Project titled:

ENHANCING REPRODUCTIVE HEALTH SERVICES USE BY MARRIED ADOLESCENT GIRLS AND YOUNG WOMEN – ROLE OF COMMUNITY WOMEN VOLUNTEERS

Baseline Survey Report, 2021

UTILIZATION OF LADY HEALTH WORKER-PROVIDED FAMILY PLANNING AND REPRODUCTIVE HEALTH SERVICES BY MARRIED ADOLESCENT GIRLS AND YOUNG WOMEN

NUR CENTER FOR RESEARCH AND POLICY

AT NUR FOUNDATION

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LIST OF ACRONYMS

BHU	Basic Health Units
CHWs	Community Health Workers
CPR	Contraceptive Preventive Rate
CWVs	Community Women Volunteers
FGD	Focused Group Discussion
FP	Family Planning
FPRH	Family Planning Reproductive Health
FSMT	Field Supervisory and Monitoring Team
HRH	Human Resources for Health
IRMNCH&N	Integrated Reproductive Maternal Newborn, Child Health and Nutrition Programme
LHS	Lady Health Supervisors
mCPR	Modern Contraceptive Preventive Rate
MDGs	Millennium Development Goals
MNCH	Maternal Newborn and Child Health
NCOP	NUR Community Outreach Program
NCRP	Nur Center for Research and Policy (NCRP)
ODK	Open Data Kit
PDHS	Pakistan Demographic and Health Survey
PEER	Partnership for Enhanced Engagement in Research
QA	Data Quality Assurance
QC	Process and Quality Control
RHC	Rural Health Center
UHC	Universal Health Coverage

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BACKGROUND

We developed a mixed methods project to document the effectiveness of Community Women Volunteers (CWVs) in enhancing access of Lady Health Workers (LHWs) to married adolescent girls' and young women improve their utilization of LHWs' provided Family Planning Reproductive Health (FPRH) services. A 'Before and After' study was designed to experimentally test the effectiveness of Community Women Volunteers (CWVs). The project aimed to address four major gaps in the implementation of FPRH services at the community level: a) low access of LHWs to young women for the provision of FPRH services, b) lack of solution-testing research to inform policies and implementation of IRMNCH&N program, c) ineffective community mobilization, and d) inadequate inter-sectoral collaboration. Additionally, the study aimed to bring focus on the marginalization of married adolescent girls and young women from accessing FPRH services. A secondary outcome of the project was contribution towards Health Systems Strengthening. The purpose of the study was to make available a tested, cost-effective and scalable solution to the IRMNCH&N Program for accelerating increase in contraceptive prevalence rate (CPR) and improving reproductive health of married adolescent girls and young women. Our project received funding from Partnerships for Enhanced Engagement in Research (PEER) and was launched on January 1st, 2019.

COVID-19 Impact on the Project and Revised Project

The inception phase and baseline survey had been completed and half of the intervention testing phase had been undertaken when the COVID-19 lockdown was imposed in Punjab. Both the LHWs' and the project activities came to a stop. A revision of the project had to be done after the lockdown was lifted in the project field area. Owing to the historical bias which had been introduced, the interventional study was discontinued. The project was revised to mitigate the adverse impact of the pandemic and partially achieve the project objectives. With the approval of PEER, it was decided to collect data from the 900 CWVs recruited by the participating LHWs of the project, the 225 participating LHWs and the 14 Lady Health Supervisors (LHS) supervising the work of the participating LHWs on behalf of the Lahore district IRMNCH&N. Their background data, knowledge and practice of FPRH, the CWVs' reasons for volunteering, the LHS' and LHWs' experience of working with CWVs, and suggestions for institutionalizing CWVs in the IRMNCH&N program were documented.

In this report the data collect for the Baseline Survey of the quantitative 'Before and After' study is presented. The data collected from the CWVs, LHWS and LHSs are presented in separate reports.

EXECUTIVE SUMMARY

Introduction

Despite being a priority area in the policies of all governments since the 1960s, population growth control remains a challenge for Pakistan's government. Since the early 1990s, Primary Health Care (PHC), Family Planning and Reproductive Health (FPRH), and Maternal Newborn and Child Health (MNCH) services strengthening and coverage expansion have been areas of special focus. In Punjab, many initiatives have been taken in recent years to strengthen PHC and its FPRH and MNCH components and enhance their coverage. Despite these efforts, MDGs have been missed, the country's commitment to increase Contraceptive Prevalence Rate (CPR) to 50 by 2020 has not been fulfilled, and Family Planning and Reproductive Health Indicators are improving sluggishly.

Available evidence suggests that critical shortage of Human Resources for Health (HRH), continuing low investments in PHC, Pakistan's demographic youth bulge with the resulting increasing proportion of adolescent girls and young women keeping birth rates high, and women's low utilization of FPRH services are barriers to the achievement of the country's FPRH goals and international commitments. The many tasks assigned to Lady Health Workers (LHWs), who are the main providers of PHC and FPRH services for the poor and marginalized communities, hinder them from performing their primary duties, and prevent programs like IRMNCH from fully achieving their goals and objectives. On the other hand, the increasing proportion of the highly marginalized married adolescent girls and young women population which currently constitutes 20% of married women of child bearing age, demands special attention. The Contraceptive Prevalence Rate (CPR) among this group is half that of all women of child bearing age. If special focus is not brought on to the FPRH needs of this age group in Programs like IRMNCH, Pakistan and the Punjab province are unlikely to achieve national goals and realize the many international commitments the country has made.

Objectives

The study aimed to test the effectiveness of Community Women Volunteers (CWVs) in enhancing the utilization of LHWs' provided family planning and reproductive health services by married adolescent girls and young women (aged 15- 25 years).

The objectives of the Baseline Survey were to document:

1. The background socio-demographic data of the respondents
2. Their family planning and reproductive health history
3. Their family planning and reproductive health knowledge and practices
4. Their knowledge about LHWs' provided FPRH services and utilization of the services

Participants and Methods

The study was undertaken in Nishtar Town, Lahore District with the permission of and in regular consultation with district IRMNCH&N Office. From among the 377 LHWs working in the area,

225 were recruited with their informed consent. From among the households served by the participating LHWs, a total of 5249 married adolescent girls and young women in the age range 15-25 years were selected (using the snowball sampling technique) and administered a structured interview. After cleaning and filtering for completeness and consistency, 4635 interviews were analyzed.

Key Findings

Education and Employment Status
The respondents of the study had a higher average literacy rate than that of women of child bearing age in Pakistan and the Punjab province as reported by PDHS 2017-18. Their literacy rate and secondary education status was better than their husbands unlike that reported for females and males by PDHS 2017-18.

Their employment rate was 93%, with majority working as domestic servants. Despite their equal or slightly better education status, their monthly income was, on average, less than that of their husbands. The maximum monthly household income was PKR 40,000.

Marriage and Pregnancy
The mean age at marriage and at first delivery were lower than the median ages reported by PDHS 2017-18. The following means were derived from the survey data:

- Mean age at marriage -18.56 years
- Mean age at first delivery -19.48 years'
- Mean number of pregnancies - 2.10
- Mean number of living children - 2.03

Family Planning and Reproductive Health knowledge and Practice
Three out of four respondents of the survey were ignorant about the availability of LHWs' FPRH services at the household level, 87.6 percent had never received any FPRH counseling. Among the ones who had received counseling, LHWs had provided counseling to 18.8 percent and midwives to 56.9 percent.

The respondents had mixed knowledge about the healthcare needs of married women.

- 50.9 percent acknowledged the need for skilled birth attendants
- 40.8 percent recognized family planning services need
- 76.8 percent were aware of antenatal care need

Positive findings of our study included:

- High rates of antenatal care during last pregnancy: 81percent had antenatal checkups, of whom 76.5 percent had had 4-8 antenatal checkups,
- High rates of skilled birth attendance at last delivery: 84.8 percent had skilled attendants with 87 percent hospital deliveries.

However, these findings have negative connotations as well. LHW services and PHC facilities were bypassed, and secondary and tertiary care level services were accessed directly. Doctors had provided antenatal care to 95.4 percent of the respondents and had attended the deliveries of 84.8 percent.

- Another negative finding was the 26 percent rate of caesarian section delivery.
- Two out of three women had not received postnatal checkups after their last delivery.

Study results further show low utilization of primary healthcare and LHW-provided antenatal services. Lady Health Workers had:

- Advised antenatal care to 16 percent
- Provided antenatal care to 3.6 percent
- Provided supplements to 10.08 percent during their last pregnancy
- Advised vaccination to 22.2 percent
- Made 7.8 percent referrals for delivery

The findings of real concern are low demand, and poor knowledge and practice of Family Planning (FP). Over 71 percent of the respondents wanted to have more than 3 children; two out of three (62 percent) had no knowledge of FP, and 81percent had never used any contraceptives.

Overall, utilization of LHW-provided FPRH services by the respondents was found to be low, 45percent who had ever been pregnant were unaware of LHWs. Of those who were aware of LHWs, 47.0 percent recognized them as providers of reproductive health services and 55.0 percent as providers of family planning services.

Conclusions and Recommendations

Our survey results indicate that secondary and tertiary care facilities are preferred for antenatal and delivery services by the community and PHC and LHW-provided services are being bypassed. This trend increases healthcare costs for families and wastes government investments in PHC. It also reduces the impact of Universal Health Coverage in protecting families from impoverishment due to health costs. This issue needs to be prioritized and effectively addressed.

Utilization of family planning services by married adolescent girls and young women is low. Only 18.6 percent reported using contraceptives. This is less than half of the CPR (39-40%) of all women of childbearing age reported by PDHS 2017-18. This age group is currently lumped with all women of child bearing age and its specific needs are being ignored. Considering that youth make up a significant proportion of Pakistan's population, FPRH policies and programs need to focus on this age group and address the issues it faces in accessing and utilizing FPRH services.

After about three decades of service, LHWs have yet to be recognized as providers of FPRH services at the community level. This finding demands serious consideration since LHWs are the lynchpin for the achievement of PHC and FP goals and objectives. Further research is needed to understand the reasons for their lack of recognition by the communities in which they operate.

Furthermore, if tasks entrusted to LHWs cannot be reduced owing to the shortage of health workers, then community support for them maybe mobilized in the form of volunteers to create awareness about their services and facilitate their work by spreading their FP counselling messages in the community.

1: INTRODUCTION

Although it has been a priority area in the policies of all governments since the 1960s, population growth control remains a challenge for Pakistan. Pakistan was among the first Asian countries to draft a national population policy in 1966 and has since established elaborate institutional arrangements for the delivery of Family Planning and Reproductive Health (FPRH) services.

Until the 18th Amendment devolved FPRH duties to the provinces, two federal ministries – Health and Population Welfare – and corresponding provincial departments were responsible for the implementation of the government's FPRH policies. A succession of vertical programs was implemented to achieve national and international population growth and reproductive health goals.

