Is maternal health services utilization predict the contraceptives adoption in extended postpartum period: A community-based cross-sectional study done in urban slums of Western Gujarat

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Abstract
Background: Family planning (FP) programme has been integrated since long with MCH programme in order to reduce maternal and child mortality. The period of pregnancy, delivery, and postnatal period is very crucial to sensitize the women to adopt contraceptive practice because during this time they are in constant contact with health provider and more receptive to advice. The present study is designed in this context to see whether the utilization of maternal health services have any impact on adoption of modern contraceptives in extended postpartum period. Materials and Methods: Community-based cross-sectional study was done in urban slum of Jamnagar, Gujarat, for 1 year in 2016. Two-stage sampling methodology was used; in first stage, 30 Anganwadi centres (AWC) was chosen by systemic random sampling and in second stage from each AWC, 8 women in extended postpartum period were included. Study included total 240 women. Sampling was done at household level. Descriptive statistics for sociodemographic factors and reproductive characteristics were done. Chi-square test was used to find association between different variables. Result: Prevalence of using modern contraceptive was only 24.6%. The most preferred choice was barrier method (35.5%), followed by sterilization (27.1%), Intrauterine device (IUD) (25.04%), and OCP (12%). Around 57% women had taken ≥4 health center visit during their last pregnancy and 7.5% had never visited or consulted. 12% women were delivered at home. Majority of the participants (63.5%) were not paid visit by health worker, only 15% were provided with adequate postnatal visit and 21% had inadequate visit during their immediate postpartum period. A statistical association was found between usage of contraceptive with health center visit during ANC, postnatal visit by HW, parity and age of women in extended postpartum period. Conclusion: There is need to improve the quality of maternal health services to increase the utilization of FP services.

Keywords: Family planning, modern contraceptive, post natal women

Introduction
India is the first country in the world to introduce family planning (FP) programme in 1952. And the main goal of this programme was not only to stabilize the population of the country but also to decrease the morbidity and mortality of mother and child.[1] India is also the second most populous country in the world, adding 17.5 million every year to her 1,210 million according to 2011 census.[8] So it was very necessary to strengthen FP programme and integrate with existing maternal and child health programme to get the maximum benefits out of this programme. The MCH programme and FP programme are inseparable from each other because the health of mother and child is directly linked with adoption of contraceptive
practice in postpartum period to avoid future pregnancy and undue morbidity.

Although FP is important throughout an individual’s and couple’s reproductive life, postpartum family planning (PPFP) mainly focuses on the prevention of unintended and closely spaced pregnancies during the first 12 months following childbirth. Unintended pregnancy and closely spaced birth are a public health concern as they are associated with increase maternal, newborn, and child morbidity and mortality.\(^\text{[3]}\)

Postpartum women are usually in great need of FP services, yet they are not using any FP services; they need to support longer birth intervals or reduce unintended pregnancy and its consequences. There are various studies which show the importance of PPFP services in averting the maternal and child mortality. According to an analysis of Demographic and Health Surveys data from 27 countries, 95% of women who are 0–12 month’s postpartum want to avoid a pregnancy in the next 24 months, but 70% of them are not using contraception (Ross and Winfrey, 2001). FP can avert more than 30% of maternal deaths and 10% of child mortality if couples space their pregnancies more than 2 years apart (Cleland, 2006).\(^\text{[3]}\)

FP is an essential component of healthcare provided during the antenatal period, immediately after delivery and during the first year postpartum. WHO recommends that women receive information on FP and the health and social benefits of birth spacing during antenatal care, immediately after birth, and during postpartum and well-baby care, including immunization and growth monitoring.\(^\text{[4]}\)

In India under NUHM in 2013, there is provision of community health worker in slum communities to provide FP counseling, facilitating women’s access to ANC and postpartum care, and accompanying them to a health facility for delivery, and be depot holders for OCP and condom. So it is logical to understand that there is link between provision and utilization of services in antenatal period, intranatal, and postnatal period on utilization of FP services.

But there are very few studies conducted in India to see the relationship of utilization of antenatal, intranatal and postnatal service on FP services.

