



## DISTRIBUTION AND DETERMINANTS OF POST-PARTUM AMENORRHEA IN A SLUM OF KOLKATA

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### ABSTRACT

**Background:** The interval after termination of conception and before the resumption of ovulation is known as postpartum amenorrhea (PPA) period. The fecundability of a woman is temporarily suspended during this period thus helping in birth spacing.

**Objective:** The study was conducted to explore determinants of PPA.

**Methodology:** A community based observational study among the mothers of children aged 6-23 months in a slum of Kolkata was done during April 2016-June 2016. Simple random sampling was done to obtain the study participants. Data collection was done using a structured questionnaire on socio-demographic characteristics, duration of PPA, EBF duration, contraceptive practices etc. Data was analyzed using SPSS (version 16). Linear regression was done to establish the association.

**Results:** A total of 112 mothers were approached in the study duration. Mean duration of PPA was 3.5 ( $\pm$  2.1) months and ranging from 0-8 months. Mean PCI was INR 2052. Mean age at marriage was 19.6 ( $\pm$  1.9) years. 22.3% mothers gave history of abortion. 84.8% mothers initiated EBF but 78.9% of them continued till 6 months. Unmet need was 61%. Duration of breast feeding (SE-0.06, P-value <0.00001) and the socioeconomic status (SE-0.16, P-value 0.002) were found to be significantly associated.

**Conclusion:** NFHS 4 data shows current use of any family planning method in the urban areas of west Bengal is 69%, unmet need being 8.4%. PPA is an important biological factors that maintain proper spacing if awareness about determinants are promoted. This area needs to be focused on by the social scientists.

**KEYWORDS :** PPA, Birth spacing, family planning

### BACKGROUND:

As a country or region moves from a pre-industrial to an industrialized economic system, the population also shows a transition. This transition is caused primarily by the change in the death rate and the birth rate and is termed as demographic transition. This transition affects the quality of life of the population by a whole spectrum of dimension. In short, it would not be an overstatement to say that population of a country creates a load on the resources thus affecting the living standard. As per census 2011, India is in the later half of the third stage of the demographic transition, with a population of 1,34 crore. Census 2011 reports the total population of Kolkata to be 4,496,694.<sup>[1]</sup> The national Family Planning Programme of India, since its inception in 1951, has been able to successfully achieve significant reductions in maternal mortality and fertility. In spite of all efforts, NFHS 4 reports current use of any family planning method in the urban areas of West Bengal is 69%, unmet need being 8.4%.<sup>[2]</sup> so, this area needs to be focused on by the social scientists.

The fecundability of a woman is temporarily suspended following each conception when ovulation and menstruation ceases for some time. The interval after termination of conception and before the resumption of ovulation is known as postpartum amenorrhea (PPA) period. It is a biological variable associated with each conception regardless of its outcome. PPA in women varies from around a month to more than an year. This period depends on a number of factors, which vary from woman to woman in a population. Prolonged lactation suppresses the production of certain types of hormones, thereby extending the postpartum anovulatory period. The clear mechanism by which this period varies still remain uncovered. If this method is to be used as a powerful method for spacing, it is essential to have a clear picture of the determinants of amenorrhea duration. Then only health education and awareness can be planned and oriented to those area that need to be focused.

### METHODOLOGY

A community based cross-sectional study was done in the months of May-July, 2017 in a slum of Kolkata. The area of study is located in south Kolkata. Total eligible couples in this area are 9466. Line listing

of children born between June 2016 to November 2017 (aged between 6-23 months, as of the day of initiation of data collection) was done from the Eligible Couple and Child Register, maintained by the Maternal & Child Health units of the center. A total of 12 days was available to the researcher for data collection. Being single researcher with limited time and other logistics, a sample size of 112 was estimated that could be covered. Simple random sampling was done to obtain the sample. Home visits was done and consent was taken after explaining the purpose of the study. They were ensured about the anonymity and confidentiality of the data. If any selected female refused to participate or was not found while home visit, another study participant was selected randomly from the sampling frame. Data was collected using a pre-designed, pre-tested structured interview schedule that was prepared by the researcher based on review of literature. Face and content validity of the tool was checked by the experts of the field. The tool was prepared in English, then translated to Bengali and back translated to English. The Bengali version was administered to the study subjects.

### Response variable -

The duration of PPA was taken as the response variable. Since ovulation itself is difficult to identify, the reliable estimate of the end of amenorrhea is the return of menstruation itself. In this study, the duration of PPA was estimated as an interval between the termination of conception and the return of first menses. It was noted in completed months following the last child birth.

### Explanatory variables -

The explanatory variables or so termed as covariates were demographic and socioeconomic factors. The socioeconomic status was determined based on per capita income of the family. Under the demographic variables, duration of breastfeeding, age at marriage, age at the delivery of the youngest child, sex of the youngest child, mode of the delivery, parity, any history of abortion, living status of the previous child, and use of contraceptive devices were considered. These variables were expected to cause the variation in the duration of PPA in view of the findings of the previous studies. It was rather difficult to explore the effects of the explanatory variables in isolation

owing to the fact that these were purely interdependent on one another. Here, the adopted tools had to quantify the possible effects of the variables after adjusting the effects of other variables under consideration.

**Method of analysis-**

Data were analyzed using the SPSS version 16 (developed by IBM). Descriptive statistics was done to describe the population characteristics. Linear regression was performed to identify factors associated with duration of the PPA among the study subjects. The results are expressed in terms of  $\beta$  -coefficients, standard error (SE) and p values, with their 95% confidence interval (CI).