Currently, the provincial governments' Health and Population Welfare departments have the responsibility and mandate for controlling population growth and achieving reproductive health goals. The provinces have integrated the previously vertically implemented FPRH and Maternal, Newborn and Child Health (MNCH) Programs into their Integrated Maternal, Newborn and Child Health Program (IRMNCH) including the National Program for Family Planning and Primary Health Care, popularly known as the LHW Program (IRMNCH&NP, 2020). The LHWs have a critical role in the provision of FPRH services. Over 100,000 LHWs have been trained and deployed to provide services at the household level, cover rural households, and reach out to the poor and marginalized populations of the country.[1]

Contraceptive Prevalence Rate (CPR) in Pakistan remained low until the introduction of the LHW Program in the early 1990s. The CPR then increased from 12% to 33% in the 1990-2000 decade but declined to 30% in the 2000-2010 decade. An increase to 40% occurred after the 2012 London Summit and the emergent FP 2020 movement. Pakistan committed to increase CPR to 50% by the year 2020, but according to the latest PDHS report, CPR has declined to 39% from the 40% reported in PDHS 2012-2013.[2,3]

Responsible factors for the fluctuating CPR and the persisting large unmet need are reported to be powerful and deep-seated social and cultural obstacles to contraceptive use in Pakistani society along with poorly designed family planning services (Casterline, et al., 2001).[4] One important but yet overlooked reason for the stagnating CPR is low use of contraception and modern contraceptives among married adolescent girls and young women aged 15-24 years. Globally aggregate trends and projections show that fertility rates are declining and population growth rates are stabilizing, but the total number of births are likely to increase or remain the same for some time to come since in developing countries the proportion of young women aged 15-24 years is

1. Pakistan's Lady Health Worker Programme. Global Health Workforce Alliance, World Health Organization**, Case Study.** https://www.who.int/workforcealliance/knowledge/resources/casestudy_pakistan/en/
2. MacQuarrie K. L. D. and Aziz A.Trends, Differentials, and Determinants of Modern Contraceptive Use in Pakistan, 1990-2018. DHS Further Analysis Reports No. 129. March 2020. USAID, UKAID, UNFPA
3. Pakistan Demographic and Health Survey 2017-18. National Institute of Population studies and ICF. 2019.
4. J B Casterline , ZA Sattar, M ul Haque. Obstacles to contraceptive use in Pakistan: a study in Punjab. Stud Fam Plann. 2001 Jun;32(2):95-110. doi: 10.1111/j.1728-4465.2001.00095.x.

increasing and if this age group is not persuaded to delay childbirth and increase spacing between children, it will keep births rates high (Hindin & Fatusi, 2009; Darroch & Singh, 2013).[5]

According to Pakistan's Demographic and Health Survey (PDHS) 2017-18, married adolescent girls aged 15-19 years comprise **4.8%**, and young women aged 20-24 years **15.3%,** of ever married women population. The overall median age at first birth in this group is about **22 years** (NIPS & ICF, 2019). Contraceptive use in this population is **20%** or less and unmet need is **38%** (Bureau of Statistics, Punjab & Planning and Development Board, Punjab, 2018).

The population group comprising married women aged 15 to 24 is highly marginalized with low social status and controlled access to available FPRH services. Successive FPRH, Maternal, Newborn and Child Health (MNCH) and Primary Health Care (PHC) programs implemented in the country, have ignored the specific FPRH needs of this age group with biologically immature reproductive systems, low social status, and economic dependency (Casterline, et al., 2001). One study undertaken by NCRP found that community members are generally unaware of FPRH services provided by LHWs and those who are aware restrict the LHWs' access to adolescent girls and young women for reproductive health counseling and family planning. The community attitude to family planning in this age group was reflected in the statement of a women community member of Focus Group discussion (FGD) who said: *"What else are they for, but to produce children."*

To boost the stagnating CPR and improve reproductive health indicators, LHWs' access to adolescent girls and young married women needs to be increased through the active involvement of the community. A study in rural Mozambique found a 42 percent reduction and another in Cambodia, a 72 percent reduction in under-5 mortality rate when paid Community Health Workers (CHWs), like the LHWs, recruited volunteer women groups called Care Groups (Care Group Model)[6] to help them in the dissemination of health messages (Ndima, et al., 2015; Ozano, et al., 2018). Each member of the Care Group disseminated critical health messages to 10 households in their neighborhood.

Similarly, the Jamkhed project in India and the Kakamega project in Kenya mobilized communities to improve health outcomes (CRHP, 2020; Hungry for Life, 2020). However, while the Indian and Kenyan interventions proved successful, they were not able to sustain the improvement, because the national government did not adopt the projects, and in fact undermined community participation. In Pakistan, while the constitution of women groups/committees in implementation of the community–based programs is done sporadically, there is little information on how effective their role is in the achievement of program goals. One project, a pilot non-randomized controlled trial, gave voluntary training to local traditional birth attendants ('*Dais*') and constituted village health committees for maternal and newborn health. The project

5. World Fertility 2019. Early and later childbearing among adolescent women. United Nations New York, 2020
6. Perry, H., Morrow, M., Borger, S., Weiss, J., DeCoster, M., Davis, T., & Ernst, P. (2015). Care Groups I: An Innovative Community-Based Strategy for Improving Maternal, Neonatal, and Child Health in Resource-Constrained Settings. *Global health, science and practice*, *3*(3), 358–369. https://doi.org/10.9745/GHSP-D-15-00051

demonstrated a 35 percent and 28 percent decline in peri-natal and neonatal mortality rates respectively in the intervention villages and no such decline in the control villages. [7]

We undertook a Baseline Survey of married adolescent girls and young women aged 15-24 years to document their FPRH knowledge and practice and their access to and utilization of FPRH services provided by LHWs. The objectives were to test the effectiveness of Community Women Volunteers in increasing the FPRH knowledge and improving practices among the target age group and enhancing their utilization of LHWs services. The study couldn't be completed owing to the COVID-19 pandemic. The baseline survey data is being reported for the purpose of bringing focus on to the need for this age group specific approaches within IRMNCH&N programs to achieve the program's objectives and goal.

2: STUDY OBJECTIVES

2.1. The original project objectives were:

2.1.1. To test the effectiveness of women volunteers in facilitating LHW's access to the marginalized group of married adolescent girls and young women, for the provision of FPRH counselling and oral contraceptives and improve the latter's family planning and reproductive health knowledge and practices.

- To increase Family Planning and Reproductive Health (FPRH) knowledge of the target group
- To improve behavior of the target group towards adopting reproductive health practices including micronutrient supplement use, antenatal care and skilled birth attendance
- To increase their use of modern contraceptives

2.2. The objectives of the Baseline Survey were to document at the baseline the target population's:

- Reproductive health knowledge
- Reproductive health services utilization
- Family planning knowledge and practice
- Contraceptive prevalence rate and modern contraceptives prevalence rate
- Knowledge of and utilization of services provided by LHWs

3. PARTICIPANTS AND METHODS

7. Bhutta, Z. A., Memon, Z. A., Soofi, S., Salat, M. S., Cousens, S., & Martines, J. (2008). Implementing community-based perinatal care: results from a pilot study in rural Pakistan. *Bulletin of the World Health Organization*, *86*(6), 452–459. https://doi.org/10.2471/blt.07.045849

3.1. Study Site

Nishtar Town in Lahore District of Punjab province was selected as the study site. The town is located at 18-20 km from Lahore city which is the seat of Punjab Provincial government. The total Area of Nishtar Town is 394.46 sq. km. There are a total of 31 Union council in the Town Zone. The total population of the town is 1,091,463 with 574,946 males and 516,517 females. A total of 377 LHWs are providing services at the household level and 18 Lady Health Supervisors **(**LHSs) are supervising them.

Data collection was done in 13 Union Councils namely, LGH 1, LGH 2, Heir, Leel, Shehzaday, Shehzaday Village, Pandoki, Halloki, Lakhoki, Kahna, Bhallar 1, Bhallar 2, Green Town, Nishtar Town and Nishtar Area as shown in the figure 1.

There are a total of 16 health facilities in the Town. These include Basic Health Units (BHUs) Kacha, BHU Leel, Maternal and Child Health (MCH) centers, Nishter Colony, BHU Araiyan, Lahore General Hospita (LGH), BHU Lakhoki, BHU Saraich, BHU Pandoki, BHU Shehzady, Rural Health Center (RHC), Khana nau, BHU Haloki, BHU Heir, BHU Bhallar, BHU Jia Bhagga, Filter Clinic 2CII Town Ship and Green Town dispensary.

Fig- 1: Study Site Map

3.2. Recruitment of Data Collection Teams

Field Supervisory and Monitoring Team (FSMT) and interviewers were recruited. The FSMT members were male, while all the interviewers were female. While marital status was not a criterion for interviewers, we gave preference to ones who were either married, or had been married, so as to ensure a better understanding of challenges and problems experienced by married girls.

Interviewers with a minimum graduate qualification were recruited. Exception was for interviewers who had prior data collection experience and demonstrated understanding of and necessary skills relevant to reproductive health research. All field data collection teams were native Punjabi and Urdu speakers. This was considered essential so as to ensure the development of a comfort level between the interviewer and respondent as quickly as possible. In addition, these linguistic skills ensured that the essence of the responses was not lost in colloquial expressions or local dialect.

Since the entire data collection process was to be carried out on electronic devices, interviewers were assessed on their understanding and experience of using android-based data collection software. Additional preference was given to those who had experience with Open Data Kit (ODK) based data collection tools and were able to carry out minor troubleshooting independently.

3.3. Data Collection Teams Training

The recruited field teams were given focused training on topics central to the theme of the assignment. Besides training on the study tools and data collection software the training also covered topics necessary for conducting successful field activity such as negotiation, conflict management, communication skills, safety and security etc.

The trainings were conducted by Subject Matter Experts, and also supported by members of Nur Technical Team. Additionally, a former Director IRMNCH&N delivered lectures. The training was conducted in batches between April 8 and April 13, 2019.

3.4. Questionnaire Translation, Modification, and Digitization

The original questionnaire was in English. The questionnaire was carefully translated into Urdu (keeping in mind the sensitivity of the nature of research topic) and then translated back to ensure that meaning and essence is retained across translation before being finalized.

The final draft was then reviewed by a Public Health Specialist with a background implementing FPRH programs in Pakistan. The translated questionnaire in Urdu language was easier for both the interviewers and the respondents to understand.

The final questionnaire was shared with the study technical team for approval before being digitized into the data collection application. Digitization allowed data collection using android-based devices. Some additions in the data collection tool were made after field testing of the final questionnaire. The final electronic form of the questionnaire was also shared with the study technical team so as to ensure seamless coordination between the study design team, the quality control and the field teams across these changes.

A custom data collection application was developed using **KoBoToolbox/ODK Suite**. This customized Kobo Collect software was used by field enumerators via smartphones for the collection of data. It greatly facilitated quality control standards of data at the point of entry as well as safe storage of the sensitive questionnaire information.

The digital form was revised based on feedback from the field teams regarding some repetitive questions that were causing annoyance to the respondents and interfering in data collection.

Appropriate skip-logic function was used to avoid the repetition of questions, which increased efficiency and reduced the chance of error.

The validation function was also applied on responses that were prone to human error. For example, only the age of 9 or above could be entered in answering a question relating to menstruation. The user-interface of the application was user-friendly, which allowed users to operate it easily with little training. On each submission of the form, the software produced a unique metadata ID for the submitted data file, which helped to identify the same forms which were submitted multiple times.

3.5. Sampling

3.5.1. Sample Size

For the original intervention-testing 'Before and After' study design, a sample size of 5000 was calculated to measure a true change of 5% in CPR and modern Contraceptive Prevalence Rate (mCPR) with 5% CI and 80% power. A buffer of 2000 was added to minimize attrition bias due to loss to follow up, respondents declining participation in survey, and dropouts of LHWs. It was predicted that if one LHW dropped out about 200 respondents would be lost to the study.