One of study conducted by Achyut et al\(^\text{[5]}\) in Uttar Pradesh funded by Bill and Melinda Gates Foundation found an association between FP information provision as part of antenatal care in the third trimester, delivery and the postpartum period on postpartum modern contraceptive use.

Other study conducted in Ethiopia, Bangladesh, Kenya, Zambia, and Nigeria\(^\text{[6]}\) found the role of utilization of maternal health services on adoption of FP in postpartum period. Clearly, it indicates the need of strengthening the existing MCH health services to make our small family goal a reality. So the question whether utilization of MCH services have influence on contraceptive practice holds an important question for health planner to plan through strong policy, capacity building of health providers, and supportive supervision.

In this context, this study is designed to know the magnitude and determinant of contraceptive use in extended postpartum period.

The main objective of the study to find out the proportion of women using contraceptive in extended postpartum period and to see whether the utilization of maternal health services during antenatal, intranatal, and postnatal period has a determining effect on contraceptive use in extended postpartum period.

**Materials and Methods**

The study was a cross-sectional study. It was conducted in urban slum of Jamnagar, situated in western Gujarat. The city has witnessed a large number of slums and migrant population because of industrialization.

The Municipal Corporation of Jamnagar city has total population of 5,29,308 (as per census 2011). There are 19 wards and 64 slum pockets in this Municipal Corporation area.

Study population: women who were in their postpartum period who delivered a baby in the last 6–12 months during the study time period. The study was conducted for 1 year from January 2016 to December 2016.

The study was conducted in Anganwadi centers situated in slums area. A complete list of the existing Anganwadi centers was obtained from the ICDS office of study area. In urban slum area of Jamnagar, total 297 Anganwadi were present at the time of study. A ward-wise alphabetically listing of all the 297 Anganwadi centers was done.

**Sampling methodology**

Two-stage sampling methodology was adopted to choose study participants.

In first stage, 30 Anganwadi centers were selected by systematic random sampling. Systemic procedure was adopted to select Anganwadi centers. First, we divided the 297 Anganwadi by 30 and got the sampling interval of 10, then one random number is found by pulling one card after shuffling, out of 10 cards serially numbered 1–10. We took 6th card and alphabetically 6th number Anganwadi was taken as first AWC, then every 10th AWC was taken.

In second stage, sample size was calculated. In Jamnagar, no data was available about the prevalence of contraceptive utilization in extended postpartum period so we took the proportion of any contraceptive use in extended postpartum period and got the sampling interval of 10, then one random number is found by pulling one card after shuffling, out of 10 cards serially numbered 1–10. We took 6th card and alphabetically 6th number Anganwadi was taken as first AWC, then every 10th AWC was taken. So by using the formula \(4PQ/l^2\), 10% absolute precision and design effect of 2, the calculated samples
size comes to 184. By considering 20% nonresponse rate, 221 postnatal women were required in the study. Participants were chosen at 30 Anganwadi center so grossly 8 postnatal women were taken from each of the chosen Anganwadi center.

Sampling had been conducted at household level. For choosing the study participants at anganwadi area, after going there, a random number was taken either the last two digits of currency note or the household having that number is chosen as first household for taking woman and start from that house every eligible postnatal woman present in subsequent household were included till 8 respondent were found. In case of nonavailability of required number of participant, remaining had been taken from adjacent Anganwadi.

A pretested structured questionnaire was used to collect the data from women in extended postpartum period (6–12 months). Data regarding sociodemography, reproductive characteristics, and utilization of maternal health services was collected.

Informed consent was taken from each participant before administering questionnaire.

The data entry was done in Epi info. Statistical analysis was done by using SPSS version 20 software. Descriptive statistics for sociodemographic factors and reproductive characteristics were done. Cross-tabulation was used to find association between different variables by using Chi-square test. P value of < 0.05 was taken as significant.

Ethical clearance: Ethical approval was taken before the commencement of the study from the ethical committee of the concerned institution.

