

**DURATION OF BREAST-FEEDING IN NORTH-EASTERN INDIA:
ESTIMATES OF SURVIVAL FUNCTION
FROM TWO NATIONAL FAMILY HEALTH SURVEYS**

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ABSTRACT

Life table technique has been extensively used to analyze time to event demographic data. The technique is essentially based on the concept of exposure to the risk of the event under consideration, happening in specified durations. The present article considers the life table estimation of the survival distribution for the duration of 'breast-feeding in six north-eastern states of India. Data used in the study come from the two National Family and Health Surveys². The results show that there has been a better survival experience in the recent years and the median duration of breast-feeding has increased in these states, demonstrating a success of the government policies on child health care delivery system and comprehensive campaign programmes on beneficial effects of breast-feeding.

Keywords: Life table, Survival distribution, Smoothing, Loess, and Cross-validation.

The health and family planning policy makers have increasingly recognized the multiple beneficial effects of breast-feeding. Several studies on the potential benefits of breast-feeding show that breast-feeding improves the nutritional status of infants and reduces morbidity and mortality, particularly in the first year of life. Demographic analysis further demonstrates that the duration and intensity of breast-feeding have significant effects on duration of post-partum amenorrhoea, birth intervals and fertility. In societies, with limited or no access to modern contraceptives, birth intervals are principally determined by the duration of breast-feeding. Recent studies suggest that duration of breast-feeding is declining in many parts of the developing world as a result of urbanization, employment of mothers outside home and adequate supply of infant milk formulae. Studies in India have also shown a decline in breast-feeding trends, especially in the urban areas.

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OBJECTIVE

The purpose of the present paper is to provide the estimates of the survival distribution and median duration of breast-feeding in the six north-eastern states of India, namely; Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. Data for this particular study have been used from two large-scale National Family and Health Surveys (NFHS-1 and NFHS-2). Two different methods of estimation, namely; the Kaplan-Meier (KM) and the Nelson-Aalen (NA), have been used to compare the estimates. The importance of this research lies in the fact that this is the first study of its kind in the north-eastern region of India that examines the pattern in the duration of breast-feeding and a change, if any, in the practice followed by mothers, during the last decade in the north-eastern states.

REVIEW OF LITERATURE

The first National Family and Health Survey (NFHS-1) was conducted in the six small northeastern states during February-June 1993. The survey collected information on a representative sample of 6,266 ever-married women aged 13-49. Whereas, the second survey (NFHS-2) conducted during May 1999 - June 2000, gathered information on 6,467 ever-married women aged 15-49. Information on breast-feeding was collected for the children who born during the four years preceding NFHS-1 and three years preceding NFHS-2. For any given women, a maximum of two births was included in the analysis. Information from a total of 2,479 and 2,421 women in NFHS-1 and NFHS-2 respectively was collected on breast-feeding duration of their last born and last to last-born child. It was observed that 472 and 1,701 women from NFHS-1 and NFHS-2 respectively were either still breast-feeding at the date of interview or had breast-fed their children until they died. The rest of the women stopped their breast-feeding to the last-born or last to last-born child.

More often, the researchers have chosen the retrospectively reported data from the last closed interval or from the current open interval because these data could be analyzed using familiar techniques. However, the retrospectively reported data on breast-feeding duration in the last closed interval or current open interval show concentration of points at multiples of six or twelve months, which may constitute biased data set. Such multiple answers are mainly due to errors in mother's recall. But, the current status of data on breast-feeding duration in the current open interval does not show such concentration at multiples of six months.

On the other hand, women reporting at the last closed interval represent at least partially, a self-selected group of breast-feeders for a short duration and thus, add selection bias to the existing reporting bias. Furthermore, data for the last closed interval, under-represent women with a longer than average birth interval, because these women have had less chance of having had their second birth. Data for the current open interval do not suffer from such limitations. That is why data have been analyzed by using the modern survival analytic tools that incorporate both the current status and retrospective data of breast-feeding duration.