Owing to the change in sampling methodology sample size was recalculated using a Sampling Ratio of 0.13 at 90% power (1-Beta), to further reduce the chances of committing a Type II error. This required the collection of useable data from a basic sample of 3,549 households to support the analysis, and then add safety margins. The safety margin assumptions were independent of the sampling methodology, and so were held constant across the sampling change. This meant collecting about 5,000 data records to allow for loss to follow and other potential losses and dropouts.

3.5.2. Sampling Methodology

A two-step process was used to identify the respondents for the study. In the first step a sample of LHWs was selected. In the second step, a sample of married adolescent girls and young women aged 20-24 years, living in households that were receiving services by the selected LHWs were identified for interviews.

Under the IRMNCH&N program, approximately 200 households are assigned to each LHW. It was assumed that about 160 (80%) of the 200 households would have a married woman of childbearing age and 20% of these married women would fall in the age bracket of 15 to 24 years, the target age group of this study (PDHS 2013/2014). Based on these assumptions, 225 LHWs were recruited from Nishtar Town after obtaining permission from the Lahore District IRMNCH&N office and consent from the LHWs through letters requesting their participation in the study.

A meeting was held with the participating LHWs in which they were given a briefing on the study and asked to provide lists of households from among their coverage households who included married women of the study target age group. The lists were provided to the data collection teams.

3.5.3. Setback in sampling

In the first week of administering the survey, our team discovered that our assumption that LHWs are well-acquainted with the households they are assigned for provision of primary care and FPRH services was unfounded. The data collection teams found that the addresses on the lists provided by the LHWs were vague, and in some areas, the field teams could hardly locate one or two houses per team per day. The field teams reported the following challenges impeding sampling and data collection:

- Most addresses were vague, making it difficult to identify the houses of respondents
- In the first week alone, out of 2500 addresses filtered, only 500 contained barely usable postal markings. The addresses could only point the teams towards landmarks bearing points where there were scores of houses making it impossible to identify the listed house correctly. In some areas the data collection teams were unable to identify any house after walking around for 2-3 hours. The more than 40 team members in the field were hardly able to complete 2-3 interviews per interviewer per day.
- In many identified houses, women of the required age group were not present.

3.6. Revised Sampling Methodology

As a result of the aforementioned issues, the project team and principal investigator decided to change the sampling methodology. The revised approach was a mix of snowball sampling within geographic clusters in Nishtar Town. The survey teams would identify and select households based on information provided by local community members and households they had visited already. Houses were selected on the following criteria:

- A married woman of the target age group was present in the house
- The woman was willing to give interview
- The household was covered by an LHW participating in the study

With the modified methodology, we were able to find households meeting the above criteria in 3 of every 4 households visited. Approximately 11,500 households were visited and 8100 interviews were carried out. Due to the limitations discussed earlier, the team was able to derive **5249** usable data records from the 8100 interviews. The sample size is adequate to demonstrate a 5% true change in mCPR with a degree of certainty at 90% power.

3.7. Advance Field Visits

In the initial study protocol, advance field visits to the study sites were to be made to engage with influential individuals of the areas, locate the households that the LHWs had listed, and meet the heads of the households to gain their permission and support for the interviews. With the change of sampling methodology, the advance field visits plan also had to be changed since the field teams did not know which households were to be sampled until arriving in the field. Their originally planned meetings with heads of respondents' households had to be cancelled. Instead, they focused on acquiring the support of influential members of the community (religious leaders, elders, police stations, respected professionals like doctors & lawyers, etc.). These individuals helped to obtain

the cooperation of the community in identifying households as well as the cooperation of the identified households.

3.8. Data Collection

Data collection started on April 10, 2019 and was completed on July 10, 2019. The following four widely-used and standard attributes of high quality data informed the data collection.

3.8.1. Data Quality Assurance (QA) Process and Quality Control (QC)

All relevant data quality assurance measures were employed to ensure that the quality of data gathered was of the highest standards of accuracy and completeness, while maintaining data safety and confidentiality of participants. The preventative and cross-checking Quality Assurance measures included:

3.8.2. Verification of data collection process during fieldwork

- GPS tracking of field visits
- photographic evidence of the households visited
- photographic evidence of landmarks near households visited
- GPS coordinates of the locations of the completed questionnaire
- requesting signatures from the members of the households on consent sheets

3.8.3. Data Quality Assurance

- Adequate training, supervision and accountability of field staff
- Data Collection tool designed with simple, direct questions (with written instructions) given in multi-lingual format
- Restricting inputs (skip logic, MCQs, etc. in Kobo Collect software)
- Attention Test Questions
- Utilizing digital data collection software instead of data entry (no transcription errors)
- Data cleaning (missing data, preventing duplicates, misspelling, incompleteness, etc.)
- Data validation (Cross-checking inconsistencies, checking for reasonableness of answers, verification of unusual trends in data that went against reliable third-party information) Quality Control (QC)

3.8.4. Data Quality Control (QC)

Kobo Toolbox-based electronic data collection app was used to reduce transcription errors and enhance the validity of data by providing extensive guidance and reminders to the staff about how the data is to be collected during the process of the interview through skip-logic, error prompt for wrong entries, and attention checks, etc.

To ensure that correct methodology was being followed and to protect data *integrity* from interviewer biases, the staff was given detailed training in interview methodology, a run-through

of each question in the questionnaire along with a detailed overview of potential issues that may arise due to the sensitivity of the research topic and how to best handle them.

The project field management team carried out regular spot visits and implemented continuous electronic supervision through the support of Kobo Toolbox software developer. Location data collected via Life360 app and WhatsApp location was tallied with addresses given in forms and EXIF data from photos.

Moreover, the data submitted by field teams was continuously being reviewed by Data Quality Assurance Manager and Research Manager.

Besides this, overall performance trends of data collection were also tracked in the following statistics:

- Ratio of data to errors (fewer errors while size of data grows shows that data quality is improving)
- Number of empty values
- Data time-to-values

Approximately 3000 questionnaires were rejected due to the stringent QC measures implemented. To make up for the large number of rejected interviews, the number of houses identified and visited were increased and a total of 8100 interviews were done. These were all assessed for quality and 5249 were found to be of the required quality.

3.9. Data Handling and Digitization

Data Safety and Confidentiality were major concerns throughout the process of Data Handling. These were protected as follows:

The number of individuals given access was minimized. Three clear access levels were maintained.

- **Data collection staff** had access to information only while collecting or entering data into digital form. Forms were not editable or viewable when finalized.

- Only a few **individuals** were given the passwords to the raw data, with personally identifiable information removed and replaced with codes.

- Only the Project Lead and staff members with Quality Assurance roles retained access to master codes of personally identifiable information.

The project teams were trained in the IRB-approved methods for managing and storing research data. The following directions were followed at each stage of working with data:

- Systems and work files were protected with login and passwords
- Virus protection was regularly updated to prevent vulnerability of data
- Access to computers, equipment and storage media were limited to authorized members

- Concerned staff members were instructed to read and adhere to *Data Security Plan* and not allow access to or transmission of information unless authorized
- Staff were directed to ensure accurate data removal after usage using certified data erasing tools
- Staff were responsible for ensuring secure means of backups and ensuring data recoverability in case of emergencies (Shared folders in Microsoft cloud storage is acceptable)
- Backups were clearly labeled when electronic data was originally recorded or passed any stage of research so that it could be recovered and both unintentional and malicious alternations could be prevented. Staff were encouraged to encrypt files whenever transmitted through email or over internet and advised to keep track of files on internet to prevent accidental file sharing

The Nur Center for Research and Policy (NCRP) strictly applies the following policy for its staff at each stage of working with data

- Staff systems and ideally, even work files are protected with login and passwords
- Staff should regularly update virus protection to prevent vulnerability of data
- Staff should limit physical access to their computers, equipment and storage media
- Staff must read and adhere to *Data Security Plan* and not access or transmit information unless authorized
- Staff must ensure accurate data removal after usage using certified data erasing tools
- Staff are responsible for ensuring secure means of backups and ensuring data recoverability in case of emergencies (Shared folders in Microsoft cloud storage is acceptable)
- Backups should be clearly labelled when a piece of electronic data was originally recorded or passed any stage of research so that it can be recovered, and any unintentional or malicious alternations can be prevented staff are encouraged to encrypt files whenever transmitted through email or over internet. Staff were advised to keep track of files on the internet to prevent accidental file sharing.

3.10. Challenges encountered during Data collection

Since the original 'Before and After' study was aimed at demonstrating a real change in the study indicators by comparing Baseline data with End-line data 12 months after the introduction of the study intervention, correct and traceable addresses and identification data of the cohort households of the study target population was of critical importance. In the field, it was found that the target group of women were predominantly located in the peripheral and rural areas of Nishtar town. This was owing to a differential in age at marriage in urban and rural areas with a higher proportion of girls in urban areas having higher age at marriage compared to rural areas. Addresses and postal details are generally poorly defined in rural locations – many household owners are themselves unaware of their postal addresses. This led to difficulties in locating houses at the baseline, as well as recording accurate addresses and house identification data for the follow-up End-line survey.

Our change of sampling methodology and adoption of the snowball sampling method resulted in several weeks' delay and were responsible for triggering a chain of delays in data collection:

- Days lost in testing of new sampling methodology
- The data collection plan had been worked out with Ramadan expected to start in early May 2019, and consequent Eid-ul-Fitr holidays in the first week of June 2019. The plan was upset and the delay due to Eid holidays couldn't be avoided
- The recording of house identification data became a cause of delay when due to a misunderstanding of one house owner who reported the photographing of the door of his house by the field team to police, data collection was stopped. The misunderstanding was cleared on the intervention of the Lahore District IRMNCH&N office.

3.11. Data Analysis

3.11.1. Baseline Survey Data Analysis

A total of **5249** respondents' data were cleaned and filtered for completeness and consistency, which resulted in the exclusion of 614 interviews, bringing down the total to **4635** interviews. Microsoft Excel and IBM SPSS were used for data cleaning and simple descriptive statistical analysis of the data. The data had been collected on questionnaire in which the variables/indicators had been pre-categorized for comparison of baseline and End-line data. Data analysis was undertaken accordingly on the pre-categorized themes including Reproductive Health Knowledge and Practices, Family Planning Knowledge and Practices, Knowledge and Utilization of LHWs Services.

Frequency tables were created for all of the variables. For numerical continuous variables, range, mean, standard deviation and their 95% confidence interval were calculated. For categorical variables, relative frequencies along were calculated with 95% confidence intervals. Numerical variables were categorized for a more comprehensive summary of the dataset. Aggregate scales were created for different sections of the survey which included Empowerment, Knowledge and Utilization of LHW services, Reproductive Health Services Knowledge and Family Planning Knowledge. For graphical representation of the variables, bar-charts, multiple bar-charts and clustered bar-charts were used.

4: RESULTS OF BASELINE DATA ANALYSIS

4.1. Respondents' Background Characteristics:

Highlights

- **Age range 15-25 years with a mean age of 22.37± 1.81 years**
- **Mean age at marriage of 18.56 years is lower than the median age of 20.4 years for all women aged 25 – 49 years nationally and 21.1 years in Punjab province**
- **Illiteracy rate of 24.55% is lower and secondary level education rate of 24.29% is higher than the national and Punjab provincial averages for educational attainment**
- **Educational attainment levels of respondents and their husbands are similar in contrast to higher men's education levels reported by PDHS 2017-18**
- **High employment rates among respondents but 93% with low paid jobs. Husbands with similar education levels had higher paid jobs**
- **Over 57% of the respondents were partially empowered**

The respondents' age ranged from 15–25 years with a mean age of 22.37± 1.81 years. Adolescent girls aged 15-20 years constituted about 16.83 percent of respondents. Their mean age at marriage was 18.56±2.15 years (CI 18.50-18.62) (Table-1, Fig.-2).

