe particularly traumatic. There was a risk that the interview may cause distress if it prompted them to think back to a challenging situation/time; to mitigate the risk, the data collectors were particularly trained on such situations and what to do if they felt that participation in the interview started to become too distressing or harmful to the respondent.

The data collectors were clearly outlined to the respondents that they could stop giving the interview at any time if they felt uncomfortable or distressed. Careful steps were taken in designing the data collection tools.

Referral for any issue

During data collection, if any respondent was found in need of medical help, the data collectors referred/suggested they check with the nearest available medical facility/provider. The data collectors had to clarify that they were not an expert or point of information for respondents should have any questions or concerns around health issues. The data collectors were not personally given any medical advice/suggestions, which could cause greater harm.

Collaborative Arrangements

To implement this study, the study team collaborated with the Directorate General of Family Planning (DGFP) under the Ministry of Health and Family Welfare (MoHFW), the Government of the People's Republic of Bangladesh, and UNFPA, Bangladesh. We sought their expert opinion in developing data collection tools and approaches for rigorous evaluation. We also utilized their expertise during data analysis.

Results

Socio-demographic characteristics

Age, education and occupation of the participants

This table presents the socio-demographic characteristics of the enrolled respondents during the baseline and endline survey. The majority (55.3%) of the respondents were between the ages of 20-29 at the baseline survey, while 60.1% of respondents were from that age group during endline (Table 1).

Table 1: Percentage of respondents by their socio-demographic characteristics during both surveys

Socio-demographic characteristics	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Age of respondents (in years)			
≤19	7.9 (27)	4.7 (16)	0.048
20-29	55.3 (188)	60.1 (206)	
30-39	20.9 (71)	23.3 (80)	
40-49	15.9 (54)	9.9 (34)	
>49	0 (0)	1.7 (6)	
Didn't Respond	0 (0)	0.3 (1)	
Years of schooling			
No schooling	75.3 (256)	82.2 (282)	0.005
Primary	22.4 (76)	16.9 (58)	
Secondary	2.4 (8)	0.9 (3)	
Religion of participants			
Islam	98.5 (335)	99.4 (341)	0.279
Hinduism	1.2 (4)	0.3 (1)	
Others	0.3 (1)	0.3 (1)	
Occupation of participants			
No job	96.2 (327)	95.3 (326)	0.976
Employee	0.3 (1)	2.0 (7)	
Day laborer	1.2 (4)	1.7 (6)	
Business	0.9 (3)	0.3 (1)	
Tailor	0.9 (3)	0.3 (1)	
Others	0.6 (2)	0.3 (1)	

Around 20.9% of participants were from the age group 30-39 during baseline, and 23.3% of participants of endline were in that age group. Participants between the ages of 40-49 were 15.9% at the baseline and 9.9% at the endline. A small number of participants (7.9%) were 19

or below years of age during baseline, while 4.7% were from this age group in the endline. Around 1.7% of participants were over the age of 49 in the endline, while no participants in baseline were from this age group (Table 1).

The majority of the participants during baseline and endline had no formal education (75.3% vs 82.2%). 22.4% of them had primary education during baseline, which dropped to 16.9% during endline. Only 2.4% of baseline participants had secondary education, which decreased to 0.9% in endline. Most of the participants during both surveys were Muslim (98.5% vs 99.4%). Some participants were Hindus during baseline (1.2%) and endline (0.3%). Rarely 0.3% belonged to other religions (Table 1).

Most participants were unemployed (96.2% vs 95.3%) during both surveys. Around 0.3% of the respondents in the baseline and 2% in the endline were job holders. A small number of day labourers (1.2% vs 1.7%) participated in the baseline and endline surveys. A few of the participants were businessmen (0.9%), and tailors (0.9%) in the baseline, and both percentages changed to 0.3% in the endline (Table 1).

Age, education and occupation of the husbands of the participants

Table 2 presents the characteristics of the husbands of the participants enrolled during baseline and endline surveys. Husbands of most of the participants (65.9% vs 65.3%) were between the ages of 21-40 during baseline and endline surveys. Around 28.5% of respondents from baseline and 21.6% of the endline had husbands from 41-60 years of age. Husbands of participants aged 61 or more years were 1.8% at baseline and 7.6% at the endline. A small number of participants' husbands were (3.2% vs 2.9%) below 20 years old (Table 2).

The baseline survey found that 69.4% of participants' husbands had no formal education, which increased to 77% in the endline assessment. Some of them had primary education during baseline (13.5%), which increased slightly (15.2%) during the endline. Also, 12.9% of them during baseline got secondary education which decreased to 6.4% in the endline. Around 4.1% of them in the baseline had higher education, which decreased to 1.5% in the endline (Table 2).

Most of the participants' husbands (48.5%) were unemployed, which increased slightly (59.8%) during the endline assessment. There were 18.6% day labourers during the baseline survey, which slightly increased to 21%. Among the participants, 13.6% at the baseline and 6.4% at the endline had husbands who were businessmen. A small number of participants' husbands (5.7% vs 3.8%) in the baseline and end-line assessments were service holders.

Table 2: Percentage of respondents by their socio-demographic characteristics during both surveys

Socio-demographic characteristics	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Age of husband (in years)			
≤ 20	3.2 (11)	2.9 (10)	0.000
21-40	65.9 (224)	65.3 (224)	
41-60	28.5 (97)	21.6 (74)	
≥ 61	1.8 (6)	7.6 (26)	
Didn't Respond	0.6 (2)	2.6 (9)	
Husband's years of schooling			
No schooling	69.4 (236)	77 (264)	0.027
Primary	13.5 (46)	15.2 (52)	
Secondary	12.9 (44)	6.4 (22)	
Higher	4.1 (14)	1.5 (5)	
Occupation of the husband			
No job	48.5 (164)	59.8 (205)	0.001
Day laborer	18.6 (63)	21.0 (72)	
Business	13.6 (46)	6.4 (22)	
Employee	5.7 (20)	3.8 (13)	
Fisherman	3.0 (10)	2.9 (10)	
Farmer	3.2 (11)	1.2 (4)	
Imam	1.8 (6)	0.6 (2)	
Lives and earns in abroad	1.2 (4)	0.3 (1)	
Others	4.4 (16)	4.0 (14)	

Among the rest of the participants' husbands (3% vs 2.9%), there were fishermen, farmers (3.2% vs 1.2%), imam (1.8% vs 0.6%), people who lived and earned in abroad (1.2% vs 0.3%) and some other professions (4.4% vs 4%) [Table 2].

Family characteristics

Family size, earning information of the family

Around 45.9% of respondents in the baseline and 43.7% in the endline had a family of 1-4 members. More than half (51.5% vs 54.2%) had a family of 5-9 members during baseline and endline surveys. Some respondents (2.6%) had family of 10 or more people during baseline, which decreased to 1.2% during endline. 0.9% of the respondents during endline didn't respond when they were asked about the size of their family (Table 3).

Most had no earning members in the family other than the enrolled married Rohingya women with a baseline value of 95.9% and an endline value of 94.1%. Only 4.1% and 5.8% of households had alternative earning members at baseline and endline surveys, respectively (Table 3).

Table 3: Percentage of respondents by their socio-demographic characteristics during both surveys

Socio-demographic characteristics	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Family size			
1-4	45.9 (156)	43.7 (150)	0.093
5-9	51.5 (175)	54.2 (186)	
≥ 10	2.6 (9)	1.2 (4)	
Didn't answer	0 (0)	0.9 (3)	
Have earning members other than herself			
Yes	4.1 (25)	5.8 (37)	0.000
No	95.9 (326)	94.1 (323)	
Own monthly income	**N = 11**	**N = 17**	
≤ 1000	18.2 (2)	11.8 (2)	0.092
1001-5000	63.6 (7)	17.6 (3)	
5001-10000	9.1 (1)	41.2 (7)	
> 10000	0 (0)	5.9 (1)	
Didn't answer	9.1 (1)	23.5 (4)	
Family's monthly income	**N = 25**	**N = 37**	
No income	0 (0)	8.1 (3)	0.000
≤ 1000	4 (1)	10.8 (4)	
1001-5000	56 (14)	54.1 (20)	
5001-10000	24 (6)	13.5 (5)	
> 10000	16 (4)	13.5 (5)	

The majority (63.6%) of the married Rohingya women enrolled in the baseline survey said they had an earning source, earned within the range 1,001-5,000 BDT, which decreased to 17.6% in the endline. More than one-third (41.2%) of the earning married Rohingya women enrolled during the endline survey earned within the range 5,001-10,000 BDT, which was only 9.1% during baseline. In the below 1,000 BDT earning group, there were 18.2% respondents during baseline and 11.8% respondents during endline. 5.9% of respondents earned more than 10,000 BDT during endline, but none in the baseline. However, around 9.1% in baseline and 23.5% in endline respondents did not respond when asked about their earnings (Table 3).

Besides the respondents, some also had earning family members. Among those respondents who had earning members in the family other than herself, around 56% in the baseline and

54.1% in the endline had family monthly income within the range 1,001-5,000 BDT. Around 24% in the baseline and 13.5% in the endline had family income within 5,001-10,000 BDT. Around 16% in the baseline and 13.5% in the endline had family income of more than 10,000 BDT (Table 3).

Marriage

Living with their spouse

Table 4: Percentage of respondents by their marital status during both surveys.

Marital status	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Husband stays with respondent			
Living with her	85.3 (291)	82.8 (286)	0.124
Staying elsewhere, within Bangladesh	6.5 (22)	6.4 (22)	
Staying elsewhere, outside Bangladesh	2.4 (8)	0.9 (3)	
Dead	5.6 (19)	9.3 (32)	
How many times in the last 12 months they met?	**N = 30**	**N = 25**	
0	93.3 (28)	60 (15)	0.012
1-10	3.3 (1)	20 (5)	
>10	3.3 (1)	20 (5)	

Table 4 presents the baseline and endline details of participants staying with their spouses during the survey. Most participants (85.3%) stayed with their husbands at baseline while 82.8% stayed with their husbands at the endline. A small number of participants (6.5%) reported at baseline that their husbands lived elsewhere but in Bangladesh, in the endline 6.4% participants said that their husbands lived elsewhere in Bangladesh. Another 2.4% of participants in the baseline and 0.9% in the endline reported that their husbands lived outside the country. A small number (5.6%) of participants in the baseline and 9.3% in the endline said their husbands were dead during the surveys. Around 93.3% at baseline and 60% at the endline said they had not seen their husbands once in the last 12 months. Only 3.3% in the baseline and 20% in the endline said they met their husbands one to ten times in the last one year. Another 3.3% of participants in the baseline and 20% in the endline said they met their husbands more than ten times in the last year (Table 4).

