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Original Research Article

Length of PPA and its Determinants in Slum Community of Varanasi

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ABSTRACT

Background: Duration of post partum amenorrhoea (PPA) is amongst one that regulates fertility process; and can be substantially longer among prolonged breast feeding women. The determinants of PPA are similar to those of breast feeding and are associated with age of mother at child's birth, social status, level of income, religion and caste, and residential status.
Objective: To assess the length of PPA, risk of resumption of menstruation after a birth and the determinants of PPA in slums which is socially disadvantaged society of urban.
Data and methods: A cross sectional survey was carried on 590 slum women of reproductive age group (15-49 years) selected following two stages stratified random sampling; at first stage slums and women at second stage. The analysis carried on 268 women given last birth within 5 years since the survey date. Distribution and median PPA was obtained; Cox (PH) was used to identify the determinant. The statistical significance was judged at $\alpha = 0.05$.
Observation and results: Nearly half (45.15%) of the women had very small length of PPA of 1-2 months; while in about one third (33.58%) of was 3-4 months. Median duration of PPA was almost 3 months and almost similar irrespective of women's age, religion, caste, type of family, and education & occupation of women; while differed significantly with number of children born.
Conclusion: In this socially disadvantaged community, duration of PPA is shorter and family planning acceptance is poor; so need motivation on accepting spacing methods of contraception for adequate birth spacing.

Key Words: Slum, Post partum, Determinants

BACKGROUND

Process of fertility is regulated mainly by marriage age, practice of contraception and duration of post partum amenorrhoea (PPA) and these are linked with socio-economic status, perception of value of a child among parents and attitude of community towards family size. In a community with poor acceptance of contraception, the length of PPA is the only way out that acts as the contraceptive method to prevent the next birth and subsequently to reduce fertility. The length of PPA is greatly affected by duration and intensity of breast feeding but only within infancy period. One major in addition to lengthening the duration of PPA advantage of Breast feeding is it gives strength to the physical and mental development of new born child and reduces morbidity and mortality. The estimate of median durations of breastfeeding was 24 months and was shorter for girl child than male and also among urban child than rural. In spite of differences by sex and place of residence, breast feeding is relatively higher in socially

disadvantaged community there by experiences higher length of PPA in this community by an additional of about 2 months. [1, 2] A long back study of 1978 had indicated that the length of PPA was higher by 9 months in those mothers with prolonged breast feeding compared to those not breast feeding and consequently birth interval was increased by 50%. [3] Further, while assessing optimal contraceptive effect of breast feeding, the analysis of NFHS-III data after adjusting the important confounding factors indicated that the gain in length of PPA was of 1.3 months and 1.6 months when duration of breast-feeding was extended from 6-10 months to 11-14 months and further to more than 15 months respectively. [4] While estimating the length of PPA using the censored data about 12 percent women were found the resumption of menstruation within 2-3 months interval with median amenorrhea time 5.17 months. About 69% women were found to remain in amenorrhea by the end of 3-4 months and the decline was comparatively highest between 4-5 and 5-6 months interval. Relationship between amenorrhea and breast feeding indicated that breast feeding prolonged the duration of PPA. [5] The analysis of two retrospective surveys during 1987-1989 conducted in eastern India; revealed that the breast feeding, age of mother at child's birth, social status, level of income, religion and caste, and residential status had significant effect on the return of menses in Indian traditional society. [6] While making the comparison of PPA period between women in USA who breast feed for ≥ 6 months with that breast feed ≤ 3 months and put the baby on formula feed found significantly shorter PPA among the latter; further, analysis indicated that within the formula-feeding group, the only variable associated with duration of PPA was duration of breast-feeding, but among breast-feeding mothers who resumed menstruation after 3 months postpartum, duration of PPA was positively associated with parity and negatively associated with maternal body mass index (BMI) at 3 months postpartum. While among breast-feeding mothers who resumed menstruation after 6 months, duration of PPA was positively associated with parity, pregnancy weight gain, number of night feeds and milk volume at 6 months, and negatively associated with maternal age and BMI at 6 months postpartum. [7] An analysis on women from Bihar reported that duration of breastfeeding, parity, residence, contraceptive use have a significant impact on duration of postpartum amenorrhea (PPA) and empirical evidence also indicated that longer and more frequent breastfeeding may increase the length of ovulatory period. The analysis also showed that mothers with a BMI greater than 18.5 kg/m^2 resume ovulation faster and high mean for duration of breastfeeding than those with a lower BMI. [8]

The slum community of eastern region is a socially disadvantaged community and still living in their own traditional way with high level of fertility. The reason behind is poor contraception practice of spacing methods and desire of more children especially males. In presence of poor acceptance of contraception of spacing methods, the length of PPA is the only barrier that can space the successive births and may help in reducing fertility unless terminal method is accepted. Hence, the present analysis was carried to assess the length of PPA, risk of resumption of menstruation after a birth and the determinants of PPA.