METHODOLOGY

A survival function defined over time 't' is, by definition, the probability, that a person survives at least to time t. In the present context, it represents the probability that a woman has breast-fed her child at least to time t. More formally, let a positive random variable T denote the duration of breast-feeding with distribution function F(t) and density f(t). The survival function S(t) is

$$S(t) = 1 - F(t) = P[T > t] \dots \dots \dots (3.1)$$

and the hazard rate or hazard function $\lambda(t)$ is

$$\lambda(t) = f(t) / S(t) \dots \dots \dots (3.2)$$

The hazard rate has the interpretation $\lambda(t) = \text{Prob} \{ \text{a woman weans in the next small unit of time, } \Delta t, \text{ given that she has breast-fed to time } t \}$. The cumulative hazard A(t) is defined as

$$\Lambda(t) = \int \lambda(t) dt = -\log S(t) \dots \dots \dots (3.3).$$

The duration of breast-feeding for the present study is ascertained from the women who have given at least one birth in the reference period. While determining the duration for the most recent birth before the survey the authors had complete as well as censored observations in the survey. The information on breast-feeding duration is complete only for women who have already weaned at the time of interview while it was censored for those who breast-fed until death of the child or are continuing breast-feeding their last child at the time of interview. In the latter case, the researchers further moved back to see if the women had given more than one birth to get the complete duration of breast-feeding from the next to last born child. If the women had not given more than one birth and were still continuing their breast-feeding, the investigators treat the duration between the

date of birth of the last child and the date of the survey as the censored duration of breast-feeding:

The authors have used Kaplan-Meier (KM) and Nelson-Aalen (NA) estimators for the survival function.

$$\hat{S}_{KM}(t) = \prod_{t_i < t} \frac{r(t_i) - d(t_i)}{r(t_i)} \dots\dots\dots (3.4)$$

$$\hat{S}_{NA}(t) = e^{-\hat{\Lambda}(t)} \text{ with } \hat{\Lambda}(t) = \sum_{t_i < t} \frac{d(t_i)}{r(t_i)} \dots\dots\dots (3.5)$$

where r and d are the number at risk and the number of weaned respectively. We have also computed the estimates of sample median and 95 per cent confidence limits for all the estimates.

Smooth Estimates

Retrospectively reported data on duration of breast-feeding often exhibit concentration of points at multiples of six -or twelve months. As a result, the estimated survival curve shows jumps at these points. Appropriate statistical methods are necessarily called for obtaining the smooth estimates of the curve. A non-parametric regression smoother, popularly known as 'loess' (locally weighted) linear regression smoother) has been used here to obtain the smooth estimates: The loess' smoothing is implemented in the S-Plus software system that uses tri-cube weight function

$$W(u) = \begin{cases} (1-u^3)^3, & \text{for } 0 \leq u \leq 1 \dots\dots\dots (4.1) \\ 0, & \text{otherwise} \end{cases}$$

to weight the observations in a neighbourhood of a focal point. The smoothing parameter, span, denoted by s , has been so selected that minimizes the estimated cross validation function

$$CV(s) = \frac{1}{n} \sum_{i=1}^n (y_i - \hat{f}_s^{-i}(x_i))^2 \dots\dots\dots (4.2)$$

where $\hat{f}_s^{-i}(x_i)$ is a version of $\hat{f}_s(x_i)$ computed by leaving out the i th data point. Omitting the i th observation makes the fitted value $\hat{f}_s^{-i}(x_i)$ independent of observed y_i . It can be shown that

$$CV(s) = \frac{1}{n} \sum_{i=1}^n \left\{ \frac{y_i - \hat{f}_s(x_i)}{1 - s_{ii}} \right\}^2 \dots\dots\dots(4.3)$$

where s_{ii} is the i^{th} diagonal element of the $n \times n$ smoother matrix S .

