Original Article

Are myths surrounding long-acting reversible contraception the reason for a huge unmet need for spacing pregnancies?

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Abstract

Background: Long-acting reversible contraceptives (LARC), a highly effective class of contraceptives, has a limited uptake by few couples due to lack of awareness, unavailability, and myths surrounding their application and side effects. **Aims:** This study was undertaken to understand and to clear myths of LARC among patients as well as to assess the knowledge, attitudes, practices, and preference. **Materials and Methods:** A hospital-based cross-sectional study using a semistructured questionnaire was conducted in the out-patient Department of Obstetrics and Gynecology, in a tertiary level hospital in Eastern India. A total of 600 women responded to the structured validated questionnaire. **Results:** High prevalence of teenage marriages (64%), teenage pregnancies (44%), and unwanted pregnancy (41%) was noted among responders. The knowledge scores were low in 66.7%, moderate in 26.66%, and only 6.66% had high level >80% scores in the 15 questions about LARC methods. While 41% had a positive attitude to future use of LARC, a majority (59%) had a strong negative attitude due to many myths of genital tract infections, discharges, and cancer, changed menstrual bleeding patterns, delayed conception after discontinuation, and altered sexual functions. Out of those with a positive attitude, 21% of women had a preference for intrauterine devices, 19.5% of women for injectables, and only 0.5% of women preferred contraceptive implants. 24.5% of women had used LARC in their lifetime but a meager 5% were currently using them. **Conclusions:** The study shows that there is a huge unmet need for spacing contraceptive methods as childbearing spacing is not maintained. There were lack of correct knowledge and awareness, and numerous myths surrounding LARC methods.

Keywords: Attitude, knowledge, LARC, unmet need

Introduction

Long-acting reversible contraceptives (LARC), a highly effective class of contraceptives, requires minimal healthcare personnel aid and user effort.[1] It is characterized by the need of a single intervention, and their use for a long time. This improves patient compliance and reduces failure rates thereby reducing unintended pregnancies. The intrauterine contraceptive devices (copper and levonorgestrel), combined estrogen and progesterone or only progesterone injectables, implants, patches, and vaginal rings are included in LARCs. Couples wanting to delay or not planning future childbearing are LARC clients, even found to be safe in adolescents. In India, pregnancy spacing is poor as two-thirds (67%) of women deliver within 3 years of previous childbirth reflecting the unmet need for LARC.[1] It is estimated at 222 million women in low-resource countries are not using any contraceptive methods to delay or stop childbearing.[2]

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LARCs have high patient acceptability, confidentiality,[3] limited contraindications, and improved menstrual control. They can be started right after delivery or abortion and fertility is rapidly restored after discontinuation. They prove to be highly cost-effective in long term.[4] The acceptance and continuation of LARC can reduce unintended pregnancies and abortions.

Even with many obvious benefits, uptake of LARC methods is limited to few due to lack of awareness, availability, and various myths about their application and side-effects, especially in South East Asian countries especially India. This study was undertaken to understand the knowledge, attitudes, practices, and preferences of LARC among patients attending a tertiary level hospital.

Material and Method

This was a questionnaire-based cross-sectional study conducted in out-patient department of Obstetrics and Gynecology, in a tertiary level hospital in Eastern India over one-year period of (2 days in a week) January to December 2018. An interviewer-administered questionnaire was designed after literature review. The questionnaire was prepared in English, and translated and validated in Hindi before applying to respondents in Hindi by the interviewer. A four-part, structured (demographic and gynecological details, 25 questions about knowledge, 2 questions about interest to use, and 5 questions on practices and preferences) questionnaire was used to assess the knowledge, attitude, practice, and preference of LARCs. It included multiple-choice questions, dichotomous questions, and open-labeled questions. The final questionnaire contained questions on demographic details of couple, level of education and income, occupation history, age of marriage and delivery, obstetric history, and knowledge regarding different methods of contraception.

All sexually active female patients in the age group of 18–45 years, pregnant or nonpregnant were approached to respond in the questionnaire included in the study. Patients not willing to answer the questionnaire were excluded from the study.