MATERIALS AND METHODS

A cross sectional survey was carried on 590 slum women of reproductive age group (15-49 years) selected following two stage stratified random sampling; at first stage slums and women at second stage. The different socio and demographic characteristics e.g. age of woman, total born alive, religion, caste, type of family, education of woman, occupation of woman, PCI of the family, and sex of child was recorded in addition to birth spacing of each live births along with associated length of

PPA. The analysis was confined to the last live birth that has occurred during last five years from the date of survey. Thus, out of 590 women only 268 were subjected to analysis here. Since, the distribution of PPA was non-normal showing large variability and observations are censored, hence only median length of PPA was estimated and presented. The risk of resumption of menstruation after the birth and further differentiation in PPA with socio demographic characteristics was assessed by using Kaplan Meier Survival method followed by multivariable Cox proportional hazard model. The statistical significance was judged at $\alpha = 0.05$.

OBSERVATION AND RESULTS

Among the women considered for analysis, majority about three fourth (76.1%) were below the age of 30 years while rest 23.9% were age ≥ 30 years. Nearly thirty percent (29.5%) were of first parity; more than half (54.9%) of parity 2-3 and 15.7% of parity ≥ 4. Representation of Muslim women was only 4.9% and rest all were Hindus. More than one third (35.4%) women belonged to either general or OBC caste and rest 64.6% were of SC/ST. Most (95.5%) of the women were from nuclear family and very few (4.5%) from joint family set up. As regard to educational attainment of studied women nearly forty percent (42.9%) were illiterate or had up to primary level education and a little less 35.8% had education between 6th to 10th standard; while rest 21.3% were of more than 10th standard schooling. Most (85.1%) women were house wives but 14.9% were also involved in income generating activities. Mostly (82.8%) women were from the families of lower or lower middle income class while only 17.3% were from income class middle or above. Among the born for whom PPA was associated, nearly half and half were male and female children (Table-1).

Table-1: Back ground characteristics of women and last born child

Characteristics	No.	%	Characteristics	No.	%
Age of woman (yrs.)			Education of woman		
< 30	204	76.1	No/1-5th standard	115	42.9
≥ 30	64	23.9	6th to 10th standard	96	35.8
Total born alive			>10th standard	57	21.3
1	79	29.5	Occupation of woman		
2-3	147	54.9	Earner	40	14.9
≥ 4	42	15.7	House wife	228	85.1
Religion			PCI of the family		
Hindu	255	95.1	Lower & lower middle	222	82.8
Muslim	13	4.9	Middle & above	46	17.2
Caste			Sex of child		
General & OBC	95	35.4	Male	133	49.6
SC/ST	173	64.6	Female	135	50.4
Type of family					
Nuclear	256	95.5			
Joint	12	4.5			

Table-2: Distribution of length of PPA irrespective of birth order

Length of PPA (Months)	Number	%
1 - 2	121	45.15
3 – 4	90	33.58
≥ 5	57	21.27
Total	268	
Mean ± SD	3.57 ± 3.21	
Range	1-24	
Median (95% CI of median)	3 (2.71 – 3.29)	

Nearly half (45.15%) of the women had very small length of PPA i.e. 1-2 months; while in about one third (33.58%) it was 3-4 months. The length of PPA ≥ 5 months was seen only in 21.27% women, though it ranged from 1 to 24 months with overall mean 3.57 ± 3.21 months and median 3 months (Table-2). As indicated in Table-3, the distribution of length of PPA was almost similar irrespective of their present age, religion, caste, type of family, and education & occupation of woman; while differed significantly with number of children born. Compared to 37.4% women given 2-3

births, the length of PPA between 1-2 months was in 57.1% women who had given birth to ≥ 4 births indicating higher fertility among women of shorter length of PPA. The Cox PH model when applied to identify the role of socio, demographic and sex of the child, none of the characteristics emerged to influence the length of PPA.