FINDINGS

The survival function estimates for NFHS-1 and NFHS-2 data are provided in Table 1 and Table 2 respectively and the corresponding graphs are shown in Figure 1. The right skewness of the distribution is evident from the plots. The plot in Figure 1(a) descends sharply between 12 and 24 months and then tails off gradually, reaching its minimum value of zero at 53 months. The intermediate steep descent shows that for many subjects in NFHS-1 breast-feeding was terminated between 12 and 24 months; For instance, in NFHS-1, for about 34 per cent of subjects breast-feeding was terminated within 12 months and 74 per cent of the subjects were weaned within 24 months. The relatively long right tail is a result of the few subjects who had long breast-feeding experience. Whereas, the results for NFHS-2 and the corresponding plot in Figure 1(b) depicts a difference, in that the curve is less steeper here and does not go to zero. It is because of the fact that the largest observation was a censored value. In this case, for only about 17 per cent of the subjects breast-feeding was terminated within 12 months and more than 50 per cent of the subjects were continuing breast-feeding even after 24 months. A longer breast-feeding experience from the recent survey is evident from the plot in fig-1 (c) that the estimated survival curves for NFHS-2 lying completely above that of NFHS-1. A comparison of Kaplan-Meier and Nelson-Aalen estimates, is made in the plot Figure 1(d). The plot suggests that there are differences in the estimates for large values of t and that the Nelson-Aalen estimator of the survival function is always greater than or equal to the Kaplan-Meier estimator.

Smooth estimates and the corresponding plots in Figure 2 are obtained by running the S-Plus function 'loess' with span $s=.3$ and $s=.2$ respectively for NFHS-1 and NFHS-2 respectively. These values are arrived at by minimizing the cross validation function (4.3). A detailed S-Plus code also requires the related function of a loess object for getting point-wise 95 per cent confidence interval.