The mean number of household members of the respondents of 6.50 is about the same as the national households' mean of 6.6 reported by PDHS 2017-18.

Variables	**Range**	**Mean ±SD**	**Confid. Interval**
Respondents' Age N-4635			
Respondents' Age	15-25	22.37 ±1.81	22.31 -22.42
Family Size N-4635			
Family Size	1-43	6.50 ±4.18	6.38 -6.62
Age at Marriage N-4635			
Age at marriage	10-25	18.56 ±2.15	18.50-18.62
Education Level N 4635			
	Education Levels	**N (%)**	**Confidence Interval**
Education	Illiterate	1138(24.55%)	23.31%-25.79%
	Literate without formal education	565(12.19%)	11.33%-13.22%
	Primary	1347(29.06%)	25.24%-27.79%
	Secondary	1126(24.29%)	23.12%-25.59%
	Higher Secondary	111(2.39%)	2.37%-3.33%
	College	348(7.51%)	6.77%-8.29%
Family Total Monthly Income N 4635			
	≤10000	46(0.99%)	0.71%-1.28%

Family Income	10001-20000	1035(22.33%)	21.13%-23.53%
	20001-30000	2292(49.45%)	48.01%-50.89%
	30001-40000	930(20.06%)	18.91%-21.22%
	40001-50000	210(4.53%)	3.93%-5.13%
	> 50000	122(2.63%)	2.17%-3.09%
Respondents' Employment Status N 4635			
Employment Type	Unemployed	268(5.78%)	5.11%-6.45%
	Domestic service	4313(93.05%)	92.32%-93.78%

Table-1: Respondents Background Data

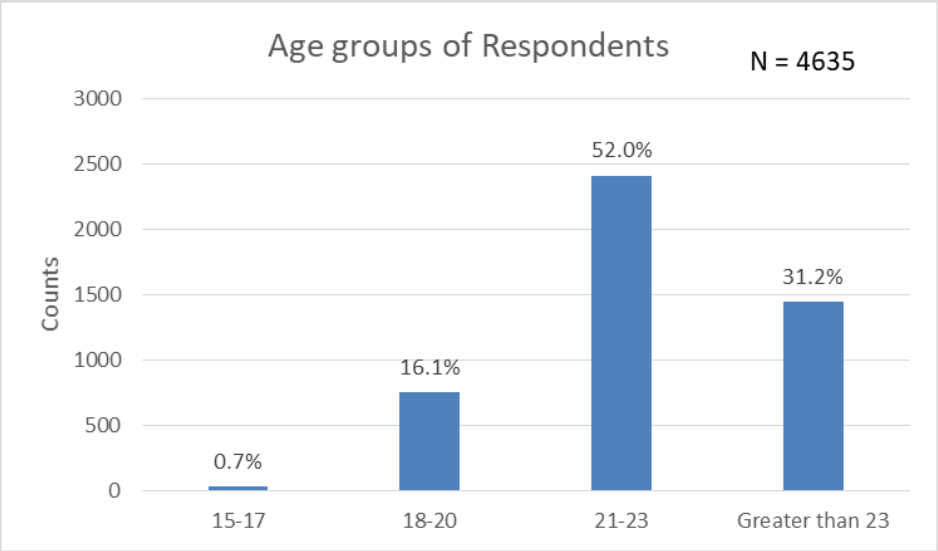


Fig-2: Age distribution of Respondents

Education levels in our study population differ from Pakistan's national data and Punjab provincial data as reported by PDHS 2017-18 for women aged 15–24 years. According to PDHS, 46.4 percent are illiterate at the national level and 38% at the provincial level. In our study populations, the rate of illiteracy is 24.5 percent. However, 12 percent of our respondents were literate without formal school education. If this group is added to the illiterate (no formal schooling) the illiteracy rate becomes about the same as Punjab provincial figure but remains 10 percentage points less than the national figure. Illiteracy among husbands of our respondents is also less than the 34 percent for all men in Pakistan. A higher percentage of our respondents (24.29 percent) had secondary level education as compared to the 13.2 percent at the national level and 14 percent in Punjab province overall.

Another difference from the national data is the differential between education level attained by women and men. At the national level, there is a significant difference between the educational attainment of men and women. In our sample of married adolescent girls and young women, no difference was found in the education levels of the respondents and their husbands (Table-2 and Figure-3). In fact, illiteracy was found to be about a percentage point higher among husbands and primary education 2.5 percentage points higher among the respondents.

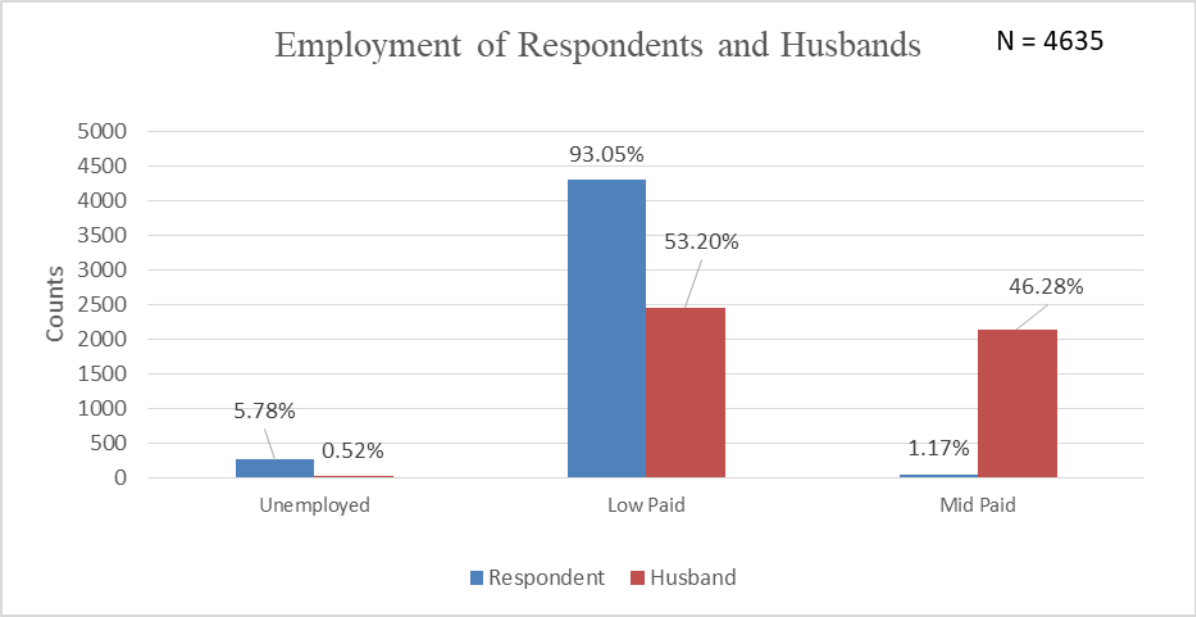
Education level	Respondents		Husbands	
	N (%)	**CI**	Frequency (%)	**CI**
Illiterate	1138(24.55%)	23.31%-25.79%	1227(26.47%)	25.20%-27.74%
Literate without formal education	565(12.19%)	11.25%-13.13%	569(12.28%)	11.33%-13.22%
Primary	1347(29.06%)	27.75%-30.37%	1229(26.52%)	25.24%-27.79%
Secondary	1126(24.29%)	23.06%-25.53%	1129(24.36%)	23.12%-25.59%
Higher Secondary	111(2.39%)	1.95%-2.83%	132(2.85%)	2.37%-3.33%
College	348(7.51%)	6.75%-8.27%	349(7.53%)	6.77%-8.29%
N	**4635**			

Table 2: Distribution of Education Level of Respondents and their Husbands

The employment rate in our study populations of about 94 percent was much higher than the national rate (about 20 percent) and Punjab province rate (19.7 percent**)** for women reported by PDHS 2017-18. In contrast to similar education attainment of respondents and their husbands, the types of employment were quite different. While 5.78 percent (CI 5.11-6.45 percent) of the respondents were unemployed only 0.52 percent (CI 0.31- 0.72 percent) of the husbands were unemployed and while 93.05 percent (CI 92.32 – 93.78 percent) of respondents were employed as domestic servants only 0.24 percent (CI 0.10 – 0.38%) of their husbands were in domestic service. The husbands' main employment was as factory workers (40.82 percent, CI 39.4 – 42.23) and labourers (52.97 percent,CI 51.53-54-40) (Table-4, Fig.-4).

Employment Types N-4635	**Respondents**		**Husbands**	
	N (%)	**CI**	**N (%)**	**Confid.Ievel**
Unemployed	268(5.78%)	5.11%-6.45%	24(0.52%)	0.31%-0.72%
Domestic service	4313(93.05%)	92.32%-93.78%	11(0.24%)	0.10%-0.38%
Agriculture/Livestock Worker/Farmer	11(0.24%)	0.10%-0.38%	253(5.46%)	4.80%-6.11%
Industry/Factory Worker	34(0.73%)	0.49%-0.98%	1892(40.82%)	39.40%-42.23%
Labor	0(0.00%)	0.00%-0.00%	2455(52.97%)	51.53%-54.40%
Health Worker	9(0.19%)	0.07%-0.32%	0(0.00%)	0.00%-0.00%

Table-3: Distribution of current Employment of Respondents and their Husbands



Note: Low paid- upto PKR 30,000. Middle level paid- 31,000 – 50,000 High paid- >PKR 50,000

Fig-3: Comparison of Employment Type of Respondents' and their Husbands

Employment type was further categorized into low paid, mid-level paid and high paid groups according to monthly incomes generated by them. The low paid category includes monthly salaries of PKR ≤ 30,000, mid-level paid 31,000 – 50,000 and high paid include salaries of PKR > 50,000. None of the respondents nor their husband had high paid employment, 93.05 percent of the respondents and 53. 2 percent of their husband had low paid jobs and 1.17 percent of the respondents and 46.28 percent of the husbands were in mid-level paying jobs (Fig-4).

The distribution of overall family incomes of the respondents is presented in Fig-5. About 50 percent of the families had incomes in the range of PKR 20,001 to 30,000, 22.33 percent were earning less (PKR 10001 – 20000) and 20.06 percent more (PKR 30001 – 40,000).