Table-3: PPA differential according to the characteristics of family and women

Characteristics	N	% with duration of PPA (months)			Md*	P **	AHR	95% CI
		1 - 2	3 - 4	≥ 5				
Age of woman (yrs.)								
< 30	204	45.6	34.3	20.1	3	0.188	1.29	0.91 – 1.83
≥ 30	64	43.8	31.2	25.0	3		1.00	--
χ2, df, p value	0.72, 2, 0.697							
Total born alive								
1	79	53.2	22.8	24.1	2	0.047	0.76	0.45 – 1.28
2-3	147	37.4	40.8	21.8	2		3.11	0.38 – 25.42
≥ 4	42	57.1	28.6	14.3	2		1.00	--
χ2, df, p value	11.025, 4, 0.026							
Religion								
Hindu	255	44.7	34.1	21.2	3	0.874	0.83	0.46 – 1.48
Muslim	13	53.8	23.1	23.1	2		1.00	--
χ2, df, p value	0.41, 1, 0.518							
Caste								
General & OBC	95	42.1	41.1	16.8	3	0.869	1.02	0.78 – 1.33
SC/ST	173	46.8	29.5	23.7	3		1.00	--
χ2, df, p value	4.10, 2, 0.129							
Type of family								
Nuclear	256	44.5	34.0	21.5	3	0.197	0.83	0.44 – 1.55
Joint	12	58.3	25.0	16.7	1.5		1.00	--
χ2, df, p value	0.88, 1, 0.348							
Education of woman								
No/1-5th standard	115	48.7	37.4	13.9	3	0.439	1.35	0.94 – 1.92
6th to 10th standard	96	41.7	33.3	25.0	3		1.04	0.73 – 1.47
>10th standard	57	43.9	26.3	29.8	3		1.00	--
χ2, df, p value	7.51, 2, 0.111							
Occupation of woman								
Earner	40	40.0	40.0	20.0	3	0.830	1.15	0.81 – 1.64
House wife	228	46.1	32.5	21.5	3		1.00	--
χ2, df, p value	0.88, 2, 0.641							
PCI of the family								
Lower & lower middle	222	43.2	36.0	20.7	3	0.269	0.85	0.58 – 1. 22
Middle & above	46	54.3	21.7	23.9	2		1.00	--
χ2, df, p value	3.54, 2, 0.170							
Sex of child								
Male	133	45.9	34.6	19.5	3	0.441	0.95	0.73 – 1.22
Female	135	44.4	32.6	23.0	3		1.00	--
χ2, df, p value	0.476, 2, 0.788							

* Md = Median, * * Based on non parametric tests (Mann-Whitney and Kruskal Wallis tests)

DISCUSSION

For individual women, the resumption of menstruation is not predictable but associated with intensity and the duration of breast feeding. [3,4,6] and the breast feeding pattern is linked with socio-economic characteristics of the women. Present study is indicating the duration of PPA, risk of resumption and its predictors among the slum women. The women under study belonged to socially disadvantages class and economically much poor and are expected to have longer duration of breast feeding and subsequently larger duration of PPA compared to others. The findings indicate that very short length of PPA i.e. 1-2 months in this segment of population was nearly in half (45.15%) of the women and nearly one third (33.58%) had 3-4 months. The length of PPA ≥ 5 months was only among 21.27% women, though it ranged from 1 to 24 months and the length of PPA beyond one year was rare (Table-2 and Fig-1). This indicates may be poor breast feeding pattern in this community whatever may be the reason. Bi-variate analysis indicated that the distribution of length of PPA was almost similar irrespective of

women's age, religion, caste, type of family, and education & occupation but statistically differed with number of children born; length of PPA was shorter who had given 2-3 birth (1-2 month PPA of 37.4%) when compared with those given four or more births of woman (1-2 months PPA of 57.1%). This indirectly reflects its impact on fertility, because the contraceptive practice of spacing methods in this group was below 25%. The study carried by Singh (2007) in general population indicated that about 69% women were found to remain in amenorrhea by the end of 3-4 months with median length of 5.17 months; [5] but median length in these women of slums was very low of 3 months only;

CONCLUSION

In this socially disadvantaged community, duration of PPA is shorter and family planning acceptance is poor; so need motivation on accepting spacing methods of contraception for adequate birth spacing.

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