Details of marriage of the Rohingya women enrolled in the surveys

Regarding their marriage frequency, most of the respondents (98.8%) got married once during baseline, where the endline rate was 93.3%. Very few respondents in baseline (0.6%) remarried, while the percentage increased to 2.6% during the endline. Few participants in the baseline (0.6%) and the endline (4.1%) did not answer about their marital status (Table 5).

Table 5: Percentage of respondents by their marital status during both surveys

Marital status	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
How many times they got married?			
Once	98.8 (336)	93.3 (320)	0.000
More than once	0.6 (2)	2.6 (9)	
Didn't respond	0.6 (2)	4.1 (14)	
Age at first marriage			
≤14	13.8 (47)	12.2 (42)	0.665
15-17	26.2 (89)	26.5 (91)	
≥ 18	59.7 (203)	60.9 (209)	
Preferred age of marriage			
≤14	8.2 (28)	4.7 (16)	0.449
15-17	20 (68)	18.7 (64)	
≥ 18	68.5 (233)	74.1 (254)	
Didn't answer	3.2 (11)	2.6 (9)	

The majority of participants (59.7%) reported in the baseline that they were 18 or above years when they first got married, and in the endline, this rate was found to be slightly higher up to 60.9%. A number of participants at baseline (26.2%) and at the endline (26.5%) were between the ages of 15-17 at their first marriage. 13.8% of participants during the baseline and 12.2% in the endline were in the age group of 14 years or less at the time of their first marriage (Table 5).

Baseline shows that a large number of participants (68.5%) preferred to get married at the age of 18 years or more, while more participants (74.1%) preferred the same age category for marriage during the endline. Another group of (20%) participants in the baseline and 18.7% in the endline commented that their preferred marriage age was 15-17 years. In Baseline and endline, 8.2% and 4.7% of participants, respectively, preferred to get married at 14 years or below. Around 3.2% at baseline and 2.6% at endline did not answer this question (Table 5).

Birth history

Details on child birth of the Rohingya women enrolled in the surveys

More than ninety percent of the respondents (94.1% vs 96.2%) during both baseline and endline studies experienced child birth. At baseline 5.6% and at endline, 3.5% of the respondents didn't have the experience to give birth (Table 6).

Those who said they experienced childbirth were asked about the number of live births they had. At baseline, 37.8% and at endline 39.6% of respondents had 1-2 live births, while 41.3% respondents in baseline and 44.7% in the endline had 3-5 live births. Around 11.9% of respondents in the baseline and 11.2% in the endline had 6-7 live births, and only 7.8% respondents in the baseline and 4.2% in the endline had above 7 live births. Around 1.3% and 0.3% of respondents said that they had no live birth experience in both baseline and endline study, although when they were asked about the birth experience earlier, they responded positively to that question (Table 6).

In the baseline study, 65.6% of respondents said they experienced their first birth before or at 19 years, 30.3% at 20-29 years, 2.2% at 30 or above years and 1.9% respondents did not answer that question. During the endline, the responses changed to 59.2% for 19 years or below, 38.7% between 20-29 years, 0.9% at 30 years or above and 1.2 % respondents did not answer (Table 6).

Table 6: Percentage of respondents by their history of pregnancy during both surveys

History of pregnancy	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Ever gave birth			
Yes	94.1 (320)	96.2 (330)	0.582
No	5.6 (19)	3.5 (12)	
Didn't respond	0.3 (1)	0 (0)	
Number of live births	N = 320	N = 330	
0	1.3 (4)	0.3 (1)	0.162
1-2	37.8 (121)	39.6 (131)	
3-5	41.3 (132)	44.7 (148)	
6-7	11.9 (38)65	11.2 (37)	
>7	7.8 (25)	4.2 (14)	
Age at first birth			
≤ 19	65.6 (210)	59.2 (196)	0.254
20-29	30.3 (97)	38.7 (128)	
≥ 30	2.2 (7)	0.9 (3)	
Didn't answer	1.9 (6)	1.2 (4)	
Preferred age of first birth			
≤ 19	67.5 (216)	51.1 (169)	0.003
20-29	29.1 (93)	44.7 (148)	
≥ 30	0.6 (2)	0.6 (2)	
Didn't answer	2.8 (9)	3.6 (12)	

Among the respondents who experienced child birth, 67.5% preferred the age of below 19 years for first birth during the baseline study. During the endline, this percentage decreased to 51.1%. On the other hand, 29.1% of respondents in the baseline preferred 20-29 years, and during the endline, it increased to 44.5%. Around 0.6% of respondents from both studies preferred 30 years or above for first birth. A few participants during both baseline (2.8%) and endline (3.6%) did not answer this question (Table 6).

Adolescent period and menstruation

Knowledge on adolescent age

Around one third (31.8%) of respondents in baseline and 44% respondents in endline mentioned that they know adolescent age while 68.3% respondents in baseline and 55.7% respondents in endline did not know about the topic.

Around 73% of the respondents in the baseline survey who said they knew about adolescent age knew the correct adolescent age (10-19 years). This knowledge, however, decreased to 62% during the endline. Around 13% in the baseline and 26.7% in the endline thought the

adolescent age was 7-15 years. In the endline, 3.5% thought it was 18-25 years. 8.5% from the baseline and 6.4% from the endline mentioned other age groups as adolescents. Around 5.5% from the baseline and 1.4% from the endline said they did not know the adolescent age group despite saying yes to the question about their knowledge on adolescent age (Table 7).

Menstrual hygiene

The respondents were asked about menstrual hygiene during baseline and endline. Respectively, 98.8% in the baseline and 98.3% respondents in the endline said they knew about menstrual hygiene. Only 0.9% in the baseline and 1.5% in the endline respondents said they had no menstrual hygiene knowledge. On the other hand, very few respondents (0.3%) did not answer (Table 7).

In the baseline study, 37.1% of respondents experienced first menstruation at 12 years or before that age. In the endline, that percentage increased to 65.6%. Around 60.3% of respondents experienced first menstruation between 13-15 years, which decreased to 33.2% in the endline. Only 2.6% of respondents in the baseline study experienced first menstruation at or above 15 years, and it decreased to 0.9% in the endline. In the endline study, 0.3% of respondents did not answer about this issue (Table 7).Nearly 20.6% said during the baseline study that they had pre-knowledge on menstruation, which increased to 35.6% in the endline study. In the baseline, 79.1% of respondents said they had no pre-knowledge on menstruation, and the number decreased in the endline to 64.1%. On the other hand, 0.3% in the baseline and 0.6% respondents in the endline did not give any answer (Table 7).

In the baseline study, 45.7% of respondents mentioned that they had sufficient pre-knowledge on menstrual hygiene, and it increased in the endline to 57.9%. While another 45.7% said that they did not have sufficient pre-knowledge on menstrual hygiene, and it decreased to 32.2% in the endline study. Around 8.6% of respondents in the baseline and 9.9% in the endline did not answer this question (Table 7).

Table 7: Percentage of respondents by their knowledge and perception during both surveys

Knowledge and perception	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Have knowledge on adolescent age?			
Yes	31.8 (108)	44 (151)	0.051
No	68.3 (232)	55.7 (192)	
Adolescent age (in years)	**N = 108**	**N = 151**	
7 – 15	13.0 (13)	26.7 (37)	0.000
10 – 19	73.0 (75)	62.0 (87)	
18 – 25	0 (0)	3.5 (5)	
Others	8.5 (9)	6.4 (9)	
Don't know	5.5 (6)	1.4 (2)	
Have knowledge on menstrual hygiene?	**N = 340**	**N = 343**	
Yes	98.8 (336)	98.3 (337)	0.866
No	0.9 (3)	1.5 (5)	
Didn't answer	0.3 (1)	0.3 (1)	
Age at first menstruation			
<12	37.1 (126)	65.6 (225)	0.000
13-15	60.3 (205)	33.2 (114)	
>15	2.6 (9)	0.9 (3)	
Didn't answer	0 (0)	0.3 (1)	
Pre-knowledge on menstruation			
Yes	20.6 (70)	35.6 (121)	0.005
No	79.1 (269)	64.1 (220)	
Didn't answer	0.3 (1)	0.6 (2)	
Thought on pre-knowledge	**N = 70**	**N = 121**	
Sufficient	45.7 (32)	57.9 (70)	0.360
Was not sufficient	45.7 (32)	32.2 (39)	
Didn't answer	8.6 (6)	9.9 (12)	

Menstrual products

Respondents in both baseline and endline studies were asked about what kind of menstrual products they use. Most of the respondents mentioned sanitary napkins (92%). However, this percentage reduced to 48.8% in the endline (Table 8).

Table 8: Percentage of respondents by their knowledge and perception during both surveys

Knowledge and perception	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Menstrual product used during menstruation*			
Cloth	29.4 (99)	65.8 (225)	0.000
Sanitary napkin	92 (310)	48.8 (167)	
Cotton	30.3 (102)	21.1 (72)	
Toilet paper or tissue paper	0 (0)	1.8 (6)	
Others	0.3 (1)	4.4 (15)	
Cloth cleaning product during menstruation*	**N = 99**	**N = 225**	
Soap and water	97.9 (92)	97.1 (203)	0.000
Water only	12.8 (12)	21.1 (44)	
Soda and water	56.4 (53)	9.1 (19)	
Dettol	18.1 (17)	0 (0)	
Throw away without cleaning	0 (0)	1.9 (4)	
Others	4.3 (4)	36.4 (76)	

***Multiple responses**

The largest portion of respondents (65.8%) mentioned cloth as their menstruation product. Among other menstruation products, cotton (30.3% vs 21.1%) was mentioned. 1.8% of respondents mentioned toilet paper or tissue during the endline (Table 8). Respondent who used cloth as their menstrual product was asked about the cloth cleaning products during the menstruation period. Most of the respondents mentioned that they used soap and water (97.9% vs 97.1%) for cleaning the cloth. In the baseline study, 12.8% of participants used only water during cloth cleaning, and in endline, it increased to 21.1%. Around 56.4% used soda and water in the baseline, which decreased to 9.1% in the endline. Around 18.1% mentioned Dettol, but none mentioned it during the endline. Around 1.9% of participants during the endline said that they threw away the cloth (Table 8).