Knowledge of candidates was measured by the total number of correct answers to questions on knowledge pertaining to LARC with a minimum score of 0 and maximum of 15. Knowledge scores were categorized based on knowledge of the features of LARC as: "high" those who scored 80% and above, "moderate" those who scored 60%–79%, and "low" those who scored less than 60%. To measure the attitude of the married women, two categories were assigned: positive attitude and negative attitude. Participants who were not sure about their answers were also included finally in a negative attitude.

The study was performed with the approval and in accordance with the guidelines of ethics committee (Institutional Ethics Committee, reference number IEC/2018/238). Participant information sheet and consent forms were duly filled and signed by participants included in the study.

Results

600 women responded to the questionnaire out of 911 approached in the study period. 54.0% were women of 26–35 years of age group (207/600), the group for maximum responses [Supplementary Figure 1]. 99% were married, 78% of Hindu religion [Supplementary Table 1], came from a mixed semi urban (41.8%) and urban areas (33.3%) [Supplementary Figure 2]. 41.2% of the couples were graduates, and post-graduates were only 5.6% [Supplementary Figure 3]. 61% were in middle-income group. 64% of women married by 20 years of age 44% (264/600) also borne children by age 20, while only 4% bore children after the age of 30 years [Supplementary Figure 4]. 84.5% had borne children by ages 25 completed years.

Most females (65%) had a normal menstrual cycle with a regular pattern. Most of the couples (61%) had 4 pregnancies and 41% (245/600) had opted for medical termination of pregnancy sometime in their reproductive life. Although 58.3% of interviewees had no intention for future pregnancy, only 25% of them were currently practicing any method of contraception [Supplementary Table 1]. 69% of women did not practice spacing (>24 months) between children. For information on contraceptives, 85% preferred family and friends, and 62%–80% from audio-visual media, whereas print media in 39% [Supplementary Table 2].

81% had knowledge of oral contraceptive pills, IUCDs (84.2%), sterilization operations (83%), male barrier contraceptive (88%), and injectable contraceptives (82.5%). None (0/600) of the women interviewed knew about patch or ring LARC contraceptives [Figure 1]. 19.5% had used IUCD for variable periods of time [Supplementary Table 3]. Of those who knew about IUCD, 90.5% and 75.2% were aware of 5 years and 3 years, respectively. 66% (392/600) participants were not sure of different types of IUCD. Only 23.3% (140/600) knew that the Government hospital availability of the 10 years effective Cu T 380A variety. 40% (236/600) had correct knowledge about the location of placing IUCD, 55% (331/600) participants did not know the timing of insertion, and 85% knew that the IUCD should be inserted by trained doctors [Table 1].

Simple binary option (YES/NO) questions on injectable LARC also scored poorly in knowledge of injection site, affecting menstrual cycle, and dosage regimes. However, 62.3% [Table 1] knew that injectable contraceptive was to be taken at 3 monthly intervals. 93% of respondents had never heard about contraceptive implants and had poor knowledge (score range 0–3). 90% had no knowledge about place of insertion, who should insert or remove implant, the timing, period of effectivity, and effect on future fertility. Knowledge scoring of IUCD reveals 33% had >80% score, hence, high knowledge. 16% had moderate scores and 51% of women had poor knowledge (<60% correct answers) about LARC-IUCD. Combining knowledge scores of all LARCs revealed low knowledge in 66.7%, moderate in 26.66%, and only 6.66% had a high level of knowledge [Figure 2].