Results

Socio demographic characteristics

The study included 240 women in extended postpartum period in slums of western Gujarat for assessing the prevalence of modern contraceptives. Nearly half of the women (49.2%) were found to be in the age group of 20–30 years. Around 3% postnatal women were adolescent and 15% were above the age of 30 years. It was revealed in study that around 25% women were illiterate in present study area and about 44% were educated to higher secondary and above. Majority of the respondents (94.2%) were housewives. Around 63% belong to Hindu religion and 36.7% women were Muslims. The study found that majority of women, that is, 79.6% women belonged to lower socioeconomic class (class III, IV, and V) and only 20% women belonged to higher socioeconomic class (class I and II) according to modified B. J. Prasad classification (Aug 2016 AICPI = 932) [11] [Table 1].

Reproductive health characteristics of postnatal women

The study found that around 30% women had conceived their first pregnancy before the age of legal marriage for girls. Majority of study participant that is around ¼ of the women had one or two children. It was revealed from the study that proportion of postnatal women using modern contraceptive methods were very less (25%). Around ¾ respondents in study area were not using contraceptive methods. The most preferred method adopted by postpartum women was barrier method (35.5%), followed by sterilization (27.1%), IUD (25.04%). Only 12% postnatal women were using oral contraceptive pills. Various reasons were given by the respondents about not using contraceptive methods in postpartum period of which around half of the women (41.4%) said that they want more children, next most common reason given was religious constraint (24.8%). Other reasons were spouse refusal (13.8%), no reasons (12.7%), and fear of side effect (7.1%) [Table 2].

Utilization of maternal health services

It was found from present study that majority of (96%) the participants had the MAMTA card. It was known that around 57% women had taken four or more health center visit during their last pregnancy and 7.5% had never visited or consulted any healthcare provider in antenatal period. Majority of women (88.88%) were delivered in healthcare facility, 11.3% women were delivered at home.

Table 1: Sociodemographic characteristics of postnatal women

| Number of Postnatal women | Percentage |
|---------------------------|------------|
| **Age**                   |            |
| 15–19                     | 7          | 2.9%       |
| 20–24                     | 118        | 49.2%      |
| 25–29                     | 79         | 32.9%      |
| ≥30                       | 36         | 15%        |
| **Educational status**    |            |
| Illiterate                | 59         | 24.6%      |
| Primary                   | 28         | 11.7%      |
| Secondary                 | 46         | 19.2%      |
| Higher Secondary          | 98         | 40.8%      |
| Graduate & above          | 9          | 3.8%       |
| **Occupation**            |            |
| Housewife                 | 226        | 94.2%      |
| Labor                     | 9          | 3.8%       |
| Service                   | 5          | 2.1%       |
| **Religion**              |            |
| Hindu                     | 152        | 63.3%      |
| Muslim                    | 88         | 36.7%      |
| **Type of Family**        |            |
| Nuclear                   | 89         | 37%        |
| Joint                     | 143        | 59.5%      |
| Three Generation          | 8          | 3.3%       |
| **Socio economic Class**  |            |
| Social Class-1            | 12         | 5.0%       |
| Social Class-2            | 37         | 15.4%      |
| Social Class-3            | 74         | 30.8%      |
| Social Class-4            | 95         | 39.6%      |
| Social Class-5            | 22         | 9.2%       |
| **Total**                 | 240        | 100%       |
Majority of the participants (63.5%) were not paid visit by health worker, only 15% were provided with adequate postnatal visit (three or more) and 21% postnatal women had inadequate visit during their immediate postpartum period [Table 3].

Factors associated with utilization of postpartum FP methods:

Out of the 240 postnatal women participated in the study, the prevalence of contraceptive usage was found more in those who had taken ≥4 antenatal visit and a statistical association was found between practice of using modern contraceptive use and adequate antenatal visit \((P = 0.05)\). In the same way, the women who had visited health worker in postnatal period adequately (≥3) were using contraceptive methods more in number as compared with those who had not paid visit adequately and the association was found to be highly significant (0.008).

High parity (>2) and high maternal age (>30 years) were also found to be associated with usage of modern contraceptive methods. There was no statistical association found between place of delivery and practice of using modern contraceptive method in extended postpartum period (0.21) [Table 4].