Ideal age at marriage and childbirth

Knowledge on ideal age at marriage and childbirth

The respondents were asked about their thoughts on marriage and pregnancy in both studies. When they were asked about the ideal age at marriage for men, in the baseline study, 34.4% of respondents thought that 20 years or less was the ideal age at marriage for men. In the endline, that percentage decreased to 31.5%. Around 57.4% of respondents agreed that 21-30 years was ideal, while in the endline, the number increased to 67.3%. Only a few respondents (0.3%) from the endline study thought that 31 years or above was the ideal age for men to get married. 7.9% of respondents in the baseline study and 0.9% in the endline did not know about this (Table 9).

Table 9: Percentage of respondents by their thoughts on marriage and pregnancy during both surveys

Marriage and pregnancy	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Ideal age at marriage for men			
≤ 20	34.4 (117)	31.5 (108)	0.001
21-30	57.4 (195)	67.3 (231)	
> 31	0 (0)	0.3 (1)	
Don't know	7.9 (27)	0.9 (3)	
Didn't answer	0.3 (1)	0 (0)	
Ideal age at marriage for women			
≤ 14	0.3 (1)	0.9 (3)	0.776
15-17	4.1 (14)	2.9 (10)	
> 18	95.6 (325)	96.2 (330)	
Ideal age at first birth for men			
≤ 20	5.9 (20)	10.8 (37)	0.089
21-30	79.4 (270)	81.6 (280)	
> 31	3.8 (13)	1.5 (5)	
Don't know	10.3 (35)	5.8 (20)	
Didn't answer	0.6 (2)	0.3 (1)	
Ideal age at first birth for women			
≤ 19	43.8 (149)	42.6 (146)	0.003
20-29	53.2 (181)	53.2 (165)	
≥ 30	1.8 (6)	1.5 (5)	
Didn't answer	1.2 (4)	7.9 (27)	

In the baseline study, 0.3% of respondents agreed that 14 years or less was the ideal age at marriage for women, and the endline increased only by 0.9%. Around 4.1% of respondents in the baseline study thought 15-17 years was ideal, but in the endline, the portion was 2.9%.

The majority (95.6% vs 96.2%) agreed that 18 years or above was the ideal age at marriage for women (Table 9).

The total respondents were asked about their thoughts on the ideal age at first birth for men. The majority (79.4% vs 81.6%) thought that the idea age at first birth for men was 21-30 years. 5.9% during baseline thought it was 20 years or less, which increased to 10.8% during endline. Only 3.8% of respondents in the baseline and 1.5% in the endline thought that above 30 years is ideal for men at first birth. On the other hand, 10.3% of respondents did not know about this, and in the endline, that proportion was 5.8%. Very few (0.6% vs 0.3%) of the respondents did not answer (Table 9). They were also asked about their thoughts on the ideal age at first birth for women in both studies. In the baseline study, 43.8% of respondents thought that 19 or less than 19 years of age was the age to deliver first birth for women and in the endline decreased to 42.6%. Around 53.2% of respondents thought 20-29 years was ideal during both studies. Some (1.8% vs 1.5%) respondents thought the ideal age was 30 years or above at first birth for women. Around 1.2% in the baseline and 7.9% during endline did not answer this question (Table 9).

Knowledge on ideal number of children and details on child birth

Both baseline and endline respondents were asked about the ideal number of children. Between 3-5 children received highest responds (49.7% vs 55.7%) during both surveys, followed by 1-2 children (37.1% vs 36.4%) and more than 5 children (0.6% vs 3.5%). Around 12.6% did not know the answer, which decreased to 4.4% during the endline (Table 10).

Respondents were also asked about the ideal time gap between two children. Among them, around 60.6% during baseline and 49% during endline thought less than 3 years, around 35.3% during baseline and 48.7% during endline thought 3-5 years and some (1.8% vs 1.5%) thought above 5 years as the ideal time gap between two children. Around 2.1% and 0.9% during both studies respectively did not know about this, and in both studies, 0.3% did not answer the question (Table 10).

Table 10: Percentage of respondents by their thoughts on marriage and pregnancy during both surveys

Marriage and pregnancy	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Ideal number of children			
1-2	37.1 (126)	36.4 (125)	0.000
3-5	49.7 (169)	55.7 (191)	
> 5	0.6 (2)	3.5 (12)	
Don't know	12.6 (43)	4.4 (15)	
Ideal time gap between two children (in years)			
< 3	60.6 (206)	49 (168)	0.009
3-5	35.3 (120)	48.7 (167)	
> 5	1.8 (6)	1.5 (5)	
Don't know	2.1 (7)	0.9 (3)	
Didn't answer	0.3 (1)	0.3 (1)	
Problems of getting pregnant at age 13-19 years*			
Mother's health risk	62.9 (214)	72.4 (247)	0.000
Maternal death	50.3 (171)	51.2 (171)	
Newborn death	38.5 (131)	35.0 (118)	
Spontaneous abortion	27.4 (93)	32.9 (112)	
Need for C-section	27.9 (95)	30.6 (103)	
Newborn's health risk	34.1 (116)	28.6 (94)	
Risk of discontinuation of education	0 (0)	2.1 (7)	
End of employment	0.3 (1)	0 (0)	
Others	1.2 (4)	0 (0)	
Don't know	3.8 (13)	1.2 (4)	

***Multiple responses**

During both studies, respondents were asked about the problems of getting pregnant at adolescent age (13-19 years). Most mentioned reasons were mother's health risk (62.9% vs 72.4%), maternal death (50.3% vs 51.2%), newborn death (38.5% vs 35.0%), spontaneous abortion (27.4% vs 32.9%). Other reasons like the need to go to the C-section (27.9 vs 30.6%) and the newborn's health risk (34.1% vs 28.6%) were also mentioned. 2.1% during endline thought of the risk of discontinuation of education, 0.3% during baseline mentioned the end of employment, and 1.2% during baseline mentioned other responses. Around 3.8% in the baseline and 1.2% in the endline said they did not know about this (Table 10).

Family Planning among the married Rohingya refugee women

Knowledge of the source of the family planning information

Almost all married Rohingya women had ever heard of at least one family planning method in their life course and reported in both baseline and endline interviews. (Table 11).

Table 11: Percentage of respondents by their ideas on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Knowledge of family planning (FP)			
Yes	97.1 (330)	95.0 (326)	0.153
No	3.0 (10)	4.7 (16)	
Source of knowledge on FP*	**N = 330**	**N = 326**	
Husband	21.5 (71)	13.5 (44)	<0.001
Friend	1.2 (4)	1.5 (5)	
Other members of the family	8.8 (29)	1.8 (7)	
Relatives	19.7 (65)	3.7 (12)	
Neighbors	43.6 (144)	24.6 (80)	
Government health workers (Bangladesh)	28.2 (93)	30.8 (100)	
Non-government health workers (Bangladesh)	44.9 (148)	54.5 (177)	
Government health workers (Myanmar)	1.2 (4)	8 (26)	
Non-government health workers (Myanmar)	0 (0)	0.3 (1)	
Pharmacist	0.9 (3)	3.4 (11)	
Doctor	47.6 (157)	21.2 (69)	
Nurse	13.6 (45)	7.1 (23)	
Traditional birth attendant	1.8 (6)	4.0 (13)	
Village doctor	3 (10)	1.2 (4)	
Local drama	1.5 (5)	0 (0)	
Book/leaflet	1.8 (6)	0.3 (1)	
Yard discussion session	7.9 (26)	18.2 (59)	
Sexual and reproductive health (SRH) and family planning (FP) information pocketbook	0 (0)	3.7 (12)	

***Multiple responses**

However, in the endline survey, the proportion of the respondent who had ever heard of any family planning method was slightly lower (95.0%) compared to the proportion of the baseline survey (97.1%). At baseline, neighbours (43.6%), doctors (47.6%), Bangladeshi NGO workers (44.9%), government health workers (28.9%) were the most relevant sources of knowledge of family planning for the respondents; in addition, husband (21.5%), relatives (19.7%), nurse (13.6%), and yard discussion (7.9%) were also some important sources of knowledge (Table 11).

Meanwhile, at the endline, the Bangladeshi NGO workers (54.5%) became the top source of family planning knowledge, followed by government health workers (30.8%), neighbours (24.6%) and doctors (21.2%). A significant steep was observed in terms of the yard discussion session (18.2%) as the source of information for FP methods during the endline survey; also, the project-provided SRH and FP information pocketbook (3.7%) became a source of FP information to the Rohingya community (Table 11).

Knowledge of family planning methods

As respondents may know multiple names of family planning methods, the name of the family planning methods are not mutually exclusive and do not sum to 100%. Among the short-acting reversible contraceptive methods, the pill was the most commonly reported family planning method by the Rohingya women both at baseline (95.7%) and endline (85.5%), followed by injection (82.4% vs 82.2%). At baseline, only 6.7% of the respondent knew about the condom; however, at endline, more than one in every four women (27.4%) reported their awareness about the condom. Under the long-acting reversible contraceptive methods, the implant (46.2% vs 50.2%) was by far the most frequently reported family planning method. Approximately ten percent of the currently married women heard about the IUD method, and after the intervention, the proportion of married women increased to 20.3%. A similar increasing trend can also be observed in terms of the permanent family planning method. At baseline, both the male and female sterilization methods were known by only 3.3% and 3% of the Rohingya married women; albeit, at endline, more than one in every ten women had heard about the male (11.4%) and female (13.5%) permanent family planning method. Among the other family planning methods, respondents also mentioned emergency contraception (0% vs 0.9%), and lactation amenorrhea method (1.2% vs 1.5%) (Table 12).