**RESULTS**

Majority (76.8%) were in the 20-25 years' age-group. Mean age of study participants was 23 ( $\pm$  2.7) years. Majority of the children selected were below 1 year of age. Mean age of the children was 14.2 ( $\pm$  5.3) years. 87.5% of the study participants were Hinduism by religion. Rest were Muslims. 79.5% of them were living in joint families. Major occupation was homemaker. Male to female ratio of the children was 1:0.9. 12.5% of the women were married before 18 years of age. Mean age of marriage was 19.6 ( $\pm$  1.9) years. Per capita income showed a wide range of distribution from 327-6667. Majority (39.3%) belonged to middle class as per B G Prasad Modified scale 2016. 5.6% of the study participants were illiterate. 22.3% of them had a history of abortion. Mean age at the time of first pregnancy was 20.6 ( $\pm$  2.2) years. Teenage pregnancy was reported among 50.9% of the mothers. 3.6% of the babies received prelacteal feed in some form. While 84.8% of the mothers started to breastfeed their babies only 67% of them continued exclusive breastfeeding till 6 months. Personal history including antenatal history were taken. (Table 1) The study participants were asked about the duration of PPA and the responses are depicted by the means of a bar diagram. (Figure 1)

Linear regression was done to find the factors associated with postpartum amenorrhea (Table 2). PCI and Duration of EBF were found to be significantly related with the duration of amenorrhea after adjusting for other variables.

**DISCUSSION**

The duration of PPA in the study subjects was found to range from 0-8 months. The mean duration was calculated to be 3.5 months with a standard deviation of 2.1. The findings of the study clearly states that the duration of PPA is significantly associated with the duration of EBF. As the months of exclusively breast feeding the baby is increasing, the months of amenorrhea is also increasing. This result is explained biologically by the fact that prolonged lactation suppresses the production hormones, thereby extending the postpartum anovulatory period. Longer breastfeeding has suckling stimulation leading to prolactin secretion. Prolactin in turn suppresses gonadotropin (GnRH), which delays the secretion of Follicle Stimulation Hormone (FSH) and Luteinizing Hormone (LH), resulting in longer PPA. The results of this study are consistent with findings of studies done previously across the nation.<sup>[3,4,5]</sup>

Socio economic status of the women was also found to be significantly associated with duration of PPA. This can explained by the fact that economic status is a direct determinant of the nutritional status of the individual that may further adversely affect the milk production and thus duration of breast feeding. Thus socioeconomic status might be considered as an indirect determinant of the duration of PPA. This finding is in agreement with findings of Srinivasan *et al.*<sup>[6]</sup> and Aguirre *et al.*<sup>[7]</sup>

Thus the findings of this study confirm that PPA is highly influenced by the duration of breastfeeding. Breastfeeding is again associated with other explanatory variables in many ways in the study subjects due to the diverse sociocultural and behavioural aspects.

**CONCLUSION**

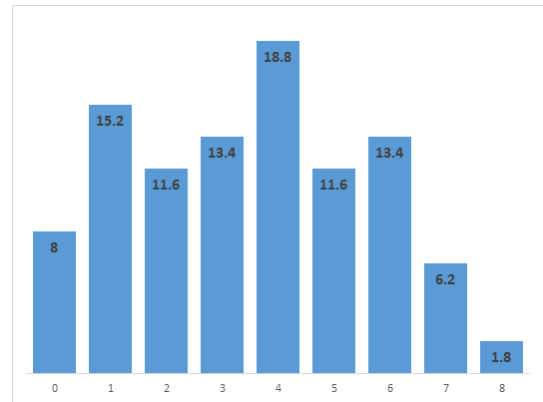
In light of the current scenario of the practices of family planning method in the nation, it is high time to focus on such a biological phenomenon that naturally helps in birth spacing. The effectiveness of this method can be increased by focusing on ways to prolong this amenorrhic duration. Consistent with many previous studies, this study also suggests that duration of EBF helps in birth control by

prolonging this period of temporary sterility.

**Table 1 : Personal history and Ante natal history of the study participant (n=112)**

| Variable   | No(%)    |
|--|----------|
| <b>BMI ( kg/m<sup>3</sup>)</b>                       |          |
| 18.5-24.9  | 67(59.8) |
| 25-29.9  | 42(37.5) |
| >=30   | 3(2.7)   |
| <b>Family Planning method used during PPA period</b> |          |
| None   | 61(54.5) |
| Barrier method                                       | 29(25.9) |
| IUCD   | 14(12.5) |
| Permanent method                                     | 8(7.1)   |
| <b>IFA consumed during pregnancy</b>                 |          |
| Adequate   | 61(54.5) |
| Inadequate   | 51(45.5) |
| <b>Obstetric complication</b>                        |          |
| Yes  | 18(16.1) |
| No   | 94(83.9) |

**Figure 1: Bar diagram showing distribution of study participants according to their duration of PPA (in months)**



**Table 2 : Linear Regression to find the factors associated with the duration of PPA**

| Variable                  | Unstandardized $\beta$ | SE   | p-value |
|---------------------------|------------------------|------|---------|
| Age at birth of the child | -0.19                  | 0.13 | 0.13    |
| Per Capita Income         | 0.51                   | 0.16 | 0.002   |
| Gravida                   | 0.68                   | 0.39 | 0.09    |
| History of abortion       | -0.38                  | 0.47 | 0.42    |
| Mode of delivery          | -0.34                  | 0.3  | 0.26    |
| Gender of the child       | 0.36                   | 0.29 | 0.17    |
| Duration of EBF           | 0.74                   | 0.06 | <0.0001 |
| Family Planning method    | 0.28                   | 0.26 | 0.3     |

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