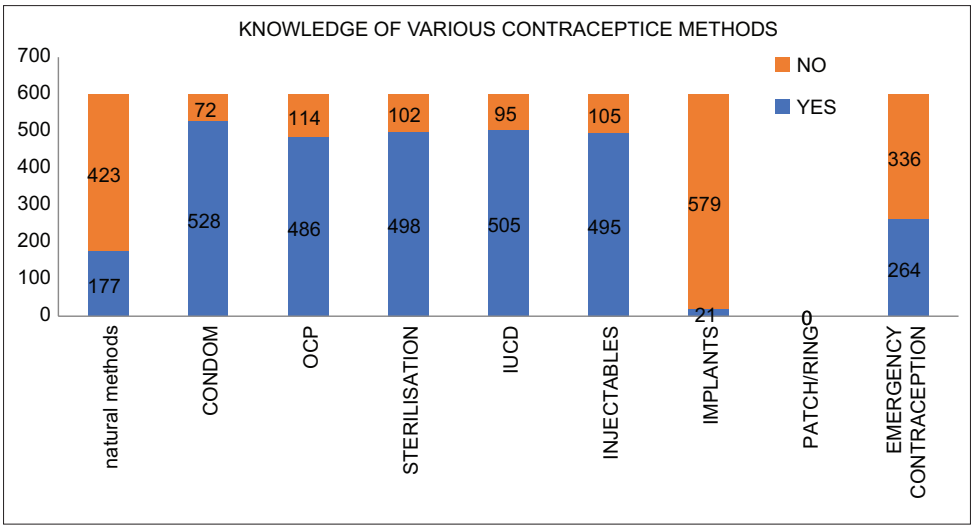

Figure 1: Stacked column depicting knowledge of various contraceptive

Table 1: Knowledge of different LARCS

[4A] IUCD		[4B] INJECTABLES		[4C] IMPLANTS	
1.DIFFERENT TYPES OF IUCD		6) INJECTION SITE		11) INSERTION SITE	
YES	149 (24.8%)	Forearm	66 (11%)	Forearm	23 (3.8%)
NO	59 (9.8%)	Arm	81 (14.3%)	Buttock	0
DON'T KNOW	392 (65.3%)	Buttock	57 (9.5%)	Arm	29 (4.8%)
2.DURATION OF EFFECTIVITY		Don't know	396 (66%)	Don't know	548 (91.3%)
3 years	451 (75.2%)	7) AFFECTS MENSTRUAL CYCLE		12) INSERTION AND REMOVAL BY TRAINED PERSON	
5 years	543 (90.5%)	Yes	146 (24.3%)	Yes	51 (8.5%)
10 years	140 (23.3%)	No	454 (75.6%)	No	549 (91.5%)
Don't know	69 (11.5%)	8) DELAYS FUTURE PREGNANCY		13) TIME OF INSERTION	
3.LOCATION IN BODY		Yes	299 (49.8%)	Yes	36 (6%)
Vagina	77 (12.8%)	No	301 (50.2%)	NO	564 (94%)
Uterus	236 (39.3%)	9) INTERVAL OF INJECTION		14) PERIOD OF EFFECTIVITY	
Don't know	287 (47.8%)	3 months	374 (62.3%)	Yes	42 (7%)
4.TIMING OF INSERTION		Don't know	226 (37.6%)	No	558 (93%)
Post abortion	13 (2.2%)	10) CAN BE USED WITH BREAST FEEDING		15) AFFECTS FUTURE FERTILITY	
Pre/post menstrual	115 (19.2%)	Yes	264 (44%)	Yes	51 (8.5%)
Post delivery	116 (19.4%)	No	336 (56%)	No	549 (91.5%)
Interval	25 (4.2%)				
Don't know	331 (55.2%)				
5.INSERTION BY					
Healthcare worker	511 (85.2%)				
Self	89 (14.8%)				

The common myths of LARCs (causes genital infections, cancer, heavy menstrual bleeds, migrates in body, delays fertility after removal, and changes in sexual desire) prevalent in females were also included in questionnaire [Table 2]. 25.3% (152/600) believed IUCDs caused genital tract infections and discharges, while 53% were unsure. One-third women (32.8%) believed IUCD led to heavy menstrual bleeding. 25% had a misconception that IUCD caused genital tract cancers; only 22% (131/300) were sure it did not lead to cancer. Delayed conception was thought to occur by 230/600 (38.3%) after discontinuing the IUCD; only 9% were certain of otherwise. Changed IUCD was believed by 25.3% (52/600) participants.

Responses to questions about an attitude toward future use of LARC revealed a positive attitude toward future use in 41% of women. 34% of women considered them convenient and 30% liked them due to long duration. 59% of women had a strong negative attitude for future use of LARC, 50.6% due to nonpermanency, and 33.9% due to presumed side effects [Table 3].