TABLE 1
SURVIVAL PROBABILITY ESTIMATES FROM NFHS-1

Time	Kaplan-Meier		Nelson-Aalen	
	Estimates (95% C.I.)	Smooth Estimates (95% C.I.)	Estimates (95% C.I.)	Smooth Estimates (95% C.I.)
0	1.00 (0.99, 1.00)	0.99 (0.97, 1.00)	1.00 (0.99, 1.00)	1.00 (0.99, 1.00)
1	0.98 (0.98, 0.99)	0.98 (0.97, 1.00)	0.98 (0.98, 0.99)	0.99 (0.98, 1.00)
2	0.97 (0.96, 0.97)	0.97 (0.96, 0.98)	0.97 (0.96, 0.97)	0.98 (0.96, 0.99)
3	0.96 (0.95, 0.97)	0.96 (0.95, 0.97)	0.96 (0.95, 0.97)	0.96 (0.95, 0.97)
4	0.95 (0.94, 0.96)	0.95 (0.93, 0.96)	0.95 (0.94, 0.96)	0.94 (0.93, 0.95)
5	0.94 (0.93, 0.95)	0.93 (0.92, 0.94)	0.94 (0.93, 0.95)	0.92 (0.91, 0.93)
6	0.92 (0.91, 0.93)	0.92 (0.90, 0.93)	0.92 (0.91, 0.93)	0.90 (0.89, 0.91)
7	0.91 (0.90, 0.92)	0.90 (0.88, 0.91)	0.91 (0.90, 0.92)	0.88 (0.87, 0.89)
8	0.88 (0.87, 0.90)	0.87 (0.86, 0.88)	0.88 (0.87, 0.90)	0.85 (0.84, 0.86)
9	0.85 (0.83, 0.86)	0.84 (0.83, 0.85)	0.85 (0.83, 0.86)	0.82 (0.81, 0.83)
10	0.82 (0.80, 0.83)	0.80 (0.78, 0.81)	0.82 (0.80, 0.83)	0.79 (0.77, 0.80)
11	0.79 (0.78, 0.81)	0.75 (0.74, 0.76)	0.79 (0.78, 0.81)	0.75 (0.74, 0.76)
12	0.66 (0.65, 0.68)	0.70 (0.69, 0.71)	0.68 (0.66, 0.70)	0.71 (0.70, 0.72)
13	0.63 (0.62, 0.66)	0.65 (0.64, 0.66)	0.65 (0.63, 0.67)	0.66 (0.65, 0.68)
14	0.59 (0.57, 0.61)	0.60 (0.59, 0.61)	0.60 (0.58, 0.63)	0.62 (0.61, 0.63)
15	0.55 (0.53, 0.57)	0.56 (0.55, 0.57)	0.57 (0.55, 0.59)	0.58 (0.57, 0.59)
16	0.52 (0.50, 0.54)	0.52 (0.51, 0.53)	0.53 (0.51, 0.55)	0.54 (0.53, 0.56)
17	0.50 (0.48, 0.52)	0.49 (0.47, 0.50)	0.51 (0.49, 0.53)	0.51 (0.50, 0.52)
18	0.43 (0.41, 0.45)	0.45 (0.44, 0.47)	0.45 (0.42, 0.47)	0.48 (0.47, 0.49)
19	0.42 (0.40, 0.44)	0.43 (0.42, 0.44)	0.43 (0.41, 0.45)	0.45 (0.44, 0.46)
20	0.39 (0.37, 0.42)	0.40 (0.39, 0.42)	0.41 (0.39, 0.43)	0.42 (0.41, 0.43)
21	0.39 (0.37, 0.41)	0.38 (0.37, 0.39)	0.40 (0.38, 0.42)	0.39 (0.38, 0.40)
22	0.37 (0.35, 0.40)	0.35 (0.34, 0.36)	0.39 (0.37, 0.41)	0.37 (0.36, 0.38)
23	0.36 (0.35, 0.39)	0.32 (0.31, 0.34)	0.38 (0.36, 0.40)	0.34 (0.33, 0.35)
24	0.26 (0.24, 0.28)	0.29 (0.28, 0.31)	0.28 (0.26, 0.31)	0.32 (0.30, 0.33)
25	0.24 (0.23, 0.26)	0.27 (0.25, 0.28)	0.27 (0.25, 0.29)	0.29 (0.28, 0.30)
26	0.23 (0.21, 0.24)	0.24 (0.23, 0.25)	0.25 (0.23, 0.27)	0.27 (0.26, 0.28)
27	0.22 (0.20, 0.23)	0.22 (0.21, 0.23)	0.24 (0.22, 0.26)	0.25 (0.24, 0.26)