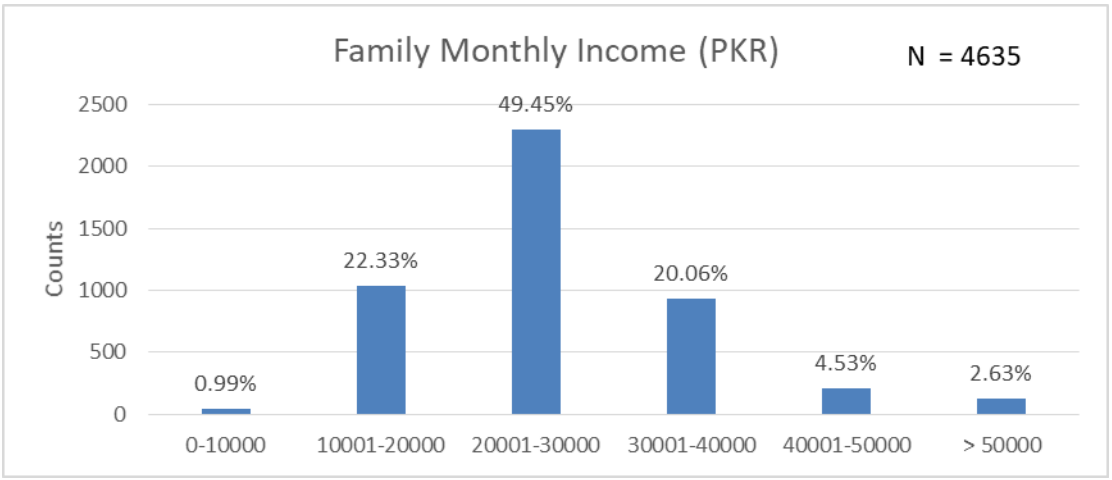


Fig- 4: Family Total Monthly Income Distribution

Empowerment Status

We have made an attempt to assess and categorize the empowerment status of our study respondent to add further insight to the context in which their FPRH knowledge, practice and utilization of FPRH services are placed. Although we could assess the scores on only a limited number of indicators, the indicators provided important insight into empowerment levels. (Table-5)

N	**Variable**	**Response (Score)**		**N (%)**	**Confidence. Interval**
4635	Age at Marriage	<15 (0)		113(2.44%)	1.99%-2.88%
		15 – 19 (1)		3032(65.42%)	64.05%-66.78%
		20 – 25 (2)		1490(32.15%)	30.80%-33.49%
4635	Consent for Marriage	Do not know (0)		870(18.77%)	17.65%-19.89%
		Refused (0)		68(1.47%)	1.12%-1.81%
		No (0)		28(0.60%)	0.38%-0.83%
		Yes (1)		3669(79.16%)	77.99%-80.33%
4635	Education Level	Illiterate (0)		1138(24.55%)	23.31%-25.79%
		Literate without formal education (1)		565(12.19%)	11.25%-13.13%
		Primary (2)		1347(29.06%)	27.75%-30.37%
		Secondary (3)		1126(24.29%)	23.06%-25.53%
		Higher (4)		111(2.39%)	1.95%-2.83%
		College (5)		348(7.51%)	6.75%-8.27%
4635	Employment	Unemployed (0)		268(5.78%)	5.11%-6.45%
		Low Paid (1)		4313(93.05%)	92.32%-93.78%
		Mid Paid (2)		54(1.17%)	0.86%-1.47%
		High Paid (3)		0	0
4635	Enrollment in School at time of Marriage	Refused (0)		21(0.45%)	0.26%-0.65%
		No (0)		4526(97.65%)	97.21%-98.08%
		Yes (1)		88(1.90%)	1.51%-2.29%
	Empowerment Status				
N		**Score Range**	**Empowerment Level**	**N (%)**	**Confidence Interval**

4635	Empowerment Scores	1-4	Not Empowered	1871(40.37%)	38.95%-41.78%
		5-8	Partially Empowered	2677(57.76%)	56.33%-59.18%
		9-12	Fully Empowered	87(1.88%)	1.49%-2.27%

Table 4: Empowerment Status of Respondents

4.2. Reproductive Health History and Knowledge of Respondents

Highlights

- **56.42% were married at age 15-19 years and 4.22% before they were 15 years of age**
- **The mean number of pregnancies was 2.10 and mean number of living children was 2.03.**
- **The mean age at first birth was 19.48 years as compared to the median age of 22.8 years among women age 25-49 years nationally**
- **27.4% had 3-4 live births and 1.7 % more than 4 live births**
- **Number of Normal Deliveries was 1- 6 with a mean of 2.01±1.01 and number of C-Sections were 1-5 with a mean of 1.63±0.79**

4.2.1. Reproductive History

The reproductive history of our study participants is presented in Table-6. The respondents mean age at menarche was 12.89 ± 0.77 years (CI 12.8-12.9) and their mean age at marriage was 18.56 ± 2.15 years (CI 18.5-18.6). The age at marriage distribution is given in Fig-5; 65.42 percent were married at age 15-19 years and 2.44 percent before age 15.

Overall, 80.22 percent of the respondents had experienced pregnancy and 9.98 percent had miscarriages ranging in number from 1-4 (1.36±0.65). Mean age at first delivery was 19.48±2.02 (CI 19.42-19.55). Number of live births had been 1 – 6 (mean 2.03 ±1). The last delivery of 98.98 percent had ended in livebirth and 1.02 percent (CI 0.69%-1.34 percent) had a still birth. The mean number of normal vaginal deliveries was 2.01±1.01 and the mean number of Caesarian Section deliveries was 1.63±0.79.

N	Range	Mean (SD)	Confid. Interval
Age at Menarche			
1163	11-20	12.89(0.77)	12.84-12.93
Age at Marriage			
4635	10-25	18.56(2.15)	18.50-18.62
Ever been pregnant			
	Response	**No (%)**	
4635	Yes	3718(80.22%)	79.07%-81.36%
	No	917(19.78%)	18.64%-20.93%
Number of times pregnant			
N	**Range**	**Mean (SD)**	**Confidence Interval**
3718	01-07	2.10±1.07	2.06-2.13
Age at first birth			
3615	13-25	19.48±2.02	19.42-19.55
Number of living children			
3619	1-6	2.03±1.00	2.00-2.06
Number of Normal Deliveries			
2777	01-06	2.01±1.01	1.98-2.05
Number of C-sections			
1067	01-05	1.63±0.79	1.58-1.68
Ever had miscarriage			
	Response	**N (%)**	
3718	Do not know	44(1.18%)	0.84%-1.53%
	Refused	39(1.05%)	0.72%-1.38%
	No	3264(87.79%)	86.74%-88.84%
	Yes	371(9.98%)	9.02%-10.94%
Number of Miscarriages			
N	**Range**	**Mean (SD)**	**Confidence Interval**
371	1-4	1.36(0.65)	1.29-1.43
Outcome of last delivery			
	Response	**N (%)**	
3635	Live Birth	3598(98.98%)	±98.66%-99.31%
	Still Birth	37(1.02%)	0.69%-1.34%
Time since last delivery (Months)			
N	**Range**	**Mean (SD)**	**Confidence Interval**
3591	1-9	2.99(2.42)	2.91-3.07

Table-5: Reproductive Health History of Respondent

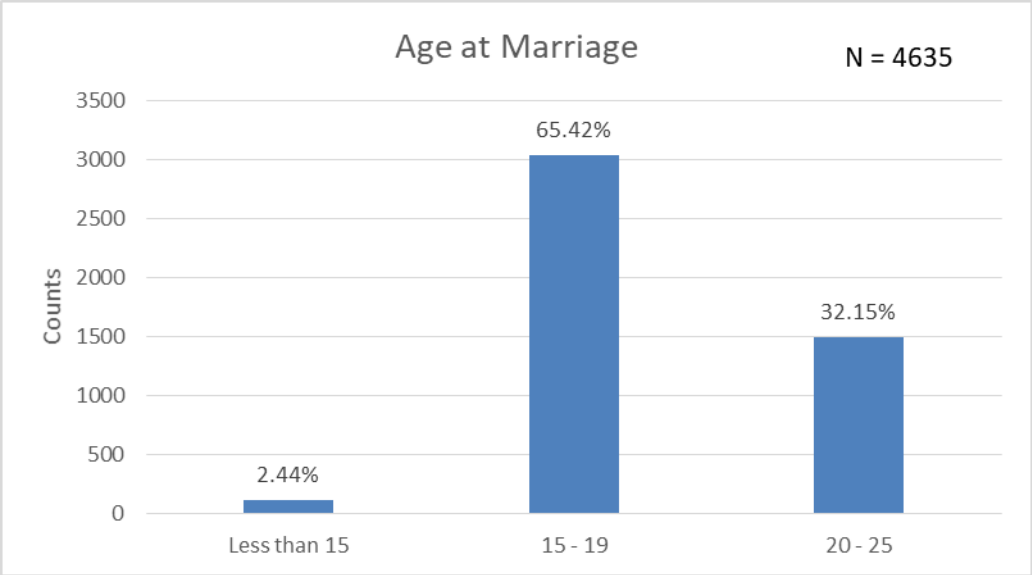


Fig- 5: Age at Marriage

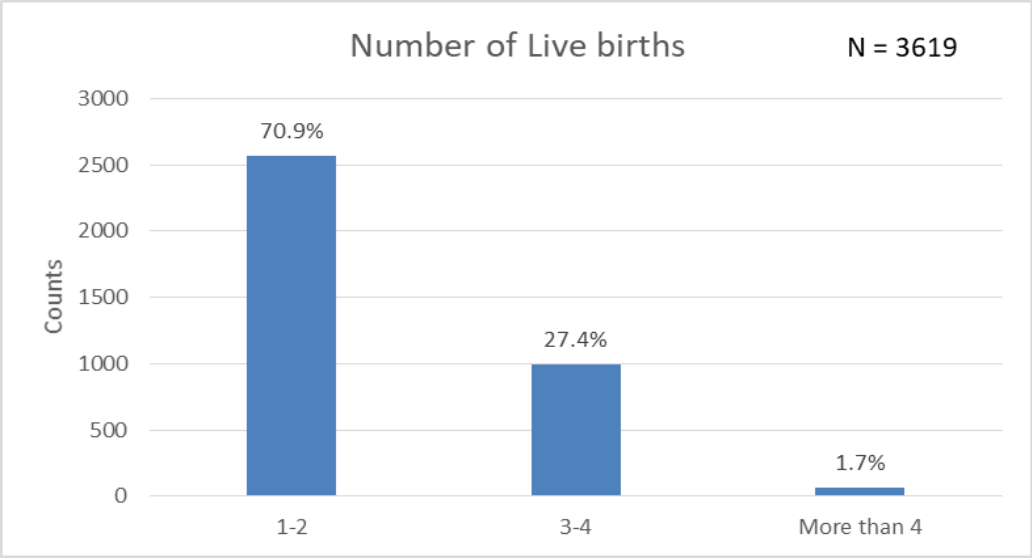


Fig-6: Number of Live Births

4.2.2. Knowledge about Reproductive Health Services Availability at Household Level and Reproductive Health Needs of Married Women

Highlights

- **87.59 percent had never received any FPRH Counselling**
- **LHWs had provided counselling to 18.78 percent of the ones who had received counselling and doctors to 45.04. 56.87 percent also mentioned Dais as providers of FPRH counselling**
- **75 percent of respondents didn't know about availability of health services at home**
- **Availability of antenatal care, postnatal care and nutrition supplements were mentioned as needs of married women by 76.79 percent, 69.19 percent, and 86 percent respectively.**

Only 12.41 percent had received reproductive health counseling. Doctors had provided counselling to 45.04 percent and LHWs to 18.78 percent. *Dais* had provided counseling to 56.87 percent (Table-7, Fig-8).

Seventy-five percent of the respondents did not know if health services were available to them at home. Of the 25.44 percent who knew, 22.2 percent had low knowledge, 45.96 percent had partial knowledge and 31.81 percent had adequate knowledge about the types and providers of services.