The survey collected information regarding the knowledge level on permanent contraceptive methods from the currently married Rohingya refugee women. Only 3.3% of the married women answered correctly during baseline, but there was a decline at endline, as only 2.5% of women gave the correct answer. At baseline, more than three out of four women did not know anything about the permanent family planning methods, and one out of five gave the wrong answer regarding this response. By endline, the women who did not respond to the question about permanent contraceptives shifted to 55.5%, and 42% tried to answer the question but did not answer correctly (Table 12).

The married Rohingya refugee women were asked about the time of implant being effective, and more than one out of two Rohingya women answered the question correctly at baseline as well as endline; although a slight drop was observed during the endline survey (50.3%) compared to the baseline survey (52.4%). 10.9% of the respondents gave the incorrect answer

at baseline and 9.3% at endline. At both baseline (36.7%) and endline (40.6%), more than one-third of the women reported they did not know anything on this issue (Table 12).

Table 12: Percentage of respondents by their knowledge on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 330)	Endline (n = 326)	
Methods of family planning*			
Female sterilization	3 (10)	13.5 (44)	<0.001
Male sterilization	3.3 (11)	11.4 (37)	
IUD	9.7 (32)	20.3 (66)	
Injection	82.4 (271)	82.2 (267)	
Implants	46.2 (152)	50.2 (163)	
Pill	95.7 (315)	85.5 (278)	
Condom	6.7 (22)	27.4 (89)	
Emergency contraception	0 (0)	0.9 (3)	
Breastfeeding as birth control/ Lactation Amenorrhea Method (LAM)	1.2 (4)	1.5 (5)	
Safe period/periodic abstinence	6.7 (22)	0 (0)	
Withdrawal	0.3 (1)	0 (0)	
Other modern or traditional methods	0 (0)	0.3 (1)	
How many permanent methods known			
Have correct knowledge: 3	3.3 (11)	2.5 (8)	<0.001
Have incorrect knowledge	20.3 (67)	42 (137)	
Don’t know	76.4 (252)	55.5 (181)	
Time of implant being effective			
Have correct knowledge: 3-5 years	52.4 (173)	50.3 (164)	0.875
Have incorrect knowledge	10.9 (36)	9.2 (30)	
Don’t know	36.7 (121)	40.6 (132)	
Time of IUD being effective			
Have correct knowledge: 3-10 years	22.4 (74)	34.4 (112)	<0.001
Have incorrect knowledge	1.2 (4)	3.1 (10)	
Don’t know	76.4 (252)	62.6 (204)	

***Multiple responses**

When the respondents were questioned about the time of IUD being effective, only 22.4% of the women answered correctly at baseline; on the contrary for endline (34.4%), a significant increase in giving the correct answer was observed, i.e., more than one woman in every three women gave the correct response. Few women gave the wrong answer to this very question – at baseline, the proportion of the wrong answer was 1.2%, and at endline, it was slightly increased to 3.1%. Additionally, at baseline, 76.4% did not know about the IUD's effectiveness; at endline, 62.6% didn't know (Table 12).

Knowledge on the time gap of the postpartum family planning (PPFP) method after delivery

Table 13 illustrates the knowledge of the Rohingya refugee married women on the time gap of the postpartum family planning (PPFP) method after delivery. Around four out of five women responded that they were conscious of the time gap of the PPFP after delivery both at baseline (79.4%) and endline (79.1%). The percentage of the women who did not know about the time gap significantly decreased from baseline (18.8%) to endline (15.3%). There was a slight increase in the percentage of the respondent from baseline (1.8%) to endline (5.5%) who did not respond to this question (Table 13).

Table 13: Percentage of respondents by their ideas on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 330)	Endline (n = 326)	
Knowledge of the time gap of the PPFP after delivery			
Yes	79.4 (262)	79.1 (258)	0.368
No	18.8 (62)	15.3 (50)	
Didn't respond	1.8 (6)	5.5 (18)	
Time gap of methods after child birth	**N = 262**	**N = 258**	
Have correct knowledge: 3-6 weeks	82.8 (217)	51.2 (132)	<0.001
Have incorrect knowledge	16.8 (44)	48.8 (126)	
Don't know	0.4 (1)	0 (0)	

Of those who knew the time gap of the PPFP methods, 82.8% gave the correct answer during the baseline survey; yet, during the endline survey, 51.2% of women were found to be correct. 16.8% gave the wrong answer at baseline, and the percentage of the wrong answer showed a significant peak at the endline (Table 13).

Knowledge of the sources of family planning methods

Table 14 portrays the knowledge of the sources of family planning methods among married Rohingya refugee women. Nearly all the married women in the refugee camps knew about the source of the family planning method at both baseline (95.6%) and endline (95.3%). Among 15-49 years old married women who knew the location might know multiple sources of family planning methods, the name of the location of the sources of the family planning method were not mutually exclusive and did not sum to 100% (Table 14).

Table 14: Percentage of respondents by their ideas on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Have knowledge on the sources of family planning methods			
Yes	95.6 (325)	95.3 (327)	0.622
No	4.4 (15)	4.7 (16)	
Sources of family planning methods*	**N = 325**	**N = 327**	
Refugee camp primary healthcare center	82.1 (266)	67.5 (220)	<0.001
Government health workers	23.5 (76)	19.9 (65)	
Non-governmental health workers	11.1 (36)	21.2 (69)	
Pharmacy	48.2 (156)	31 (101)	
Shop	11.1 (36)	20.6 (67)	
CHW	10.2 (33)	13.5 (44)	
District hospital (Cox's Bazar)	0.3 (1)	0.6 (2)	
Upazilla hospital (Ukhia)	3.4 (11)	0 (0)	
Others	0 (0)	0.3 (1)	
Have knowledge on emergency contraception methods	**N = 340**	**N = 343**	
Yes	15.0 (51)	20.4 (70)	0.466
No	85.0 (289)	79.6 (273)	
Emergency contraception methods in the market of Bangladesh*	**N = 51**	**N = 70**	
Emcon	10 (5)	2.9 (2)	<0.001
Postinor-2	0 (0)	7.3 (5)	
I-pill	4 (2)	60.9 (43)	
Peuli	2 (1)	10.1 (7)	
Others	6 (3)	13.0 (9)	
Don't know	78 (40)	17.4 (12)	

***Multiple responses**

At baseline, more than fourth-fifth of the women (82.1%) knew the refugee camp primary healthcare center as the source of family planning methods; at endline, 67.5% reported this centre as the source of family planning methods. The percentage of responses on the pharmacy, government health workers, Upazilla Hospital as the family planning methods sources decreased significantly from the baseline to endline ($p < 0.001$). A moderate increase in the percentage of the sources of family planning methods, i.e., non-government organizations, shops, and CHW, had been observed (Table 14).

This survey asked women about their knowledge of emergency contraceptive methods. Of all the women, at baseline, only 15.0% of the women knew the emergency contraceptive methods, and after the intervention the at endline, the knowledge of emergency contraception increased to 20.4%. The rest of the women didn't know about emergency contraception (Table 14).

Of the women who knew about emergency contraception, they were asked to tell some of the commercial brands of emergency contraceptive methods available in Bangladesh. At baseline, around 4 in 5 married Rohingya women did not know any names of commercial brands of emergency contraception; However, after the intervention, a significant shift took place in the knowledge of emergency contraception ($p<0.001$). At the endline survey, more than 4 in 5 married women who knew about emergency contraception knew about at least one commercial brand of emergency contraceptives of Bangladesh. Among the brands, respondents mostly (60.9%) mentioned I-pill in the endline (Table 14).

Husbands' support on the use of the family planning methods

Table 15 demonstrates the perception of the husband of the 15-49 years old married Rohingya refugee women on the use of the family planning methods. Both at baseline and endline, approximately two-thirds of the currently married women had received support to use the family planning methods from their husbands. 28.5% did not receive any support from their husbands, and 9.2% did not know whether the husbands supported them using the family planning method. The percentage of non-supportive husbands significantly decreased to 21.6% at the endline; however, at the endline, a slight increase in the percentage was observed who did not know about the perception of their husbands.

Table 15 shows that the women who responded about getting support from their husbands on using the family planning methods also reported the reasons for the support from their husbands. At baseline, 37.1% of women reported their husbands helped to make a small-sized happy family, and by endline, this had shifted to 40.4%. At baseline, 14.8% said husbands thought the small family helped to maintain a better quality of life; by the endline, this perception significantly shifted to 35.8%. At baseline, 62.4% said for the mother's good health; however, by endline, the trend was declined to 48.4%. At baseline, 33.3% said for the child's good health, although this had shifted to 28.4% by endline. At baseline, 33.3% responded that proper birth spacing between two children helped the mother to provide extra care to the babies; albeit, this perception significantly increased to 47.3% during endline. At baseline, 14.8% stated to avoid spontaneous abortion, yet at endline, this had decreased to 6.9%, and during baseline, 19.1% mentioned having children at a desirable time although, 8.3% decrease in the perception of the perception this regard was observed. Among the respondents who did not receive support from their husbands on using the family planning method, the majority reported the religious barrier (69.9%) during the baseline survey. The percentage of religious barrier reporting was reduced significantly to 45.1% at the endline survey.