28	0.20(0.19,0.22)	0.20(0.19,0.21)	0.23 (0.21, 0.25)	0.23 (0.22, 0.24)
29	0.19(0.17,0.21)	0.19 (0.1B, 0.20}	0.21 (0.19, 0.23)	0.21 (0.20, 0.22)
30	0.16(0.15,0.18)	0.17(0.16,0.19)	0.T8 (0.16, 0.20)	0.20 (0.18, 0.21)
31	0.16(0.14,0.18)	0.16(0.15,0.17)	0.18 (0.16, 0.20)	0.18 (0.17, 0.19)
32	0.15(0.13,0.17)	0.15(0.14,0.16)	0.17 (0.15, 0.19)	0.17 (0.16, 0.18)
33	0.14 (0.13,0.16)	0.14(0.13, 0.15)	0.16 (0.14, 0.18)	0.16 (0.14, 0.17)
34	0.13(0.11,0.14)	0.13(0.11,0.14}	0.15 (0-13, 0.16)	0.14 (0-13, 0.15)
35	0.12(0.11,0.14)	0.11(0.10,0.13)	0.14 (0.12, 0.15)	0.13 (0.12, 0.14)
36	0.09 (0.08,0.11)	0.10(0.09,0.11)	0.11 (009, 0.13)	0.12 (0.11, 0.13)
37	0.09 (0.07, 0.10}	0.09 (0.08,0.10)	0.10 (009, 0.12)	0.11 (0.10, 0.12)
38	0.00(0.07,0.09)	0.08(0.07,0.09)	0.09 (0.08, 0.11}	0.10 (0.09, 0.11)
39	0.07(0.06,0.08)	0.07(0.06,0.08)	0.08 (0.07, 0.10)	0.09 (0.08, 0.10)
40	0.06 (0.05,0.08)	0.06(0.05,0.08)	0.08 (0.06, 0.09)	0.08 (0.07, 0.09)
41	0.06(0.05,0.07)	0.06(0.04,0.07)	0.07 (0.05, 0.08)	0.07 (0.06, 0.08)
42	0.05(0.04,0.06)	0.05 (0.04,0.06)	0.06 (0.05, 0.07)	0.06 (0.05, 0.07)
43	0.04(0.03,0.05)	0.04(0.03,0.05)	0.05 (0.04, 0.07)	0.05 (0.04, 0.06)
44	0.03(0.02,0.04)	0.04(0.02,0.05)	0.04 (0.03, 0.06)	0.05 (0.03, 0.06)
45	0.03 (0.02,0.04)	0.03(0.02,0.04)	0.04 (0.03, 0.05)	0.04 (0.03, 0.05)
46	0.02(0.01,0.03)	0.02(0.01,0.04)	0.03 (0.02, 0.04)	0.03 (0.02, 0.04)
47	0.02(0.01,0.03)	0.02(0.01,0.03)	0.02 (0.02, 0.04)	0.03 (0.02, 0.04)
48	0.01(0.01,0.02)	0.01 (0.00,0.03)	0.02 (0.01, 0.03)	0.02 (0.01, 0.03)
49	0.01(0.01,0.02)	0.01(0.00,0.02}	0.01 (0.01, 0.03)	0.02 (0.01, 0.03)
50	0.01(0.00,0.01)	0.01 (0.00,0.02)	0.01 (0.00, 0.02)	0.01 (0-00, 0.03)
51	0.00 (0.00,0.01)	.0.00(0.01,0.02)	0.01 (0.00, 0.02)	0.01 (0.01, 0.02)
52	0.00(0.00,0.01)	0.00(0.01,0.02)	0.01 (0.00, 0.02)	0.00 (0.02, 0.02}
53	0.00 (NA, NA)	0.00(0.02,0.02)	0-00 (0.00, 1.00)	0.00 (0.02, 0.02)

TABLE 2
SURVIVAL PROBABILITY ESTIMATES FROM NFHS-2

Time	Kaplan-Meier	Nelson-Aalen		
	Estimates (95% C.I.)	Smooth estimates (95% C.I.)	Estimates (95% C.I.)	Smooth estimates (95% C.I.)
0	1.00(1.00,1.00)	1.00 (0.98,1.00)	1.00 (1.00, 1.00)	1.00 (0.98, 1.00)
1	0.99(0.99,1.00)	0.99(0.97,1.00)	0.99 (0.99, 1.00)	0.99 (0.98, 1.00)
2	0.98(0.98,0.99)	0.99 (0.97,1.00)	0.98 (0.98, 0.99)	0.99 (0.97, 1.00)
3	0.98(0.97,0.99)	0.98(0.97,0.99)	0.98 (0.97, 0.99)	0.96 (0.97, 0.99)
4	0.98 (0.97, 0.98)	0.98(0.96,0.99)	0.98 (0.97, 0.98)	0.98 (0.96, 0.99)
5	0.97 (0.97,0.98)	0.97 (0.96,0.98)	0.97 (0.97, 0.98)	0.97 (0.96, 0.98)
6	0.97(0.96,0.97)	0.96 (0.95,0.98)	0.97 (0.96, 0.98)	0.96 (0.95, 0.98)
7	0.96 (0.95, 0.97)	0.96 (0.94,0.97)	0.96 (0.95, 0.97)	0.96 (0.95, 0.97)
8	0.95(0.94,0.96)	0.95 (0.93,0.96)	0.95 (0.94, 0.96)	0.95 (0.93, 0.96)
9	0.94 (0.93,0.95)	0.93 (0.92,0.94)	0.94 (0.93, 0.95)	0.93 (0.92, 0.94)
10	0.92(0.91,0.94)	0.91 (0.89,0.92)	0.92 (0.91, 0.94)	0.91 (0.90, 0.92)
11	0.92(0.90,0.93)	0.88 (0.87,0.89)	0.92 (0.90, 0.93)	0.88 (0.87, 0.89)
12	0.83(0.81,0.85)	0.85(0.84, 0.86)	0.83 (0.82, 0.85)	0.85 (0.84, 0.86)
13	0.81 (0.79,0.83)	0.82 (0.81,0.83)	0.82 (0.80, 0.83)	0.82 (0.81, 0.83)
14	0.77 (0.75,0.79)	0.78 (0.77,0.80)	0.78 (0.76, 0.80)	0.78 (0.78, 0.80)
15	0.75 (0.73,0.77)	0.75 (0.74,0.77)	0.76 (0.74, 0.78)	0.76 (0.75, 0.77)
16	0.73(0.71,0.75)	0.72(0.71,0.74)	0.73 (0.71, 0.76)	0.73 (0.72, 0.74)
17	0.72(0.70,0.74)	0.69 (0.68,0.71)	0.72 (0.70, 0.75)	0.70 (0.69, 0.71)
18	0.64 (0.62,0.67)	0.67 (0.66,0.68)	0.65 (0.63, 0.67)	0.68 (0.66, 0.69)
19	0.63(0.61,0.66)	0.65 (0.63,0.66)	0.64 (0.62, 0.66)	0.65 (0.64, 0.67)
20	0.61 (0.59,0.64)	0.63 (0.61,0.64)	0.62 (0.60, 0.65)	0.63 (0.62, 0.65)