N	Variable	Response	Frequency (%)	Confid. Interval
4635	Received reproductive health Counseling	No	4060(87.59%)	86.65%-88.54%
		Yes	575(12.41%)	11.46%-13.35%
575	Provider of counseling	Family	0(0.00%)	0.00%-0.00%
		Trained Dai	327(56.87%)	52.82%-60.92%
		LHW	108(18.78%)	15.59%-21.98%
		Doctor	259(45.04%)	40.98%-49.11%
575	Frequency of counseling	Do not Know/Rarely/Refused	15(2.61%)	1.31%-3.91%
		Off and on	97(16.87%)	13.81%-19.93%
		Once or Twice	226(39.30%)	35.31%-43.30%
		Regularly	237(41.22%)	37.19%-45.24%

Table-6: Sources of Reproductive Health Counseling

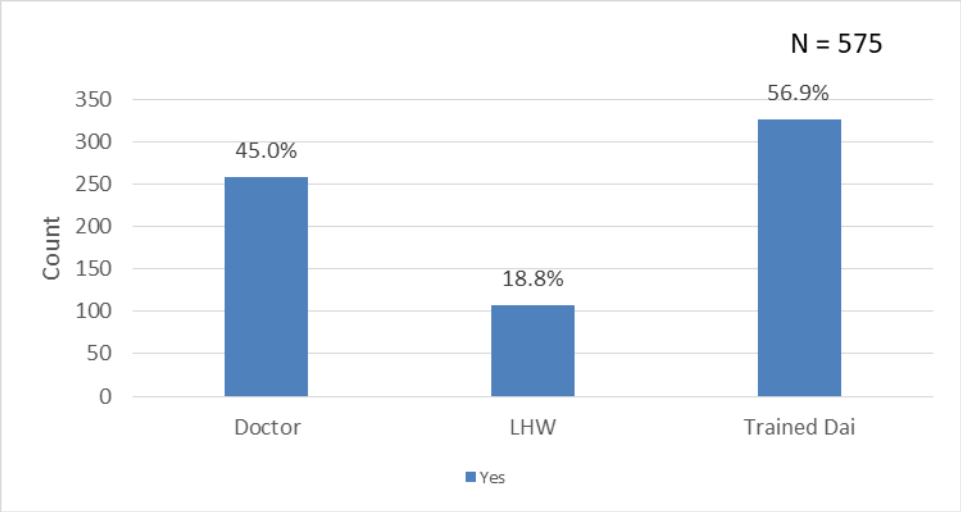


Fig-7: Providers of Reproductive Health Counseling at the Household Level

LHWs were mentioned as providers of services by 93 percent of respondents who knew about the availability of services at the household level. The respondents' knowledge about reproductive health services needed by married women is presented in Table-8.

The need for counseling for married women overall health was mentioned by 52.82 percent, safe delivery services by 50.90 percent, family planning by 40.84 percent and nutrition supplements by 86.82 percent.

N	Variables	Response (Score)	N (%)	Confid. Intervals
4635	Health Services Available at Home			
		Don't know, No (0)	3456(74.56%)	73.31%-75.82%
		Yes (1)	1179(25.44%)	24.18%-26.69%
1179	Type of Service(s) Available	Curative services (1)	794(67.35%)	64.67%-70.02%
		Immunization (1)	640(54.28%)	51.44%-57.13%
		Reproductive Health (1)	793(67.26%)	64.58%-69.94%
		Family Planning (1)	793(67.26%)	64.58%-69.94%
		Counselling (1)	184(15.61%)	13.53%-17.68%
1179	Provider of Services	Family (0)	55(4.66%)	3.46%-5.87%
		Mobile Service (1)	18(1.53%)	0.83%-2.23%
		LHW (2)	1097(93.04%)	91.59%-94.50%
		Doctor (3)	9(0.76%)	0.27%-1.26%

1179	Poor or low Knowledge	0-1	262(22.22%)	19.85%-24.60%
	Partial Knowledge	2-3	542(45.97%)	43.13%-48.82%
	Adequate Knowledge	4-5	375(31.81%)	29.15%-34.47%

Table-7: Knowledge about Health Services available at Household Level

When asked to list services needed by pregnant women, antenatal care services were mentioned by 76.79 percent, nutrition supplements by 85.54 percent, tetanus vaccination by 52.08 percent and referral for delivery by 48.33 percent. For safe delivery, services mentioned included trained birth attendant (50.94 percent), referral for delivery (84.96 percent) and baby care services (20.19 percent).

For postnatal care needed services identified by the respondent included postnatal checkup (69.19 percent), nutrition supplements (87.51 percent), breast feeding support (53.42 percent) and family planning counselling (39.33 percent).

On the basis of scores achieved by the respondents, 12.15 percent were found to have low knowledge, 39.57 percent partial knowledge, 22.03 percent adequate knowledge and 26.26 percent good knowledge of reproductive health services needs of women during pregnancy, delivery, and in the postnatal period (Table-9).

N	**Variable**	**Response (Score)**	**N (%)**	**Confid. Interval**
4635	Health care needed by married women	Do not know/Refused (0)	181(3.91%)	3.35%-4.46%
		Counselling (1)	2448(52.82%)	51.38%-54.25%
		Nutrition Supplements (1)	4024(86.82%)	85.84%-87.79%
		Family Planning (1)	1893(40.84%)	39.43%-42.26%
		Safe delivery services (1)	2359(50.90%)	49.46%-52.33%
4635	Services needed by pregnant women	Do not know/Refused – 0	280(6.04%)	5.36%-6.73%
		Nutritional Supplements – 1	3965(85.54%)	84.53%-86.56%
		Antenatal Care – 1	3559(76.79%)	75.57%-78.00%
		Tetanus Vaccination – 1	2414(52.08%)	50.64%-53.52%
		Referral for delivery– 1	2240(48.33%)	46.89%-49.77%
		Postnatal Care – 1	609(13.14%)	12.17%-14.11%
4635	Services needed for safe delivery	Refused – 0	329(7.10%)	6.36%-7.84%
		Skilled Birth attendant – 1	2361(50.94%)	49.50%-52.38%
		Referral for delivery – 1	3938(84.96%)	83.93%-85.99%
		baby care services – 1	936(20.19%)	19.04%-21.35%
4635	Services needed after delivery?	Do not know/Refused – 0	354(7.64%)	6.87%-8.40%
		Postnatal Checkup – 1	3207(69.19%)	67.86%-70.52%
		Nutrition Supplement – 1	4056(87.51%)	86.56%-88.46%
		Breast feeding Support – 1	2476(53.42%)	51.98%-54.86%

		Family Planning counselling – 1		1823(39.33%)	37.92%-40.74%
N	**Variable**	**Knowledge**		**N (%)**	**Confid. Interval**
4635	Knowledge Score	0-4	Poor or no knowledge	563(12.15%)	11.21%-13.09%
		5-8	Partially knowledgeable	1834(39.57%)	38.16%-40.98%
		9-12	Adequately Knowledgeable	1021(22.03%)	20.83%-23.22%
		13-16	Good Knowledgeable	1217(26.26%)	24.99%-27.52%

Table-8: Knowledge about Reproductive Health Services needed by Married Women

4.3. Reproductive Health Practices – Utilization of Reproductive Health and LHWs Services during last Pregnancy

Highlights

- **76.53% of respondents had received antenatal care during last pregnancy**
- **LHWs had advised antenatal care to 16% and provided care to 3.56%**
- **Doctors had provided antenatal care to 95.4% of those who had received antenatal care**
- **The frequency of antenatal checkups was 4-8 for 65.22% and more than 8 for 15.85%**
- **Doctors had assisted deliveries of 84.81% of the respondents**
- **87% of deliveries had been undertaken in hospitals**
- **25.99% had Caesarian Section delivery**
- **62.67% had not received or did not provide information about postnatal care after last delivery**

4.3.1 Care during Last Pregnancy

Details of care received by respondents during their last pregnancy and delivery was recorded as indicator of their FPRH practice and utilization of health services. Time elapsed since their last pregnancy ranged from 1 to 9 months. Antenatal care had been received by 76.53 percent. LHWs had advised antenatal care to 16 percent and provided care to 3.56 percent. Doctors were advisors of antenatal care for 58.27 percent and had provided care to 95.4 percent (Table-10). The frequency of antenatal checkups was 4-8 for 65.22 percent, more than 8 for 15.85 percent and 1-3 for 19.13 percent.

While 61.93 percent of respondents had received iron and folic acid supplements, 74.86 percent had been given Tetanus Toxoid vaccination. LHWs were providers of supplements to 10.02 percent and doctors to 82.53 percent.

N	Variable	Response	Frequency (%)	Confidence Interval
3635	Received Antenatal Care	No	853(23.47%)	22.09%-24.84%
		Yes	2782(76.53%)	75.16%-77.91%
2782	Adviser of antenatal care	Family	872(31.34%)	29.62%-33.07%
		Traditional Dai	328(11.79%)	10.59%-12.99%
		LHW	445(16.00%)	14.63%-17.36%
		Doctor	1621(58.27%)	56.44%-60.10%
2782	Provider of antenatal care	Family	65(2.34%)	1.78%-2.90%
		Traditional Dai	122(4.39%)	3.62%-5.15%
		LHW	99(3.56%)	2.87%-4.25%
		Doctor	2655(95.43%)	94.66%-96.21%
115	Frequency of antenatal checkups	1 – 3	22(19.13%)	11.94%-26.32%
		4 – 8	75(65.22%)	56.51%-73.92%
		> 8	18(15.65%)	9.01%-22.29%
3635	Received iron/folic acid supplements.	No/Refused/Do not Know	1384(38.07%)	36.50%-39.65%
		Yes	2251(61.93%)	60.35%-63.50%
2251	Provider of iron/folic acid supplement?	Do not Know/Refused	6(0.27%)	0.05%-0.48%
		Family/Others	178(7.97%)	6.79%-9.02%
		LHW	225(10.08%)	8.76%-11.23%
		Doctor	1842(82.53%)	80.24%-83.42%
2251	Duration	<3 Months	916(40.69%)	38.66%-42.72%
		4-6 Months	657(29.19%)	27.31%-31.07%
		7-9 Months	678(30.12%)	28.22%-32.02%
3635	Received tetanus vaccination.	No/Refused/ Do not Know	914(25.14%)	23.73%-26.55%
		Yes	2721(74.86%)	73.45%-76.27%
2721	Adviser of vaccination?	Family	489(17.97%)	16.53%-19.41%
		Traditional Dai	134(4.92%)	4.11%-5.74%
		LHW	606(22.27%)	20.71%-23.83%
		Doctor	1825(67.07%)	65.31%-68.84%
2721	Provider of vaccination?	Family	37(1.36%)	0.92%-1.79%
		Traditional Dai	12(0.44%)	0.19%-0.69%
		LHW	299(10.99%)	9.81%-12.16%

		Doctor	2459(90.37%)	89.26%-91.48%

Table-9: Respondent's utilization of reproductive health services during their last Pregnancy

4.3.2 Care during Last Delivery

Highlights

- **Place of last delivery was a government hospital for 59.72%, a private hospital for 27.26% and home for 10.37%**
- **Last delivery was by C-Sections for 25.9%**
- **Referral for delivery had been done by family in 23.58%, by doctor in 71.39%, and by LHWs in 7.79% of cases**
- **Delivery attendant was a doctor for 84.81% of cases, a Dai for 9.71% and an LHW for 1.83%**

The last delivery was normal vaginal for 64.73 percent, assisted delivery for 9.03 percent and caesarian section for 25.99 percent. Care received is presented in Table-11. The delivery attendant was a doctor for 84.81 percent of cases, a *Dais* for 9.71 percent and LHW for 1.83 percent The place of delivery was a hospital for 86.98 percent and home for 10.37 percent (Fig.-9,10). Referral to the facility had been done by a doctor in 71.39 percent of cases and by family in 23.58 percent of cases. LHWs had done referral in 7.79 percent and *Dais* in 7.23 percent.