Table 15: Percentage of respondents by their ideas on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Support from the husband on the use of family planning methods			
Yes	62.4 (212)	65.9 (226)	0.004
No	28.5 (97)	21.6 (74)	
Don't know	9.2 (31)	12.5 (43)	
Reasons for his support*	**N = 212**	**N = 226**	
Helps to make a small-sized happy family	37.1 (78)	40.4 (86)	0.000
Small family helps to maintain a better quality of life	14.8 (31)	35.8 (78)	
Good health of the mother	62.4 (131)	48.6 (106)	
Good health of the child	33.3 (70)	28.4 (62)	
Proper spacing between two children helps the mother to give extra care for her babies	33.3 (70)	47.3 (103)	
Avoid spontaneous abortion	14.8 (31)	6.9 (15)	
To have children at a desirable time.	19.1 (40)	8.3 (18)	
Reasons for his not supporting*	**N = 97**	**N = 74**	
Religious barrier	69.9 (65)	45.1 (31)	0.000
Fear of side effects	16.1 (15)	71.0 (49)	
Unsuccessfulness of the methods or methods not working	0 (0)	2.9 (2)	
Supports more children	40.9 (38)	18.8 (13)	
Others	1.1 (1)	0 (0)	
Don't know	1.1 (1)	0 (0)	

***Multiple responses**

The demand for a large number of children (40.9%) was the second-highest reason at the baseline for the husbands to be non-supportive of using the family planning method; however, this perception was also reduced significantly to 18.8% during the endline survey. The only reason for being non-supportive, which showed a significant upward trend in the endline survey, was the fear of side effects (71.0%), which was pretty low during the baseline interviews (16.1%) (Table 15).

Family members' support (excluding husband) on the use of the family planning methods

At baseline, more than two in one woman (54.1%) of the respondents' declared their family members (excluding husband) did not provide any support in using the family planning methods, only 30% of the women reported they received support from the family other than their husbands, and 15.9% did not know whether their family supported them in using the family planning methods. The percentage of the women belonging to the non-supportive family

members' dropped dramatically to 32.1%; one in three women reported receiving support from their family members, and 30.3% did not know about the family member's perception (Table 16).

Of the women, who did not receive any support from the family other than the husband, at baseline, the main barrier was found to be the religious barriers (76.0%), followed by the demand for more children (33.5%). At endline, the percentage of women who reported religious barriers reduced significantly to 59.4%, However, the fear of side effects (61.4%) increased significantly compared to the baseline survey (5.6%). The demand for more children slightly reduced to 32.7% at the endline survey (Table 16).

Table 16: Percentage of respondents by their ideas on family planning during both surveys

Family planning	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Support from the members of the family other than her husband on the use of family planning methods			
Yes	30 (102)	37.3 (128)	<0.001
No	54.1 (184)	32.1 (110)	
Don't know	15.9 (54)	30.3 (105)	
Reasons for their support*	**N = 102**	**N = 128**	
Helps to make a small-sized happy family	53.5 (54)	34.7 (43)	<0.001
Small family helps to maintain a better quality of life	16.8 (17)	49.2 (61)	
Good health of the mother	68.3 (69)	42.6 (52)	
Good health of the child	61.4 (62)	30.7 (38)	
Proper spacing between two children helps the mother to give extra care for her babies	19.8 (20)	45.2 (56)	
Avoid spontaneous abortion	5.9 (6)	11.3 (14)	
To have children at a desirable age	6.9 (7)	4 (5)	
Don't know	0 (0)	0.8 (1)	
Reasons for their not supporting*	**N = 184**	**N = 110**	
Religious barrier	76.0 (136)	59.4 (60)	<0.001
Fear of side effects	5.6 (10)	61.4 (62)	
Unsuccessfulness of the methods or methods not working	2.2 (4)	7.0 (7)	
Supports more children	33.5 (60)	32.7 (33)	
Others	0.6 (1)	2.0 (2)	
Don't know	15.6 (28)	4.0 (4)	

***Multiple responses**

ANC, PNC, and Newborn Care

Knowledge of antenatal care

Table 17 describes the knowledge of antenatal care of the married Rohingya women included in this study. Nearly all the married Rohingya refugee women had heard about antenatal care (ANC) both at baseline (95.3%) and endline (96.5%).

Table 17: Percentage of respondents by their ideas on antenatal care

Antenatal care	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Heard about antenatal care (ANC)?			
Yes	95.3 (324)	96.5 (331)	0.888
No	4.7 (16)	3.5 (12)	
Recommended number of ANC	**N = 324**	**N = 331**	
Have correct knowledge: 4	31.5 (102)	30.5 (101)	0.746
Have incorrect knowledge	68.5 (222)	69.2 (229)	
Didn't answer	0 (0)	0.3 (1)	
Recommended examinations during each antenatal care checkup*			
Blood pressure	38.9 (118)	17.2 (56)	<0.001
Blood test	93.7 (284)	92 (299)	
Urine test	95.1 (288)	91.4 (297)	
Weight	0.7 (2)	36.3 (118)	
Ultra-sonogram	0 (0)	10.2 (33)	
Advice on danger signs during pregnancy	0 (0)	2.5 (8)	
Advice on family planning after delivery	0 (0)	2.5 (8)	
Advice on complicacy during birth	0 (0)	1.2 (4)	
Personal hygiene	0.3 (1)	4.3 (14)	
Suggestion on next medical check up	0 (0)	1.2 (4)	

***Multiple responses**

Almost all the Rohingya women tried to answer questions of the recommended number of the ANC. Although, around one in three women aged between 15-49 years and married answered the correct number of the recommended number of ANC both at baseline (31.5%) and endline (30.5%). The rest women mentioned the wrong number of the recommended ANC at the baseline (68.5%) and endline (69.2%). As the study respondents may answer more than one type of name of the examination and diagnostic test for ANC, the name of the examination and test are not mutually exclusive and do not sum to 100%. The blood test (93.7% vs 92.0%) and urine test (95.1% vs 91.4%) were the leading responses from the respondents as the recommended examination for ANC in both of the surveys. Measuring the blood pressure was also a recommended ANC examination reported by the respondents both at baseline and endline; however, a sharp decline was observed as well in the endline survey (38.9% vs

17.2%). Surprisingly, during baseline, the Rohingya women did not know measuring weight, performing ultrasonography, danger signs of pregnancy, and advice on personal hygiene care are crucial ANC measures for pregnant women (Table 17).

At the endline after the intervention, the percentage of women increased significantly who recommended weight, ultrasonography, danger signs, and advice on personal hygiene as the recommended examination for ANC (Table 17).

Birth preparedness

Table 18 indicates the knowledge of birth preparedness of the respondents included in the study. The respondents were asked whether they ever heard of birth/delivery prepared and about the component of birth preparedness to check their knowledge.

Table 18: Percentage of respondents by their knowledge on birth preparedness

Birth Preparedness	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Heard about birth/delivery preparedness			
Yes	78.2 (266)	77.3 (265)	0.893
No	21.8 (74)	21.9 (75)	
Didn't respond	0 (0)	0.9 (3)	
Components of birth/delivery preparedness*	**N = 266**	**N = 265**	
Select place of birth and skilled birth attendant	73.7 (193)	29.3 (77)	0.000
Prepare and select transportation and accompanying person in case of any emergency	59.9 (157)	48.1 (127)	
Savings from the beginning of the pregnancy	58.0 (152)	77.3 (205)	
Blood group confirmation and blood donor selection	19.9 (52)	12.5 (33)	

***Multiple responses**

The percentage of married women ever heard of birth preparedness decreased to 77.3% compared to the baseline survey (78.2%). Those who did not hear of the term birth preparedness, their percentage remains almost the same in both the surveys (21.8% vs 21.9%.) (Table 18)**.**

The knowledge of birth preparedness components selection of the place and skilled birth attendant (73.7% vs 29.3%), preparation and selection of transport in case of any emergency (59.9% vs 48.1%), blood grouping and donor management (19.9% vs 12.5%) decreased after the intervention. Although, the percentage of women who reported savings since the beginning of the pregnancy as a component of the birth preparedness increased significantly in the endline (77.3%) when compared to the baseline survey (58.0%) (Table 18).

Danger signs of pregnancy

Table 19 depicts the knowledge of the danger signs of pregnancy among the married Rohingya refugee women aged 15-49 years.

Around 90% of the married Rohingya refugee women both in the baseline and in the endline survey heard about the danger signs of pregnancy (90.9% vs 88.6%) (Table 19).

Table 19: Percentage of respondents by their knowledge of danger signs

Danger signs	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Heard about danger signs of pregnancy			
Yes	90.9 (309)	88.6 (304)	0.852
No	9.1 (31)	11.4 (39)	
Danger signs of pregnancy*	**N = 309**	**N = 304**	
Antepartum Hemorrhage	26.7 (82)	32.5 (99)	<0.001
Convulsions/fits	77.9 (239)	68.4 (208)	
Severe headaches with blurred vision	53.1 (163)	42.1 (128)	
Severe fever with foul-smelling discharge	3.9 (12)	18.8 (55)	
Obstructed/prolonged labor	27.7 (85)	22.7 (68)	

***Multiple responses**

Of those who had heard about the danger signs of pregnancy, the percentages of women who reported that they knew antepartum haemorrhage (26.7% vs 32.5%) and severe fever with foul-smelling discharge (3.9% vs 18.8%) increased during the endline interview. However, there was a significant decreasing trend observed in the respondents' knowledge of convulsion/fit (77.9% vs 68.4%); severe headache with blurred (53.1% vs 42.1%) and obstructed/prolonged labour (27.7% vs 22.7%) at endline surveys (Table 19).

Postnatal care

Table 20 illustrates the respondents' knowledge of postnatal care (PNC). At baseline, more than two in three women had ever heard of postnatal care (PNC) during their life course, which had significantly increased to 85.1% during the endline. Nearly one-third of the women did not ever hear of the postnatal care at baseline; at endline, the percentage of this group of mothers significantly decreased to 13.7%.

Table 20: Percentage of respondents by their knowledge of postnatal care

Postnatal care	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Heard about postnatal care (PNC)?			
Yes	66.8 (227)	85.1 (292)	<0.001
No	31.8 (108)	13.7 (47)	
Didn't respond	1.5 (5)	1.2 (4)	
Recommended number of PNC	**N = 227**	**N = 292**	
1-3	87.7 (199)	69.9 (204)	<0.001
≥ 4	7.5 (17)	25.3 (74)	
Didn't answer	4.9 (11)	4.8 (14)	

Table 20 also depicts the respondents' knowledge of the recommended number of postnatal cares. Close to ninety percent of the respondent recommended 1-3 as the ideal number of PNC at the baseline. After the intervention, the most recommended number of PNC was also found to be 1-3 (69.9%). However, compared to the baseline, the percentage of women who responded 1-3 PNC as the recommended decreased significantly. Although, in the endline, the percentage of the women who recommended ≥ 4 ANC has also increased significantly from 7.5% to 25.3%.