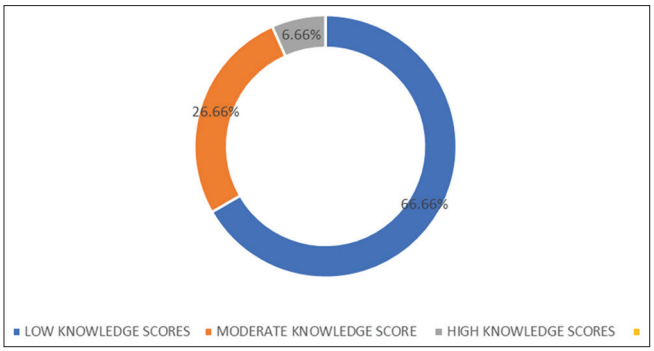

Figure 2: Distribution of knowledge scores about LARCS

Only 24.5% of women had ever used anyone of LARC for contraception [Supplementary Table 4]. Among 19.5% of past users of LARC, 36.7% discontinued due to bleeding troubles and 23.9% removed for childbearing. A meager 11.11% of women continued using it till date of removal. 12.8% of women opted for permanent sterilization. A large number of women (13.7%) had spontaneous expulsion of IUCDs. 2.6% of women stopped taking injectable progesterones due to amenorrhea.

41% of women had a positive attitude for future use of LARC, 21% of women had a preference for IUDs, 19.5% preferred injectable progesterones, and only 0.5% of women wanted an implant. The appealing factors were long duration (42.5%), convenient use (35.1%), and easy insertion and removal (25.5%). 15.9% women of all interviewed women could be motivated by the interviewer for the use of any of the LARC methods.

Family size and contraceptive usage decision was by husband in 62.5% of women questioned [Supplementary Table 5].

Discussion

The study participants were mostly married (99%), came from mixed urban and rural societies, majorly in 25–35 age groups. 12% were illiterate, showing higher rates than most studies (rates are 8.8% for Asia).[5] National Indian illiteracy rate is 46% (Bihar state 48%) on household surveys, our study being hospital based found only 12% illiterate.[6]

The total fertility rate (TFR) in Bihar state is 3.4 children per woman, higher than the national average (TFR 2.2) also found in this study, and 61% had >4 pregnancies. The contraceptive prevalence rate among currently married women age 15–49 is 24% and the use of modern method is 23%. 41% got a medical termination in this study, reflecting an unmet need for spacing methods while the national average is 21%. Family planning could prevent one-third maternal deaths and one-tenth child deaths by spacing their births.[7] This study found 64% women married by 20 years of age and concurs with other studies where 60% of girls are married by the age of 18 years and 25% are married by the age of 15 years in South Asia.[8]

Husband was the deciding partner of family size and contraceptive choices in 62.5% of couples interviewed reflecting

Table 2: Myths about use of IUCD

Myths queried	Number of responses	Percentages
MYTH 1: INFECTIONS		
Yes	152	25.3%
No	131	21.8%
NOT SURE	317	52.8%
MYTH 2: CAUSES HMB		
YES	197	32.8%
NO	92	15.3%
NOT SURE	311	51.8%
MYTH 3: CAUSES CANCER		
YES	146	24.3%
NO	131	21.8%
NOT SURE	323	53.8%
MYTH 4: IUCD MIGRATES		
YES	92	15.3%
NO	143	23.8%
NOT SURE	365	60.8%
MYTH 5: Delays pregnancy after discontinuation		
Yes	230	38.3%
No	53	8.8%
NOT SURE	317	52.8%
MYTH 6: ALTERED SEXUAL DESIRE		
Yes	152	25.3%
No	131	21.8%
NOT SURE	317	52.8%