N	Variable	Response	Frequency (%)	Confid. Interval
3598	Type of delivery	Refused/Don't know	9(0.25%)	0.09%-0.41%
		Assisted Delivery	325(9.03%)	8.10%-9.97%
		Caesarian Delivery	935(25.99%)	24.55%-27.42%
		Normal Vaginal	2329(64.73%)	63.17%-66.29%
3635	Attendant at last delivery	Refused/Do not Know	147(4.04%)	3.40%-4.68%
		Other	27(0.74%)	0.46%-1.02%
		Family	46(1.27%)	0.90%-1.63%
		Traditional Dai – 0	353(9.71%)	8.75%-10.67%
		LHW	61(1.68%)	1.26%-2.10%
		Doctor	3083(84.81%)	83.65%-85.98%
3635	Place of Delivery	Refused/Don't Know	38(1.05%)	0.71%-1.38%
		Home	377(10.37%)	9.38%-11.36%
		RHC	36(0.99%)	0.67%-1.31%
		BHU	22(0.61%)	0.35%-0.86%

		Private Hospital/Clinic	991(27.26%)	25.82%-28.71%
		Govt. Hospital	2171(59.72%)	58.13%-61.32%
3635	Referral to facility for delivery	Refused/Do not Know	123(3.38%)	2.80%-3.97%
		Dai	265(7.29%)	6.45%-8.14%
		Family	857(23.58%)	22.20%-24.96%
		LHW	283(7.79%)	6.91%-8.66%
		Doctor	2595(71.39%)	69.92%-72.86%

Table 10: Care received during last delivery

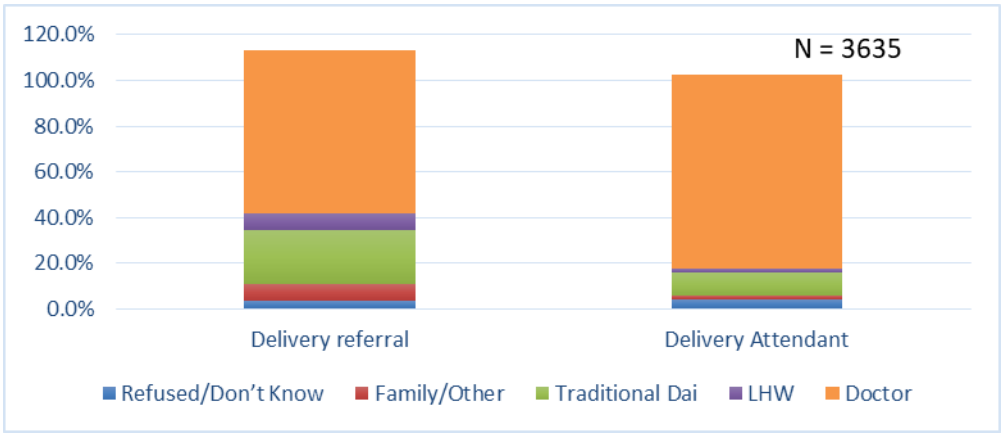


Fig-8: Referral and Attendant at last delivery of respondent

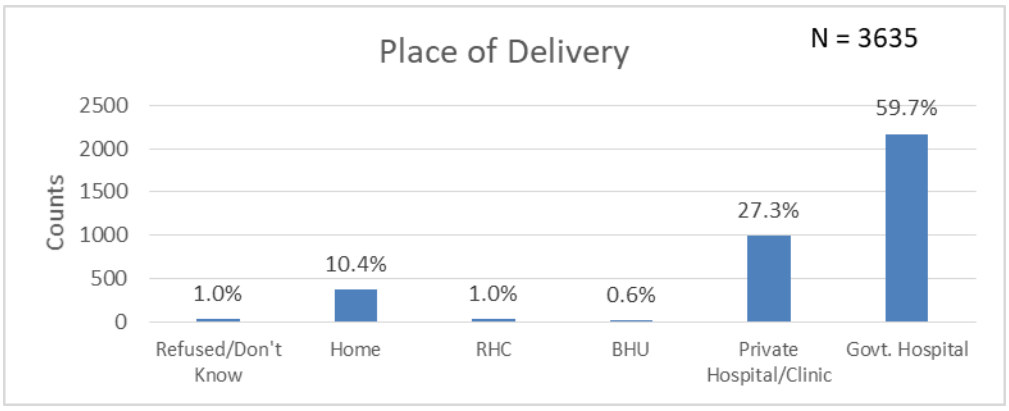


Fig-9: Place of last delivery of respondents

4.3.3. Postnatal Care

Highlights

- **62.67% had not received or did not provide information about postnatal care after last delivery**
- **Doctors provided care to 81.68%, family to 27.33% and LHWs to 3.28% of the remaining 38.3% of respondents**

A large number (62.67 percent) of the respondents did not provide any information about postnatal care after their last delivery. The data of the remaining 37.33 percent is summarized in Table-12. Doctors were the providers of care for 81.68%, family for 27.33 percent and LHWs for 3.28 percent. Eighty six percent had more than one checkup. The type of checkup was mother's physical checkup in 89.8 percent, checkup for complications in 7 percent, nutrition counselling in 54 percent, Family Planning counseling in 27.4 percent and baby checkup in 45 percent of cases.

N	Variable	Response	N(%)	Confid. Interval
3598	Received postnatal care	No/Do not Know/Refused	2255(62.67%)	61.09%-64.25%
		Yes	1343(37.33%)	35.75%-38.91%
1343	Provider of postnatal care	Family	367(27.33%)	24.94%-29.71%
		Traditional Dai	115(8.56%)	7.07%-10.06%
		LHW	44(3.28%)	2.32%-4.23%
		Doctor	1097(81.68%)	79.61%-83.75%
		How many postnatal checkups?		
N	Range	Mean (SD)	Confidence Interval	
1343	0-30	3.82(2.98)	3.66-3.98	
1336	Frequency of Postnatal Checkups	Once	187(14.00%)	12.14%-15.86%
		More than once	1149(86.00%)	84.14%-87.86%
1343	Types of postnatal checkups	Physical Checkup	1206(89.80%)	88.18%-91.42%
		Referral for Complications	94(7.00%)	5.63%-8.36%
		Nutrition Counselling	727(54.13%)	51.47%-56.80%

		Family Planning	368(27.40%)	25.02%-29.79%
		Baby Checkup	606(45.12%)	42.46%-47.78%

Table-11: Postnatal care received by the respondents after last delivery

4.4. Family Planning Knowledge and Practice

Highlights

- **Over 66% of the respondent wanted to have more than 3 children**
- **19.69% preferred one year gap between pregnancies**
- **62% had no knowledge about family planning or chose not to answer the question**
- **81% had never used any contraceptives**
- **50% of the ones who knew about family planning had got their information from LHWs and 45.41% from friends**
- **Of the ones who had used contraceptives, 46.49% had received advice from LHWs on choice of contraceptives and 17.34% had received contraceptives from LHWs**

When asked about the number of children they would like to have, 27.88 percent said 1 to 2, 66.32 percent said 3 to 4 and 5.08% wanted more than 4 children. Their preferred gap between pregnancies was one year for 19.69 percent, 2-3 years for 73.85 percent and more than 3 years for 6.46 percent (Table-13).

In addition, 62 percent of the respondents had no knowledge of family planning or chose not to answer the question. Of the ones who knew about family planning, they got their information from LHWs (50.03 percent), friends (45.41 percent) and doctors (38.39 percent).

When asked about the methods of family planning, 77.70 percent mentioned pills, 66.86 percent injections, 69.37 percent surgery, 85.47 percent condoms and 58.47 percent traditional methods. Family (41.70 percent), LHWs (46.49 percent), doctors (30.98 percent) and friends (18.31 percent) were mentioned as the main sources of advice for choice of contraceptives

Diverse sources of contraceptive supply were mentioned including BHU/RHCs by 13.46 percent, Family Welfare Centers by 19.40 percent, LHWs by 17.34 percent and shops by 25.41 percent. A large number, 35.54 percent - were unaware of any source or refused to answer the question (Table-13).

N	Variable	Range	N (%)	Confid. Interval
4552		1-2	1269(27.88%)	26.58%-29.18%

	Preferred No. of Children	3-4	3019(66.32%)	64.95%-67.70%
		>4	264(5.80%)	5.12%-6.48%
4551	Preferred gap between deliveries (Years)	1	896(19.69%)	18.53%-20.84%
		2-3	3361(73.85%)	72.58%-75.13%
		>3	294(6.46%)	5.75%-7.17%
N	**Variable**	**Response**	**N (%)**	**Confid. Interval**
4635	Knew what is FP	No	2882(62.18%)	60.78%-63.58%
		Yes	1753(37.82%)	36.42%-39.22%
1753	Informant/Advisor on FP	Refused/Don't Know	25(1.43%)	0.87%-1.98%
		Books	3(0.17%)	0.00%-0.36%
		Family	167(9.53%)	8.15%-10.90%
		Friends	796(45.41%)	43.08%-47.74%
		LHW	877(50.03%)	47.69%-52.37%
		Doctor	673(38.39%)	36.11%-40.67%
1753	Knowledge of methods of FP	Pills	1362(77.70%)	75.75%-79.64%
		Injection	1172(66.86%)	64.65%-69.06%
		Surgery	1216(69.37%)	67.21%-71.52%
		Condoms	1500(85.57%)	83.92%-87.21%
		Traditional	1025(58.47%)	56.16%-60.78%
1753	Advisor on choice of contraceptives	Refused/Don't Know	182(10.38%)	8.95%-11.81%
		Friends	321(18.31%)	16.50%-20.12%
		Family	731(41.70%)	39.39%-44.01%
		LHW	815(46.49%)	44.16%-48.83%
		Doctor	543(30.98%)	28.81%-33.14%
1753	Provider of contraceptives	Govt. Hospitals/Private Hospitals	681(38.85%)	36.57%-41.13%
		BHU/RHC – 1	236(13.46%)	11.86%-15.06%
		Family Welfare Center	340(19.40%)	17.54%-21.25%
		Mobile Units	35(2.00%)	1.34%-2.65%
		LHW	304(17.34%)	15.57%-19.11%
		NGOs	40(2.28%)	1.58%-2.98%
		Shops	442(25.21%)	23.18%-27.25%
		Refused/Don't Know	623(35.54%)	33.30%-37.78%

Table-12: Family Planning Beliefs and Knowledge

Over 81 percent of the respondents had never used any method of contraception. Among the 18.60 percent who had ever used contraception, 14.15 percent had used traditional methods, 62.65

percent condoms, 9.86% Intra Uterine Devices (IUD), 4.87% pills, 4.41% injections and 3.48% surgery (Table-14).

Among the 737 current users of contraceptives the distribution of the type of contraception/contraceptives used was about the same as the ever users, except for the increase to 18.54 percent of traditional methods and 66 percent of condom use. (Table-14).