### Discussions

Pregnancy and postpartum period is a crucial period, where the health provider should take an opportunity to address the women about the need of using contraceptive methods for limiting and spacing family. It is the most important period when they are more receptive to listen about the advices given by the health providers. The present study was formulated in this context to see the effect of utilization of maternal health services either in antenatal period or postnatal period on using contraceptive methods in extended postpartum period. In this study, the proportion of postnatal women using modern contraceptive was only 24.6%. Thus, in this study, the unmet need of FP is 75%. The unmet need in present scenario has arisen because of women who are sexually active or do not need child at this moment of time but still not using any contraceptive method. According to district fact sheet of Jamnagar (2015–2016) in urban area, the prevalence of contraceptive use in reproductive age group (15–49 years) women was 30% percent. The finding of present study is consistent with study done by Mahmood et al. in Bareilly, Davalagi et al. in Karnataka, and Udgiri et al. in Karnataka but in other studies done in Ghana and Ethiopia, around 50% of postnatal women adopted the modern FP method in postpartum period, which is higher than present study.

The most preferable method of FP method adopted by study participants was barrier method and second most common choices were sterilization and insertion of IUD. Choice of sterilization usually depends on family size and in present study, around 75% women had the family size two or less than two, so it is logical to understand the lower use than any other method. The other important contributing factor is probably the age of respondent. At early age of conception, the most preferable method of choice is usually temporary method of FP and the study found around 30% postnatal women conceived below 18 years. The study done in rural Bareilly and Ghana found result similar to our study in terms of choice of contraceptive use in postnatal period. They found barrier method as first choice, 8.9% among those who were using it (Mahmood et al.) and 33.8% in Ghana. Also, a study done in low income countries by Pasha et al. the prevalence of condom use was found highest in India.

The most common reasons women cited for not using any modern contraceptive in postpartum period were a want to

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**Table 2: Reproductive health characteristics of postnatal women (n=240)**

| Age at first conception | No of postnatal women | Percentage |
|-------------------------|-----------------------|------------|
| ≤18 years               | 55                    | 22.9%      |
| >18 years               | 185                   | 70.1%      |

**Parity**

- ≤2: 182 (75.8%)
- >2: 58 (24.2%)

**Post natal women using modern contraceptive method**

- Yes: 59 (24.6%)
- No: 181 (75.4%)

**Methods of contraception using (n=59)**

- Barrier Method: 21 (35.5%)
- Sterilization: 16 (27.1%)
- IUD: 15 (25.4%)
- OC Pills: 7 (11.8%)

**Reasons of not using any contraceptive methods n=181**

- Want to have more children: 75 (41.4%)
- Fear of side effect: 13 (7.18%)
- Spouse refusal: 25 (13.8%)
- Religious constrain: 45 (24.8%)
- No reason: 23 (12.7%)
have more children and religious constraint. Other reasons were fear of side effect and spouse refusal, some of the respondents even do not know the reason. It shows the necessity of health education and counseling in not only in antenatal and intranatal period but also in postpartum period. Also, it is needed to make sustained contact between heath worker and beneficiaries. Some of the innovative approaches to make constant touch with women are text messaging as a reminder to them to call for session, involvement of local influential leaders among them, and positive deviance approach.

Under NUHM, there is provision of CHWs for slum communities, who will be responsible for FP counseling, facilitating women’s access to ANC and postpartum care, and accompanying them to a health facility for delivery, and be depot holders for OCP and condom. The chances of not using modern contraceptive are more in urban slum communities because women surrounded by various myths and misconception about contraceptive are more in urban slum communities. This study will help health planner and public health expert in planning and providing the community an integrated service package for efficient utilization of FP services. The study also provides an insight to health planner that utilization of maternal health services can enhance FP services; FP being conducted in urban slum area, the study can be a hint to conduct a large scale study to find out the benefits of close integration. Because the prevalence of contraceptive use was found very low, there is also a need to conduct a qualitative research to find out the barriers and facilitators in implementing the FP programme in integration with MCH programme.