Services to mother and newborn during postnatal care

During baseline study, among the services for mothers during PNC visits, 68% and 55.1% respondents knew about supporting breastfeeding and check breast to prevent mastitis and checking for vaginal bleeding and temperature check respectively. These percentages reduced to 52.4% and 25.1% respectively during endline. Respectively, 42.7% and 38.2% respondents knew about promoting nutrition and vitamin A supplementation and TT immunization when needed. Knowledge about promoting nutrition and vitamin A supplementation increased to 63.7% but the knowledge of TT immunization decreased to 25.1% (Table 21).

Table 21: Percentage of respondents by their ideas on antenatal, postnatal and newborn care during both surveys

Postnatal care	% (n) of married female		P-value
	Baseline (n = 227)	Endline (n = 292)	
Services to mother during PNC visits*			
Promote nutrition and vitamin A supplementation	42.7 (96)	63.7 (184)	0.000
Advice on breastfeeding and breast examination to prevent mastitis	68.0 (153)	52.4 (151)	
Vaginal bleeding and temperature	55.1 (124)	25.1 (73)	
Complete TT immunization, if needed	38.2 (86)	25.1 (73)	
Anemia management	25.8 (58)	21.2 (61)	
Advice on care at home for danger signs	19.1 (43)	19.5 (56)	
Counselling on family planning	10.7 (24)	17.9 (52)	
Refer for bleeding, infection, postpartum depression	6.2 (14)	7.2 (21)	
Others	0.4 (1)	0 (0)	
Don’t know	8.0 (18)	0.3 (1)	
Services to newborn during PNC visits*			
Promote hygiene, skin, eyes, cord care etc.	55.2 (123)	67.8 (196)	0.000
Weight, temperature, feeding check	54.7 (122)	47.4 (137)	
Support exclusive breastfeeding	58.7 (131)	41.4 (117)	
Delaying first bath to after 24 hours of birth	31.4 (70)	27.2 (77)	
Promote clean and dry cord	8.5 (19)	22.5 (65)	
Assess for danger signs	43.1 (96)	12.1 (35)	
Refer for routine immunizations	17.5 (39)	11.8 (34)	
Identify skin infection and provide treatment, refer if there is any danger sign	7.6 (17)	11.1 (32)	
Practice skin-to-skin care and cover newborn's head	21.1 (47)	7.6 (22)	
Advice on care at home for danger signs	6.7 (15)	5.2 (15)	
Suggest for birth registration	9 (20)	3.1 (9)	
Others	0 (0)	0.4 (1)	
Don’t know	3.1 (7)	0 (0)	

***Multiple responses**

Knowledge on anemia management decreased from 28.5% to 21.2%. Around 19.1% and 19.5% respondents during baseline and endline respectively knew about the advice on care at home for danger signs. Knowledge on counselling on family planning and referral for

bleeding, infection, postpartum depression increased from 10.7% to 17.9% and 6.2% to 7.2% from baseline to endline (Table 21).

Among the knowledge on services for newborn during PNC visits, 67.8% respondents in endline knew about promoting hygiene, skin, eyes, cord care etc. This percentage increased from baseline (55.2%). Besides this, knowledge on promoting clean and dry cloth (8.5% vs. 22.5%), and identifying skin infection and provide treatment, with referral option if there is any danger sign (7.6% vs 11.1%) also increased from baseline to endline. Knowledge on rest of the services such as weight, temperature, feeding check (54.7% vs. 47.4%), support exclusive breastfeeding (58.7% vs. 41.4%), delaying first bath to after 24 hours of birth (31.4% vs. 27.2%), assess for danger signs (43.1% vs. 12.1%), refer for routine immunizations (17.5% vs. 11.8%), practice skin-to-skin care and cover newborn's head (21.1% vs. 7.6%), advice on care at home for danger signs (6.7% vs. 5.2%) and suggest for birth registration (9% vs. 3.1%) decreased from baseline to endline (Table 21).

Knowledge on newborn care and newborn danger signs for taking them to hospital quickly

Majority of the respondents (above 97%) heard about newborn care. Among different activities of newborn care, the knowledge on wiping newborn with clean cloth (84.4% vs. 66.8%) and keeping the baby warm (51.2% vs 40.1%) decreased from baseline to endline. Knowledge on earliest breast feeding (51.5% vs 60.5%) and care of umbilical cord (35.3% vs 46.1%) increased over time (Table 22).

Table 22: Percentage of respondents by their ideas on antenatal, postnatal and newborn care during both surveys

Newborn care	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Heard about newborn care			
Yes	98.5 (335)	97.4 (334)	0.000
No	1.5 (5)	2.6 (7)	
Different activities of newborn care*	**N = 335**	**N = 334**	
Wipe newborn with clean cloth	84.4 (282)	66.8 (223)	0.000
Earliest breast feeding	51.5 (172)	60.5 (202)	
Care of umbilical cord	35.3 (118)	46.1 (154)	
Keep the baby warm	51.2 (171)	40.1 (134)	
Others	0 (0)	0.9 (3)	
Danger signs of newborn for taking them to hospital quickly*			
Convulsion	40.9 (131)	57.4 (190)	0.000
Fever or cold temperature	65.3 (209)	46.5 (154)	
Inability of breast-feeding	55.3 (177)	45.3 (150)	
Fast breathing	54.4 (174)	34.4 (114)	
Lethargic	4.1 (13)	21.2 (70)	
Umbilical infection	5.6 (18)	13.7 (42)	
Weight less than 2 kg	5.6 (18)	2.4 (8)	
Don't know	1.9 (6)	0.3 (1)	
Others	0.3 (1)	0.9 (3)	

***Multiple responses**

Among the danger signs of a new-born that indicates to take the baby immediately to hospital, around 40.9% knew about convulsion during baseline, and this knowledge increased to 57.4% in the endline. Moreover, knowledge on lethargy (4.1% vs 21.2%) and umbilical infection (5.6% vs 13.7%) also increased over time. The percentage of knowledge on fever or cold temperature (65.3% vs 46.5%), inability of breast-feeding (55.3% vs 45.3%), fast breathing (54.4% vs 34.4%), and weight less than 2 kg (5.6% vs 2.4%) decreased from baseline to endline (Table 22).

Current usage of family planning methods

Current family planning method in use and sources of those

More respondents in the endline (62.1%) were using family planning methods than baseline (57.6%). Among the available family planning methods, the user percentage increased from baseline to endline for injectable (32.7% vs 53.1%), implants (6.6% vs 15.2%) and IUD (1.5% vs 2.4%). No respondent in baseline used male sterilization or lactational amenorrhea method (LAM), but around 2.8% and 0.5% respondents respectively used those methods during

endline. Pill (52.6% vs 41.2%), condom (2.6% vs 1.4%), female sterilization (0.5% vs 1%) and rhythm method (10.7% vs 1%) usage decreased from baseline to endline (Table 23).

Table 23: Percentage of respondents by their ideas on usage of family planning methods during both surveys

Usage of family planning methods	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
Either she or husband currently using family planning methods?			
Yes	57.6 (196)	62.1 (213)	0.721
No	41.5 (141)	37.6 (129)	
Didn't answer	0.9 (3)	0.3 (1)	
Which family planning methods using currently?*	N = 196	N = 213	
Injectable	32.7 (64)	53.1 (112)	0.000
Pill	52.6 (103)	41.2 (87)	
Implants	6.6 (13)	15.2 (32)	
Condom	2.6 (5)	1.4 (3)	
Male sterilization	0 (0)	2.8 (6)	
IUD	1.5 (3)	2.4 (5)	
Female sterilization	0.5 (1)	1.0 (2)	
Rhythm Method	10.7 (21)	1.0 (2)	
Lactational Amenorrhea Method (LAM)	0 (0)	0.5 (1)	
Other modern or traditional methods	0 (0)	1 (2)	
Source of family planning methods using currently*			
Refugee camp primary healthcare center	57.5 (100)	34.3 (72)	0.002
Government health worker	6.9 (12)	16.7 (35)	
Private/NGO health worker	9.8 (17)	30 (63)	
CHW	3.5 (6)	6.2 (13)	
District hospital (Cox's Bazar)	0.6 (1)	0 (0)	
Upazilla hospital (Ukhia)	1.2 (2)	0 (0)	
Pharmacy	17.8 (31)	8.1 (17)	
Shop	2.9 (5)	4.8 (10)	

***Multiple responses**

Respondents were asked about the source of the family planning methods they were using that time. Among different sources, percentages of private/NGO health worker (9.8% vs 30%), government health worker (6.9% vs 16.7%), CHW (3.5% vs 6.2%) and shop (2.9% vs 4.8%) increased from baseline to endline. Percentage of refugee camp primary healthcare center (57.5% vs 34.3%) and pharmacy (17.8% vs 8.1%) decreased. Around 0.6% and 1.2% respondents got the family planning methods from district hospital (Cox's Bazar) and upazilla hospital (Ukhia) during baseline, but none during endline (Table 23).

Reasons behind not using any family planning method currently

Around 41.5% respondents in baseline and 37.6% respondents in endline were not using any contraceptive method (Table 23).