N	Variable	Score	N (%)	Confidence Interval
Ever Used Contraceptives				
4635	Ever used any FP method	No	3773(81.40%)	80.28%-82.52%
		Yes	862(18.60%)	17.48%-19.72%
862	method(s) used	Pills	42(4.87%)	3.44%-6.31%
		IUD	85(9.86%)	7.87%-11.85%
		Injection	38(4.41%)	3.04%-5.78%
		Surgery	30(3.48%)	2.26%-4.70%
		Condom	540(62.65%)	59.42%-65.87%
		Traditional	122(14.15%)	11.83%-16.48%
		Other	2(0.23%)	0.00%-0.55%
		Refused	3(0.35%)	0.00%-0.74%
862	Advisor of methods used	Family	386(44.78%)	41.46%-48.10%
		Friend	138(16.01%)	13.56%-18.46%
		LHW	359(41.65%)	38.36%-44.94%
		Doctor	255(29.58%)	26.54%-32.63%
737	Duration of use of FP method (Years)	1 – 2	763(88.52%)	86.39%-90.64%
		3 – 5	94(10.90%)	8.82%-12.99%
		6 – 8	5(0.58%)	0.07%-1.09%
Current Use of Contraceptives				
862	Currently practicing	No/Refused/Do not Know	130(14.99%)	12.62%-17.37%
		Yes	737(85.01%)	82.63%-87.38%
737	Methods currently using	Pills	37(5.08%)	3.49%-6.68%
		IUD	75(10.30%)	8.09%-12.51%
		Injections	34(4.67%)	3.14%-6.20%
		Surgery	27(3.71%)	2.34%-5.08%
		Condoms	481(66.07%)	62.63%-69.51%
		Traditional Methods	135(18.54%)	15.72%-21.37%

Table-13: Family Planning Practice among Respondents

4.5. Knowledge and Utilization of LHW-Provided FPRH Services by the Respondents

Highlights

- **45% of the respondents who had ever been pregnant were unaware of LHWs**
- **47.04% and 54.97% of the ones who were aware of LHWs recognized them as providers of reproductive health services and family planning respectively**
- **24.98% knew them as providers of supplements**
- **54% of those who knew LHWs had not used FPRH services provided by them**
- **Of the ones who had used LHWs' services 35.64% had received contraceptives from them, 47.08% supplements, 45.17% referral for delivery and 74.37% antenatal care**

While the data in the previous sections defines the role of LHWs in the overall context of the utilization of FPRH services, in this section the responses to direct question about use of LHWs provided FPRH services is presented. These questions were put to the 3538 respondents who had experienced pregnancy.

About 54 percent of this group knew who LHWs are. Among these, 56 percent identified them as providers of curative services for the family and 55.79 percent for children, 64.50 percent as providers of immunization, 47.04 percent and 54.97 percent respectively mentioned reproductive health services and family planning, and 55 percent recognized them as providers of health counselling.

When asked to list the reproductive health services the LHWs provided, 45.38 percent mentioned counseling, 39.93 percent antenatal care, 24.9 percent as providers of supplements and 27 percent knew their referral for delivery function (Table-15).

N	Variables	Response	N (%)	Confid. Intervals
3538	Knew about LHWs	Yes	1904(53.82%)	52.17%-55.46%
		No	1634(46.18%)	44.54%-47.83%
1097 (among 1634)	Knew LHWs' provided Services	Curative for Family	615(56.06%)	53.12%-59.00%
		Curative for Children	612(55.79%)	52.85%-58.73%
		Immunization	738(67.27%)	64.50%-70.05%
		Reproductive Health	516(47.04%)	44.08%-49.99%
		Family Planning	603(54.97%)	52.02%-57.91%
		Counselling	604(55.06%)	52.12%-58.00%

		Refused	4(0.36%)	0.01%-0.72%
		Do not Know	9(0.82%)	0.29%-1.35%
1097	Knew LHW provided RH Services	Counselling	500(45.58%)	42.63%-48.53%
		Antenatal Care	438(39.93%)	37.03%-42.83%
		Supplements	274(24.98%)	22.42%-27.54%
		Referral for Delivery	298(27.16%)	24.53%-29.80%

Table-14: Knowledge about LHWs' Provided Services at the Household Level

Among the 839 respondents who knew about LHW-provided FPRH services, 44 percent had used their services (Table-16). Of these, 74.37 percent had received antenatal care, 47 percent supplements, 35.64 percent contraceptives and 45 percent referrals for delivery (Fig.-11). The frequency of LHWs' visits to their houses were reported as monthly by 85.82 percent, on and off by 12 percent and rarely by 2.15 percent.

N	**Variables**	**Scores**	**Frequency (%)**	**Confidence Intervals**
1904	Received any services from LHW	Do not Know	21(1.10%)	0.63%-1.57%
		Refused	15(0.79%)	0.39%-1.18%
		No	1029(54.04%)	51.81%-56.28%
		Yes	839(44.07%)	41.84%-46.30%
839	RH Services received from LHW	Antenatal Care	624(74.37%)	71.42%-77.33%
		Supplements	395(47.08%)	43.70%-50.46%
		Contraceptives	299(35.64%)	32.40%-38.88%
		Referral for Delivery	379(45.17%)	41.81%-48.54%
839	Frequency of LHW Visits	Monthly	720(85.82%)	83.46%-88.18%
		Of and On	101(12.04%)	9.84%-14.24%
		Rarely/Refused/do not know	18(2.15%)	1.16%-3.13%

Table-15: Utilization of Reproductive Health Services provided by LHWs

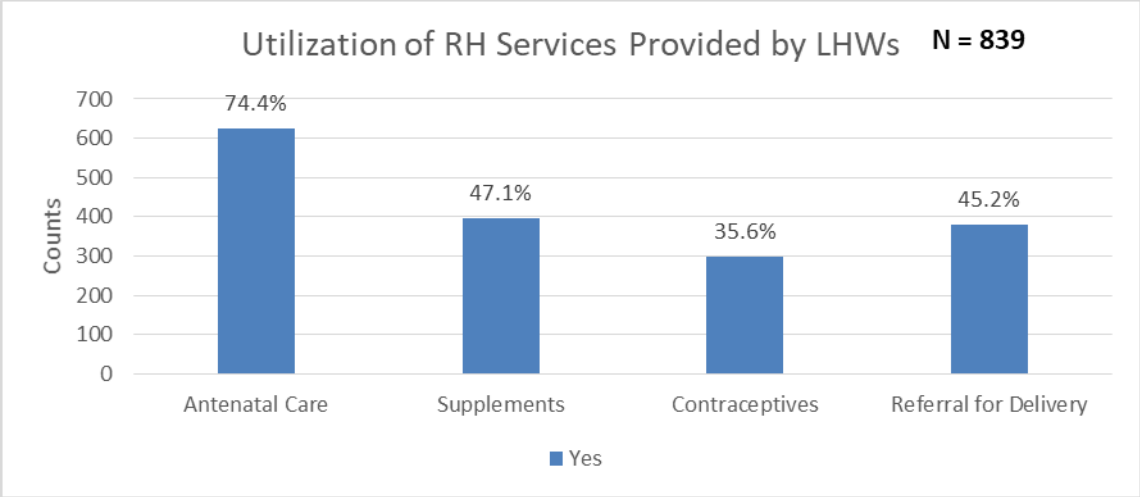


Fig-10: LHWs' provided Reproductive Health Services used by Respondents

5: DISCUSSION

The results from our urban-based study sample of married adolescent girls and young women aged 15 – 24 years, give a mixed picture of improvement in reproductive health services utilization along with gaps in FPRH knowledge and practices and use of contraceptives. The positive findings of the study are high rates of antenatal care and skilled birth attendance at deliveries. The negative findings are lack of FPRH knowledge and underutilization of community-based PHC and FPRH services and services provided by LHWs at the households' level. This has negative connotations for the achievement of Universal Health Coverage (UHC) and Sustainable Development Goals (SDGs) in Pakistan because PHC has been declared to be at the center of efforts to achieve these goals. [8]

The preference for hospital-based services for antenatal care and deliveries and the services of doctors over the services provided by LHWs and PHC centers needs to be noted. In Nishtar Town, our study site, a large number of PHC centers and services of LHWs are available along with easy access to doctors and hospitals. Our study population comprised of low and lower middle income families for whom hospital care and services of medical practitioners for antenatal and delivery services can be considered an unnecessary economic burden. A large proportion of the hospital deliveries of 25 percent were by Caesarian Section adding significantly to costs and morbidity. One of the main aim of UHC is protection of people from high health costs. It is therefore

[8] Primary Health Care for Universal Health Coverage in Pakistan- A joint statement by health and development partners on supporting the Government of the Islamic Republic of Pakistan in strategic collaboration to achieve universal health coverage, focusing on primary health care Islamabad, 5 March 2021. http://www.emro.who.int/images/stories/pakistan/uhc-for-phc-pakistan.pdf?ua=1

imperative to develop evidence-based approaches for strengthening and promoting PHC and LHWs' provided services. [9]

The study population's lack of or inadequate knowledge about LHWs and the FPRH services provided by them should be a matter of concern for policy and decision-makers after the over two and half decades of their services provision in the community. In a health human resources deficient country, LHWs are a precious resource.[10] The achievement of the country's health and FPRH goals are dependent on their optimum performance. A recent evaluation of the LHWs' Program (LHWP) performance by UNICEF and the Ministry of National Health Services, Regulations and Coordination (NHSR&C), pointed out a number of significant and systemic challenges faced by the program that limit its ability to meet its health outcome targets and programme objectives. Some of these challenges are: "a freeze on recruitment following the regularisation of LHWs; increased LHW responsibilities beyond core functions (in particular, polio programming); significant funding deficits, which have created shortages of supplies and equipment; and a significant reduction in the regularity of training received by LHWs." [11]

6. CONCLUSIONS AND RECOMMENDATIONS

Our survey results indicate that secondary and tertiary care facilities are preferred for antenatal and delivery services by the community, while PHC and LHW-provided services are being bypassed. This trend increases healthcare costs for families and wastes government investments in PHC. It also reduces the impact of Universal Health Coverage in protecting families from impoverishment due to health costs. This issue needs to be prioritized and effectively addressed.

Utilization of family planning services by married adolescent girls and young women is low, less than half of the CPR of all women of child bearing age. This age group is currently lumped with all women of child bearing age and its specific needs are being ignored. Considering that youth make up a significant proportion of Pakistan's population, FPRH policies and programs need to focus on this age group and address the issues it faces in accessing and utilizing FPRH services.

After about two and a half decades of service, LHWs have yet to be recognized as providers of FPRH services at the community level. This finding demands serious consideration since LHWs are the lynchpin for the achievement of PHC and FP goals and objectives. Further research is needed to understand the reasons for their lack of recognition by the communities in which they operate. Furthermore, if tasks entrusted to LHWs cannot be reduced owing to the shortage of health workers, then community support for them may be mobilized in the form of volunteers to create awareness about their services and facilitate their work by spreading their FP counselling messages in the community.

[9] Primary health care systems (PRIMASYS): comprehensive case study from Pakistan. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.

[10] Zhu N. et al. Lady Health Workers in Pakistan- Improving access to health care for rural women and families. https://cdn2.sph.harvard.edu/wp-content/uploads/sites/32/2014/09/HSPH-Pakistan5.pdf

[11] Lady Health Worker Programme, Pakistan Performance Evaluation -Evaluation Report. 2019. UNICEF and Ministry of National Health Services, Regulations and Coordination