HMB: Heavy Menstrual Bleeding

Table 3: Attitude toward future use of LARCS

Attitude and factors queried	Numbers of responses	Percentages
Attitude toward future use *n*=600		
Yes	246	41%
No	354	59%
Preference for use in those intending to use *n*=246		
IUCD	175	71.1%
Injectables	70	28.4%
Implant	1	04%
APPEALING FACTORS *n*=246		
Efficacy	49	19.9%
Duration	64	26.0%
Convenient	83	33.7%
confidential	11	4.4%
Minimal side effect	22	8.9%
Not permanent	17	6.9%
UNAPPEALING FACTOR *n*=354		
Side effect	121	34.2%
Not permanent	162	45.7%
No protection against STD	3	0.8%
Wants child	62	17.5%
Wants normal cycle	6	1.6%

the need for encouraging shared responsibility and participation of men in family planning programs.

Though most (58.3%) had no intention for future pregnancy, only 25% of the eligible couples in this study were using any contraceptive methods, whereas a neighboring country Nepal has 44.2% contraceptive usage.[9]

Lack of use of spacing contraceptives is reflected in 69% of women having second childbirth within 2 years of first delivery. Closely spaced and poorly timed pregnancies contribute to high mortality rates in India. A USAID study of 17 developing countries concluded increased survivability of children born 3–5 years following a previous birth than children who were born before 3 years of spacing.[10] In a large cohort study, LARC were found to be 20 times less likely to result in unintended pregnancy, compared to combined hormonal methods (the pill, patch, or ring).[11]

Though IUCD was a known name for 85% of women, none knew about patch or ring LARC contraceptives. Only one-fifth of them had used a LARC method. In African countries, knowledge of IUCD ranged from 24% to 84% in various studies.[12-14] This implies that promotion and awareness campaigns of family planning methods needs to be upscaled by the health department.

Most countries rely mainly on short-acting methods of contraception.[15] LARC use in the United States is among the lowest of any developed country. The prevalence of IUCD-LARC is highest in countries of Central Asia (Kazakhstan, Uzbekistan) and Western Asia (Jordan).[16] Use of LARCS was below 10% in 17 of the 23 countries of Latin America and Caribbean studied in a study published in Lancet, whereas Mexico was the only country in which LARCs were more frequently used.[17] 19.5% (117/600) respondents of this study had ever or were using a LARC method, which is higher than 10% for modern spacing methods use in India as reported by Pachauri.[18]

Surprisingly 51% of women had poor knowledge (<60% correct answers) about intrauterine devices, and 16% had moderate knowledge. 93% of respondents had never heard about contraceptive implants in the present study. Another Indian study has shown majority (67.60%) had moderate knowledge, 20 (14.70%) had high knowledge, and 24 (17.60%) had low knowledge on contraceptive methods.[19]

Multiple myths were present regarding LARCS in the present study, which can be reasons for decreased interest to use IUCD and prove to be major barriers to LARC use and continuation. User barriers also have not been addressed in contraception-related research and literature. Some of the primary barriers to LARC use cited include cost, provider experience, and interest, as well as patient interest.[20] Women also have fear of a foreign body being placed inside their womb in a study by Rubin and Winrob.[21]

A strong negative attitude was recorded in 59% of respondents about future use for LARC. For most, unappealing features of LARC were nonpermanence and presumed side effects and hence acceptance of sterilization operations in India more than LARC. However, every 4/10 women also had a positive attitude due to longer duration for use and convenience "forget about it" nature mentioned as appealing to use.

Although LARC has been declared as "first-line" choice of contraception for all women by reproductive health experts, their uptake in developed and developing countries is not at par with the unmet need of spacing contraceptors.[22] Among users of LARC, discontinuation rates were 90% as only 1 in 10 women using it till date of removal. Frequent follow-up of clients with an assurance of temporary nature of side effects by the LARC provider can help the continuation rates.[23]

The challenges to increase LARC uptake are user-related myths, false beliefs, and misinformation and also provider-related service, training, and costs. Providing clear and balanced information on the advantages and disadvantages of LARC will help couples make informed choices. Education aimed at women, particularly younger, nulliparous women in schools, colleges, and on social media should increase awareness and dispel myths surrounding LARCs. As recommended by CDC, counseling should be in a tiered approach, where the most effective options are offered before the less effective options.[24]

LARC methods can become the first-choice contraception if proper counseling about its longevity, cost effectiveness, and highly effective in preventing unplanned pregnancy is done. As reported in a prospective study (CHOICE) of 10,000 reproductive age group women from America, after creating awareness and removing financial burden, two-thirds of women preferred a LARC method.[25] A recent study of 2020 in Rwandan couples reported a method of motivational interviewing technique, which led to 34% couples opting for LARCs.[26] In our study, 15.9% of women of all interviewed women could be motivated by the interviewer for use of a LARC method.