Table 24: Percentage of respondents by their ideas on usage of family planning methods during both surveys

Usage of family planning methods	% (n) of married female		P-value
	Baseline (n = 141)	Endline (n = 129)	
Why either she or husband are not using any contraceptive methods currently?*			
General health concerns	1.5 (2)	4.8 (6)	0.075
Side effects	5.9 (8)	12.1 (15)	
Difficulty in having sex	0 (0)	2.4 (3)	
Interfered physiological normal processes	2.2 (3)	1.6 (2)	
Did not like the method	0 (0)	7.2 (9)	
Husband opposed	4.4 (6)	8.9 (11)	
Others opposed	1.5 (2)	0.8 (1)	
Social stigma	1.5 (2)	4.8 (6)	
Religious prohibition	16.2 (22)	18.6 (23)	
Pregnant	22.8 (31)	16.1 (21)	
Want to get pregnant	17.7 (24)	16.9 (22)	
Didn't find the appropriate FP method	0.7 (1)	0 (0)	
Husband lives abroad	4.4 (6)	4.0 (5)	

***Multiple responses**

Among several reasons mentioned for not using any contraceptive method, the percentage decreased for the reasons- want to get pregnant (17.7% vs 16.9%), pregnant (22.8% vs 16.1%), husband lives abroad (4.4% vs 4%), interfered physiological normal processes (2.2% vs 1.6%) and others opposed (1.5% vs 0.8%) from baseline to endline. Around 0.7% respondents said that they didn't find the appropriate FP method during baseline, none in the endline said this. The responses about religious prohibition (16.2% vs 18.6%), side effects (5.9% vs 12.1%), husband opposed (4.4% vs 8.9%), did not like the method (0% vs 7.2%), general health concerns (1.5% vs 4.8%), social stigma (1.5% vs 4.8%) and difficulty in having sex (0% vs 2.4%) increased over time (Table 24).

Plan for using family planning method in the future

Majority (above 65%) of respondents who were not using any contraceptive methods during baseline and endline did not have any plan to use family planning method within next 1 year. Among the respondents who had such plans, respectively 40% and 60% of them had plan to use injection and pill during baseline. These percentage changed to 45.5% during endline.

Besides, around 27.3%, 9.1% and 9.1% respondents of endline mentioned implants, IUD and condom respectively as the family planning method they would use within the next year (Table 25).

Table 25: Percentage of respondents by their ideas on usage of family planning methods during both surveys

Usage of family planning methods	% (n) of married female		P-value
	Baseline (n = 141)	Endline (n = 129)	
Have plan for using family planning method within the next 1 year			
Yes	3.5 (5)	7.8 (10)	0.460
No	65.2 (92)	70.5 (91)	
Have not decided yet	31.2 (44)	21.7 (28)	
Which family planning method will use within the next 1 year*	**N = 5**	**N = 10**	
IUD	0 (0)	9.1 (1)	0.533
Injection	40.0 (2)	45.5 (6)	
Implants	0 (0)	27.3 (3)	
Pill	60.0 (3)	45.5 (6)	
Condom	0 (0)	9.1 (1)	

***Multiple responses**

Knowledge on using any family planning method at least once

Among the respondents who were not using any family planning method during survey, respectively 36.2% and 32.6% of them ever used any family planning methods. Those who used any family planning method ever in their life, usage of injection increased from 51.9% to 60.5% over time. during baseline, none used male sterilization, condom, emergency birth control, breastfeeding as birth control or withdrawal. But, during endline, among these five methods, 7% used male sterilization and 2.3% used the rest. Usage of pill (51.9% vs 60.5%), implants (5.8% vs 4.7%) and safe period/periodic abstinence (1.9% vs 0%) decreased from baseline to endline. Overall, respectively 13.5 % and 20.1% during baseline and endline wished to have children within next 2 years (Table 26).

Table 26: Percentage of respondents by their ideas on usage of family planning methods during both surveys

Usage of family planning methods	% (n) of married female		P-value
	Baseline (n = 141)	Endline (n = 131)	
Either she or husband ever used family planning methods for delaying pregnancy?			
Yes	36.2 (51)	32.6 (42)	0.309
No	61 (86)	63.6 (82)	
Didn't answer	2.8 (4)	3.9 (5)	
Which family planning methods used?*	**N = 51**	**N = 42**	
Injection	51.9 (27)	60.5 (26)	0.680
Pill	48.1 (25)	41.9 (18)	
Male sterilization	0 (0)	7.0 (3)	
Implants	5.8 (3)	4.7 (2)	
Condom	0 (0)	2.3 (1)	
Emergency birth control	0 (0)	2.3 (1)	
Breastfeeding as birth control	0 (0)	2.3 (1)	
Withdrawal	0 (0)	2.3 (1)	
Safe period/periodic abstinence	1.9 (1)	0 (0)	
Whether she wants child within next 2 years	**N = 340**	**N = 343**	
Yes	13.5 (46)	20.1 (69)	0.000
No	62.4 (212)	69.4 (238)	
Not sure	24.1 (82)	10.5 (36)	

***Multiple responses**

Community health workers (CHWs)

Frequency and services of community health workers (CHWs)

Around 96.8% and 97.4% respondents said that community health workers visited their houses during baseline and endline, respectively. During baseline, 91.2% mentioned having CHW in their house only 1-3 times, 7.3% had CHW in the house 4-5 times and only 1.5% said they had CHW more than 5 times in their house during baseline. During endline, proportion of 1-3 visits decreased to 69.8% and 4-5 times and more than 5 times visit increased to respectively 25.4% and 4.8% (Table 27).

Among the services CHW provided while they visited the house, the proportion of mentioning about distributing materials on good health and hygiene (53.2% vs 57.2%), informing on sources of FP methods (16.4% vs 45.2%), and informing on easily available healthcare (10.3% vs 22.5%) increased from baseline to endline. And the mentions of the rest of the services, like, make list of pregnant women (52.3% vs 43.7%), informing on FP methods (71.7% vs

32.3%), discussing on antenatal care (66.6% vs 24%), encourage on institutional delivery (40.1% vs 19.5%), monitor health (19.2% vs 17.7%), refer to appropriate healthcare center, when needed (17.3% vs 10.2%), bring women to healthcare, when needed (11.9% vs 3.9%) and assist those who need help in reaching the referral centers (3% vs 0.3%) decreased over time (Table 27).

Table 27: Percentage of respondents by the role of the community health workers (CHW) during both surveys

Role of the community health workers (CHW)	% (n) of married female		P-value
	Baseline (n = 340)	Endline (n = 343)	
The community health workers (CHW) ever visited her house?			
Yes	96.8 (329)	97.4 (334)	0.212
No	3.2 (11)	1.2 (4)	
Don't know	0 (0)	1.5 (5)	
Number of visits per month	**N = 329**	**N = 334**	
1-3 times	91.2 (300)	69.8 (233)	0.000
4-5 times	7.3 (24)	25.4 (85)	
>6 times	1.5 (5)	4.8 (16)	
Services CHW-s provide during visits*			
Distributing materials on good health and hygiene	53.2 (175)	57.2 (191)	0.000
Informing on sources of FP methods	16.4 (54)	45.2 (151)	
Make list of pregnant women	52.3 (172)	43.7 (146)	
Informing on FP methods	71.7 (236)	32.3 (108)	
Discussing on antenatal care	66.6 (219)	24.0 (80)	
Informing on easily available healthcare	10.3 (34)	22.5 (75)	
Encourage on institutional delivery	40.1 (132)	19.5 (65)	
Monitor health	19.2 (63)	17.7 (59)	
Refer to appropriate healthcare center, when needed	17.3 (57)	10.2 (34)	
Bring women to healthcare, when needed	11.9 (39)	3.9 (13)	
Assist those who need help in reaching the referral centers	3.0 (10)	0.3 (1)	
Don't know	0.3 (1)	0.3 (1)	

***Multiple responses**

Pictorial pocketbook on SRH-FP related information

Reception and knowledge on the pocketbook on SRH-FP related information

During endline, respondents were asked about the SRH-FP information pictorial pocketbook. Around 87.2% respondents knew about the book. Those who knew about the book, 87% heard it from project workers or CHW, 17% heard it from neighbors or peer educators and 0.7% heard it other sources (Table 28).

Around 97% of the respondents told that they received the book and around 2.3% did not respond on that. 98.6% of them received the book from project workers or CHW and 3.1% mentioned neighbors or peer educators as their source (Table 28).

Around 61.9% respondents informed that they received information about the book from any project worker or CHW or neighbor (peer educator). Around 61.2% respondents read the book. Among those who read the book, 10.9% read the book at least once daily, 27.2% read it at least once weekly, 57.6% read it at least once monthly, whereas 4.3% did not respond (Table 28).

Among the knowledges learnt from the book, menstrual hygiene (69.9%), danger sign during pregnancy (42.5%), family planning (39.1%), correct age of having children (37.8%), correct age of marriage (28.1%), newborn care (20.1%), antenatal care (16.1%), postnatal care (10%) and skilled birth attendant during delivery (8.4%) were mentioned (Table 28).

Table 28: Percentage of respondents by the SRH-FP information pictorial pocketbook during endline survey

SRH-FP information pictorial pocketbook	% (n) of married female Endline (n = 343)
Have knowledge on the pocketbook	
Yes	87.2 (299)
No	12.8 (44)
Source of knowledge on the pocketbook*	**N = 299**
Project workers / CHW	87.0 (261)
Neighbor / peer educator	17.0 (51)
Others	0.7 (2)
Received the pocketbook	
Yes	97.0 (290)
No	0.7 (2)
Didn't respond	2.3 (7)
Source of the pocketbook*	n = 290
Project workers / CHW	98.6 (289)
Neighbor / peer educator	3.1 (9)
Any project workers (CHW) or neighbor (peer educator) ever shared knowledge on the pocketbook?	**N = 299**
Yes	61.9 (185)
No	37.5 (112)
Ever read the pocketbook?	
Yes	61.2 (183)
No	34.8 (104)
Didn't answer	4 (12)
How regularly read the book?	**N = 183**
At least once daily	10.9 (20)
At least once weekly	27.2 (50)
At least once monthly	57.6 (106)
Didn't answer	4.3 (7)
Knowledge learnt from the pocketbook*	**N = 299**
Menstrual hygiene	69.9 (209)
Danger sign during pregnancy	42.5 (127)
Family planning	39.1 (117)
Correct age of having children	37.8 (113)
Correct age of marriage	28.1 (84)
Newborn care	20.1 (60)
Antenatal care	16.1 (48)
Postnatal care	10.0 (30)
Skilled birth attendant during delivery	8.4 (25)

***Multiple responses**

Sharing knowledge on the SRH-FP pocketbook

Around 40.5% respondents discussed about the pocketbook with others. Majority of them (92.8%) discussed it with their neighbors. Around 29.7% and 10.8% respondents discussed it with their husband and brother's wife respectively. A small percentage of respondents (below 7%) discussed the book with their sister-in-law, sister, mother, mother-in-law, and friends (Table 29).