21	0.61 (0.58,0.63)	0.61 (0.59,0.62)	0.62 (0.59, 0.64)	0.62 (0.60, 0.63)
22	0.60 (0.58,0.63)	0.58(0.57,0.60)	0.61 (0.59, 0.64)	0.59 (0.58, 0.61)
23	0.60 (0.58,0.63)	0.56(0.55,0.58)	0.61 (0.58, 0.64)	0.58 (0.56, 0.59)
24	0.51 (0.48,0.54)	0.54 (0.53,0.56)	0.52 (0.50, 0.56)	0.55 (0.54, 0.57)
25	0.50 (0.47,0.53)	0.52(0.51,0.53)	0.52 (0.49, 0.55)	0.53 (0.52, 0.55)
26	0.49 (0.46,0.52)	0.50 (0.49,0.52)	0.50 (0.47, 0.54)	0.52 (0.51, 0.53)
27	0.49(0.46,0.52)	0.49(0.48,0.51)	0.50 (0.47, 0.53)	0.51 (0.49, 0.52)
28	0.48(0.46,0.52)	0.48(0.47,0.50)	0.50 (0.47, 0.53)	0.50 (0.49, 0.51)
29	0.48(0.45,0.51)	0.48(0.47,0.49)	0.50 (0.47, 0.53)	0.49 (0.48, 0.50)
30	0.47(0.44,0.50)	0.48 (0.46,0.49)	0.48 (0.45, 0.52)	0.49 (0.48, 0.50)
31	0.47 (0.44,0.50)	0.47 (0.46,0.49)	0.48 (0.45, 0.52)	0.49 (0.47, 0.50)
32	0.47(0.44,0.50)	0.47 (0.46,0.48)	0.48 (0.45, 0.52)	0.48 (0.47, 0.50)
33	0.47(0.44,0.50)	0.47 (0.46,0.48)	0.48 (0.45, 0.52)	0.48 (0.47, 0.50)
34	0.47(0.44,0.50)	0.47(0.45,0.49)	0.4 (0.45, 0.52)	0.48 (0.46, 0.50)
35	0.47(0.44,0.50)	0.47 (0.44,0.49)	0.48 (0.45, 0.52)	0.48 (0.46, 0.50)