Female patients approach family or primary care physicians before a gynecologist for any health-related condition. As discussions about contraception and family planning are not a routine part of primary physicians' visits, these encounters are the missed opportunities to meet the contraceptive needs of and reduce unintended pregnancy among women in our health system. These visits should be the opportunity utilized for contraception counseling by primary care physicians. It was seen in the ACCORd trial in Australia that family physician training is required on contraceptive effectiveness counseling. They should have rapid access to LARC clinics as well to increase LARC uptake, which can reduce unintended pregnancies.[27,28]

The Bellagio consensus has also advocated integrating LARCs into health systems by making it available and easily accessible, also the proper training and supervision of health care providers and

using professional bodies to increase the use of LARCS.[29] LARCs initiation and continuation can achieve planned births and reduce unintended pregnancies and their abortion-related complications, which can help achieve the Sustainable Development Goal-3 of good health and well-being for all by 2030 in India.[30] Health Technology Assessment of LARCs in India recommended adding a new cost-effective LARC, Nexplanon (a sub-dermal contraceptive implant), to the current Family planning services. Currently, India's National family planning program has only two LARCs: IUCD and depot-medroxy progesterone acetate, a three-monthly injection.[31] Neighboring countries (Sri Lanka, Bangladesh, Thailand, and Vietnam) have already introduced subdermal contraceptive implants in their national programs, where acceptance rates were below 1%. Creating awareness for implants in India will be of paramount importance as the present study found 93% of respondents had never even heard of implants.

The importance of the study is the understanding of the women in reproductive years, their approach to family planning, and myths and negative attitude toward certain contraceptives prevalent in our society.

The study found a huge unmet need for spacing contraceptive methods as appropriate child spacing is not maintained. Unintended pregnancy rates can be lowered effectively by encouraging couples to opt for LARCs. In addition to a lack of correct knowledge and awareness about LARCs, numerous myths surrounding LARC methods were also prevalent. The uptake of LARC can be increased by widespread propagation of correct information, motivational counseling, and health provider support when initiating the method and during its continuation.

Key points:

Knowledge and awareness about LARC is low and should be propagated in women.

Various myths surround the use of LARCs result in low uptake and inadequate child spacing.

Appropriate counselling starting at primary care physician level can increase uptake of LARCs.

Introduction of and creating awareness about different types of LARCs in health system is of paramount importance.