Table 29: Percentage of respondents by the SRH-FP information pictorial pocketbook during endline survey

SRH-FP information pictorial pocketbook	% (n) of married female Endline (n = 299)
Have discussed about the pocketbook with others?	
Yes	40.5 (121)
No	59.2 (177)
Didn't respond	0.3 (1)
Discussed about the pocketbook with whom?*	**N = 121**
Husband	29.7 (33)
Mother-in-law	2.7 (3)
Brother's wife	10.8 (12)
Friend	2.7 (3)
Neighbor	92.8 (103)
Sister	5.4 (6)
Mother	5.4 (6)
Sister-in-law	6.3 (7)
Others	2.7 (3)
Want to discuss about the pocketbook in the future?	**N = 297**
Yes	71.9 (215)
No	27.4 (82)
Don't know	0.6 (2)

***Multiple responses**

Viewpoints on the SRH-FP pocketbook

Around 68.2% respondents liked the pocketbook, whereas 29.4% of them somewhat liked it and 1.7% did not the like the book. 69% of them thought that this book can improve their knowledge on SRH-FP. 30% were doubtful about it and 0.3% thought it could not increase their knowledge on SRH-FP at all (Table 30).

Table 30: Percentage of respondents by the SRH-FP information pictorial pocketbook during endline survey

SRH-FP information pictorial pocketbook	% (n) of married female
	Endline (n = 299)
Like the pocketbook?	
No	1.7 (5)
Somewhat	29.4 (88)
Yes	68.2 (204)
Don't know	0.7 (2)
The pocketbook can improve knowledge on SRH-FP	
No, it cannot	0.3 (1)
Somewhat	30 (89)
Yes, it absolutely can	69.0 (205)
Don't know	1.2 (4)
Positives about this pocketbook*	
Mirror	57.9 (172)
Beautiful design	48.8 (145)
Easy to understand due to the pictures	47.8 (142)
Informative	29.6 (88)
Lightweight	16.8 (50)
Others	2.4 (7)
Negatives about this pocketbook*	
Wrong size	59.1 (172)
Not easy to understand	15.1 (44)
Not informative enough on SRH-FP	11.7 (34)
Does not look pretty	7.2 (21)
Others	14.4 (42)
Overall opinion on the pocketbook based on its characteristics, effectiveness and informativeness	
Not good at all	0.3 (1)
Not good	0.7 (2)
Somewhat okay	20.4 (61)
Good	34.4 (103)
Very good	43.8 (131)
Didn't respond	0.3 (1)

***Multiple responses**

Some positive features of this pocketbook mentioned by the respondents were mirror (57.9%), beautiful design (48.8%), easy to understand due to the pictures (47.8%), informative (29.6%), lightweight (16.8%) etc. As some negative features, wrong size (59.1%), not easy to understand (15.1%), not informative enough on SRH-FP (11.7%) and does not look pretty (7.2%) were mentioned by respondents. When the respondents in endline were asked about an overall opinion on the book, 43.8% said that this book was very good, 34.4% said it was

good, 20.4% thought it was somewhat okay, only 0.7% and 0.3% respondents though that it was not good and not good at all respectively (Table 30).

Advice on the SRH-FP pocketbook

Respondents were asked for advices on the book. Some advices, such as, make the size larger (23.2%), add more mirror, or add larger mirror (7.4%), add more photos, or add bigger photos (1%), make the text more readable (0.3%) and please make it more beautiful (0.3%) were mentioned. 2.7% respondents thought that it was good enough. 47.1% of the respondents said that they have no opinion on it. 17.8% did not respond at all (Table 31).

Table 31: Percentage of respondents by the SRH-FP information pictorial pocketbook during both surveys

SRH-FP information pictorial pocketbook	% (n) of married female
	Endline (n = 299)
Advice on the pocketbook*	
Make the size larger	23.2 (69)
Add more mirror, or add larger mirror	7.4 (22)
Add more photos, or add bigger photos	1 (3)
Make the text more readable	0.3 (1)
Please make it more beautiful	0.3 (1)
Good enough	2.7 (8)
No opinion	47.1 (140)
Didn’t answer	17.8 (53)

***Multiple responses**

Discussion

The study presented the effect of an innovative intervention, entitled “SRH-FP Pocketbook” to increase the knowledge and capacity of the married Rohingya women and girls of reproductive age (15-49 years old) on sexual and reproductive health and family planning (SRH-FP) issues. The goal of the project was to assess the feasibility, acceptability, and utility of a pictorial pocketbook on SRH-FP matters in the Burmese language among the target population. A more specific objective was to document the utility of the SRH-FP pictorial pocketbook among the married Rohingya refugee women and girls.

An increase in knowledge was observed on adolescent age among the married Rohingya women and girls of reproductive age, although fewer Rohingya women knew the real adolescent age group. The findings also demonstrated an increase in pre-knowledge and sufficiency of knowledge on menstruation, emergency contraception and commercial brands for emergency contraceptive methods, postnatal care for mother and newborn, the ideal time gap between two consecutive children and time of IUD being effective. However, the pre-knowledge on menstruation was still inadequate for the Rohingya women. Moreover, the usage of recommended healthy menstruation products such as sanitary napkins and cotton (21) both declined over time. Difficulty in disposing of such menstrual products might have led the females to use a reusable option during menstruation (22). Such as cloth, which increased during the time although not recommended by UNICEF because it can cause abnormal vaginal discharge, rashes, urogenital infections etc., if not followed certain hygiene rules (21). However, Rohingya women who used cloth maintained proper cleaning methods, like using soap and water, and some even threw away the cloth after one use. Majority of married Rohingya women believed that men should be in their twenties before getting married and having the first child. As for women’s ideal marriage age, almost of them agreed that 18 years of above should be the best time. However, alarmingly, almost half of them supported adolescent pregnancy despite a growth in knowledge on the several hazards caused by it.

An increase in the usage of family planning methods was observed during the endline study. However, a decrease in using pills and condoms as well as a decrease in pharmacy as the source of family planning methods were observed in the study. While the government and the private or NGO health workers were great sources of contraceptives, as a source, the role of refugee camp primary healthcare centres decreased over time. Uncertainty about side effects, unavailability of the preferable method, social stigma and religious views against family planning methods, husband’s unwillingness etc., were some sole reasons why Rohingya women or their husbands refused to use any family planning methods then. During the intervention period, support on family planning products from the husbands of the respondents

and other family members improved. The situation could have improved even further if the Rohingya people could relate the usage of family planning methods directly with the good health of mother and child and if they were trained on handling the side effects of using such methods.

Knowledge on several topics such as menstrual hygiene, danger signs of pregnancy, family planning, sources of family planning methods, time-space of using postpartum family planning method after birth, antenatal care, delivery preparedness, newborn care was already adequate among the married Rohingya women in reproductive age, and these did not change much during the intervention period. Rohingya women did not know enough about the ideal number of children people should have, and in fact, the misconception of the actual number increased over time. Knowledge of the permanent family planning method was poor at the beginning as well as at the end of the intervention. On the other hand, the study revealed that some crucial knowledge like the time-space of family planning methods after childbirth, time to the implant being effective, etcetera decreased in the endline study. However, among the females who knew about family planning methods, knowledge of most of the options increased over time.

A noteworthy point about the married Rohingya women enrolled in the study is that majority of them in the baseline, and a higher portion of them in the endline study had no formal education, and almost all of them had no form of earning sources. Therefore, they had limited experience in gathering knowledge, opinions or attitudes through reading which averts them from self-learning. Being culturally conservative and having limited permission to earn also limits females with more knowledgeable people (23). COVID-19 brought lockdown to the Rohingya camp to aggravate the situation, which restricted various knowledge sharing activities, such as group counseling, literacy sessions, skills developments, etc., which are the sole sources of learning for the Rohingya women (24). These issues might have played a significant role in controlling or delaying the growth of knowledge in sexual and reproductive health and family planning issues.

The majority of the married Rohingya women and girls of reproductive age received the pictorial pocketbook. To ensure proper benefits from the pocketbook, the routine dissemination of comprehensive information on SRH-FP from the book by the CHWs was mandatory. Selected peer educators or neighbours were needed to play the role of spreading the knowledge through discussion among the peers. Although most of the married Rohingya women mentioned the presence of community health workers (CHWs) in their house and the monthly visits increased over time, the time of the visits was limited, and group discussion was restricted due to COVID-19. Therefore, sharing the knowledge on the pictorial pocketbook

could not go smoothly during the intervention period. Also, from the interviews of married Rohingya women, it was revealed that mainly the services and advice on several SRH-FP matters by CHWs decreased over time. Their interaction with the peer educators or neighbours regarding the book was overall shallow compared to the interaction with CHWs. Around two-thirds of those who received the books read the book, and more than half of those read it once a month. Many married Rohingya women had not discussed the pocketbook enthusiastically with others around them; however, they revealed their interest to do so in the future.

The pocketbook on the information of sexual and reproductive health and family planning issues received positive feedback mostly on its external look. The details of the design succeeded in drawing the females' attention and gaining fondness towards it. Some women remarked its informativeness as well. However, many of them didn’t agree with the size of the book. Only a few of them complained about the contents of the pocketbook. But overall, the women seemed to accept the pocketbook as a suitable object.

Recommendations

1) To build a better menstrual hygiene habit among the Rohingya women of reproductive age, an adequate supply of healthy menstrual products and knowledge on making the best use of the available products should be ensured.

2) A better way of living can be taught by bringing the Rohingya people under the light of education and motivating them for self-learning to avail quality SRH and FP services. This way, any initiative to improve knowledge on SRH and FP issues will thrive more effectively.

3) Message and motivation on having a small family, usage of family planning methods, birth preparation, maintaining birth spacing between successive births, quality antenatal care, and postnatal care for mother and child are pertinent and should be emphasized in the future interventions.

4) Adequate supply of necessary family planning methods at the primary healthcare centers at the refugee camps, upazilla, and district level health facilities should be ensured.

5) Keeping the pandemic situation in mind, current strategies and policies should be rethought and refined to persevere the progress.

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