FIGURE 1

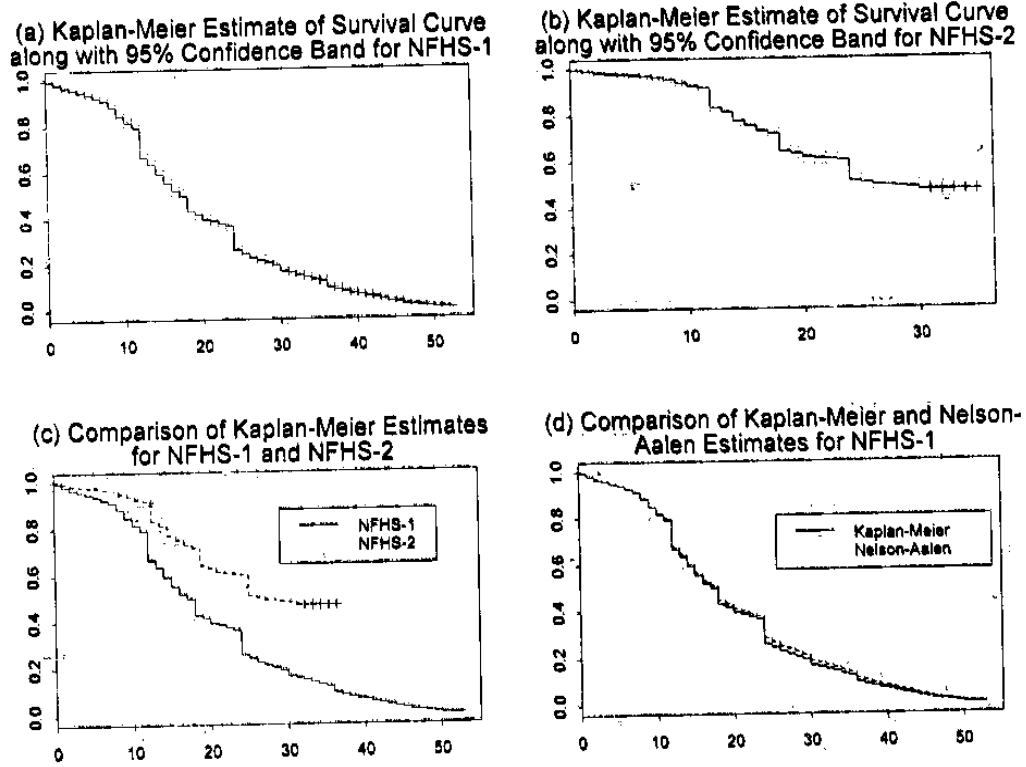


FIGURE 2

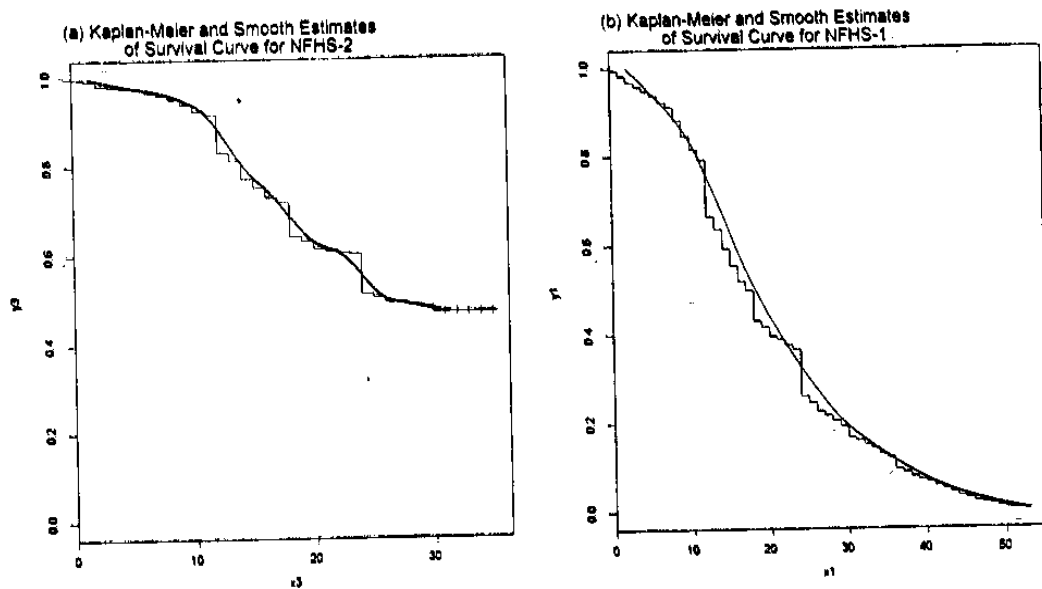


Table 3 provides estimated median duration of breastfeeding, smooth estimates of median duration along with their 95 per cent confidence interval (C.I.); While median duration is estimated to be 18 months for NFHS-1 (Kaplan-Meier), it is 26 months for NFHS-2, further justifying the longer breast-feeding experience in the recent survey. Neither the smooth estimates nor the Nelson-Aalen estimates of median duration look very different from their counterparts.

TABLE3
ESTIMATES OF MEDIAN DURATION AND 95 PER CENT C.I.

	K-M Estimate		N-A Estimate	
	Estimates (95% C.I.)	Smooth Estimates (95% C.I.)	Estimates (95% C.I.)	Smooth Estimates (95% C.I.)
NFHS-1 (n=2479)	18(17-18)	17(17-17)	18(17-18)	18(18-18)
NFHS-2 (n=2421)	26 (24, 30)	27 (26- 28)	27.5 (25- NA)	28 (27-32)

CONCLUSION

The duration of breastfeeding has been an important topic in demographic research. It is demonstrated that breastfeeding has significant consequences on post-partum amenorrhoea and birth interval on one hand and mortality and morbidity on the other. The traditional Indian society observes socio-cultural and traditional patterns of prolonged breast-feeding in which breastfeeding is seen not only as a way of delaying the next birth but also as a cheap source of nutrition for the survival of the child. In rural areas of India, women continue to breast-feed their children exclusively for eight months and in some cases up to twelve months. A study reported that the life table estimate of median duration of breast-feeding of Assam survey is 18 months.