From review of literature, very few studies are found which depict the effect of utilization of maternal health services on contraceptive practice in postpartum period.

We found that number of antenatal visit, age of mother, postnatal visit, and parity is an important predictor of utilization of modern FP method in their extended postpartum period. It is shown from the study that more than 50% women who had taken four or more antenatal visit were more adopting contraceptive. This finding shows that frequent visit during antenatal period pave the way in adopting future decision of good practice. The finding of this study is similar to study done in Ethiopia Teka et al.,[8] and by Tisha et al. in Bangladesh.[7] But this finding is in contrast to study done in five low income countries,[16] which did not find an association to antenatal care.

It was interesting to find that women who receive postnatal care by health worker had more adopted contraceptives and the association was found significant. The reason seems to be frequent contact between heath worker and women, which provide an opportunity to counsel them at that particular important time period. And also women are more receptive to advice regarding health of them during this phase of life. Similar finding is observed by Teka et al.,[8] but Ambure et al.[17] found no association.

In our country, the proportion of women taking antenatal care is far more than utilization of postnatal care but both the periods are equally important to utilize to make women sensitize about contraceptive. It is usually seen that postnatal period is usually underutilized.

The study found the age of the mother and parity of mother an important determining factor for accepting contraceptive. The finding is consistent with study done by Tisha et al.[7] and Ajayin et al.[18] at early age and low parity, the acceptance of modern contraceptive is low, but this the window period, if paid attention, plays an important role in taking decision at right time to limit or space the family size.

From the present study, it was found that mere existence of two services does not guarantee that it will be utilized. It requires a conscious effort to integrate it through continuous supervision.

This study will help health planner and public health expert in planning and providing the community an integrated service package for efficient utilization of FP services. The study also provides an insight to health planner that utilization of maternal health services can enhance FP services; FP being conducted in urban slum area, the study can be a hint to conduct a large scale study to find out the benefits of close integration. Because the prevalence of contraceptive use was found very low, there is also a need to conduct a qualitative research to find out the barriers and facilitators in implementing the FP programme in integration with MCH programme.

So, it is time to strengthen health system capacity to reach unreach and underserved population to stabilize our populations.

**Conclusion**

The present study found the prevalence of contraceptive practice in extended postpartum period unsatisfactory. But we find that utilization of maternal health services play a determining role in adopting contraceptive. So, there is need to strengthen the ongoing MCH programme to make our small family goal a reality. There are various national programme and policies going on to

### Table 4: Predictors of utilization of modern contraceptive in extended postpartum period

| Variables                     | Using contraceptive | Not using contraceptive | Total | χ² | P    |
|-------------------------------|---------------------|-------------------------|-------|----|------|
| Antenatal visits taken        |                     |                         |       |    |      |
| ≥4 visits                     | 41                  | 95                      | 136   | 5.69 | 0.05 |
| <4 visits                     | 16                  | 70                      | 86    |     |      |
| None                          | 2                   | 16                      | 18    |     |      |
| Postnatal care (visit paid by health worker) |                 |                         |       |    |      |
| Adequate                      | 16                  | 20                      | 36    | 9.72 | 0.008|
| Inadequate                    | 13                  | 38                      | 51    |     |      |
| None                          | 30                  | 123                     | 153   |     |      |
| Place of delivery             |                     |                         |       |    |      |
| Home                          | 4                   | 23                      | 27    | 1.56 | 0.21 |
| Hospital                      | 55                  | 158                     | 213   |     |      |
| Parity                        |                     |                         |       |    |      |
| ≤2                            | 39                  | 143                     | 182   | 4.04 | 0.04 |
| >2                            | 20                  | 38                      | 58    |     |      |
| Maternal age                  |                     |                         |       |    |      |
| ≤30 years                     | 45                  | 159                     | 204   | 4.67 | 0.03 |
| >30 years                     | 14                  | 22                      | 36    |     |      |
increase utilization of maternal health services, but at the same time it is needed to strengthen quality of FP counseling at every step. Effort should be made to improve the quantity as well as quality of maternal health services to increase the utilization of FP services.

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**Conflicts of interest**
There are no conflicts of interest.

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