Declaration of patient consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participants have given their consent for their images and other clinical information to be reported in the journal. The participants understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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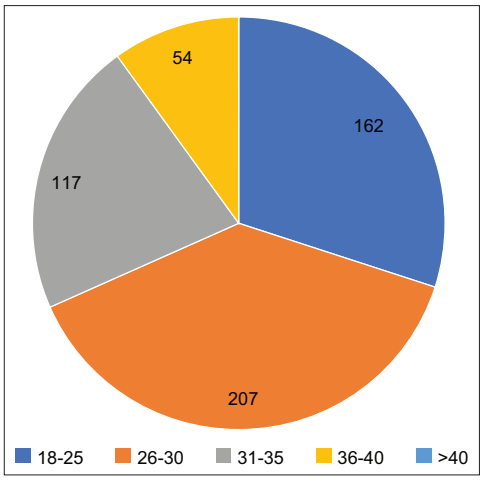
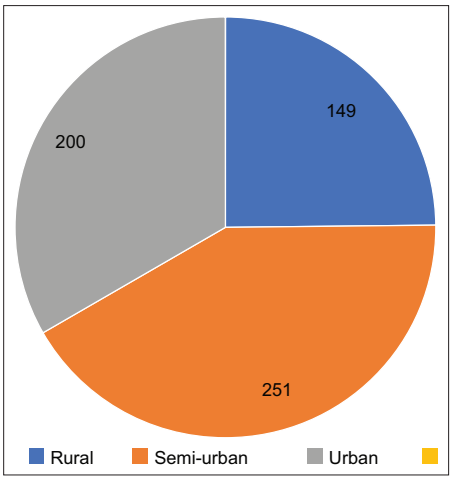
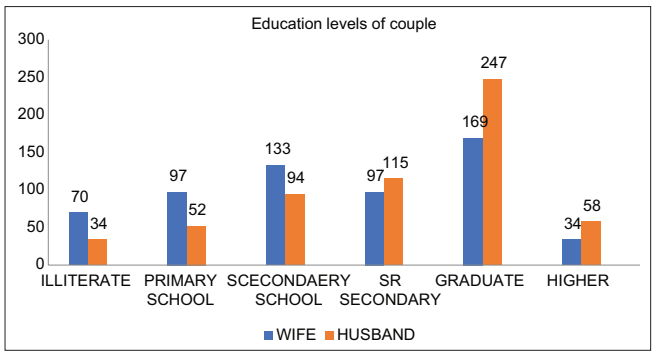


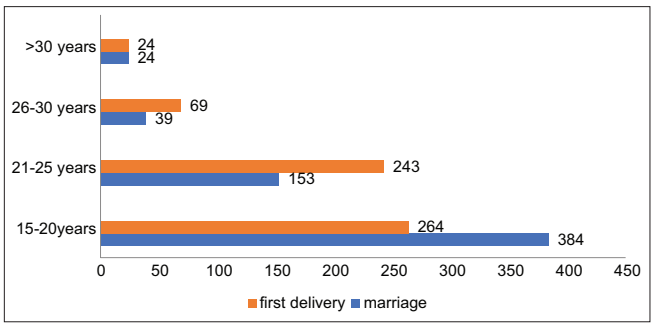
Supplementary Figure 1: Age distribution pattern in pie chart ($n = 600$)



Supplementary Figure 2: Distribution as per residence



Supplementary Figure 3: Education level of participants



Supplementary Figure 4: Cluster column depicting age at marriage and first delivery

Supplementary Table 1: Obstetric details

Obstetrical paarmeters	Number of responses (percentages)
SPACING (>24 MONTHS)	
No	414 (69%)
Yes	186 (31%)
MISCARRIAGE	225 (37.5%)
MTP	245 (40.83%)
INTENTION FOR FUTURE PREGNANCY	
Yes	200 (33.3%)
No	350 (58.3%)
Unsure	50 (8.3%)

MTP: Medical Termination of Pregnancy

Supplementary Table 2: Source of information for contraceptives

Source	Number of responses (percentages)
FRIENDS	501 (83.5%)
Family	510 (85%)
Spouse	456 (76%)
Health worker	324 (54%)
Health facility	386 (64.3%)
TV	480 (80%)
Radio	372 (62%)
Newspaper	234 (39%)

Supplementary Table 3: Knowledge of various contraceptives

	Yes	No
Any natural method	177 (29.5%)	423 (70.5%)
OCP	486 (81%)	114 (19%)
IUCD	505 (84.2%)	95 (84.2%)
Sterilization	498 (83%)	102 (83%)
Condom	528 (88%)	72 (88%)
Injectables	495 (82.5%)	105 (82.5%)
Implants	21 (3.5%)	579 (96.5%)
Patch/ring	0	-
Emergency contraception	264 (44%)	336 (56%)

OCP: Oral Contraceptive Pills

Supplementary Table 4: Knowledge about any LARC methods

Knowledge	*n*=600	Percentages
Knows	508	84.7%
Seen	108	18%
Used	117	19.5%

Supplementary Table 5: Decision making in family for family size

Deciding member	Number of responses (percentages)
Husband	375 (62.5%)
Wife	150 (25%)
In-laws	15 (2.5%)
Joint	60 (10%)