The National Family Health Survey reports provide the estimates of median duration of breast-feeding based on current status method. Since the retrospectively reported data are not used by this method, reporting bias from mother's recall is being eliminated from the estimates. The selectivity bias however, cannot be completely ruled out. The life table method, which efficiently integrates the current status and retrospective data to estimate the survival probabilities, has been used in this paper. A comparison of the values show that the current status method always tends to provide an overestimate of the median

duration. From the recent survey, it is evident that the results are otherwise quite consistent in a longer duration of breast-feeding.

The additional feature of this article is its ability to correct the estimates from the heaping bias at points multiples of six or twelve months; by obtaining the smooth estimates. The smooth estimates so obtained can also be provided with their corresponding confidence intervals. This study suggests that the vigorous campaign on promoting full breast-feeding through newspapers, television, radio and other mass media during the last decade has by and large boosted this practice of breast-feeding for a prolonged period in north-eastern states of India.

Lkkjk'k

जनांकिकी आंकड़ों के विश्लेषण के समय जीवन सारणी तकनीक का व्यापक प्रयोग किया गया है। यह तकनीक अनिवार्य रूप से विशिष्ट अवधि में जोखिम के आंकलन होने की अवधारणा पर आधारित है। प्रस्तुत लेख में भारत में छह उत्तर पूर्वी राज्यों में स्तनपान कराने की अवधि के लिए उत्तरजीविता वितरण संबंधी जीवन सारणी आंकलन के बारे में विचार किया गया है। इस अध्ययन में प्रयुक्त आंकड़े दो राष्ट्रीय परिवार एवं स्वास्थ्य सर्वेक्षणों से प्राप्त हुए हैं। निष्कर्षों से यह प्रदर्शित होता है कि हाल ही के वर्षों में उत्तर-जीविता अनुभव बेहतर हुआ है, इन राज्यों में स्तनपान कराने की माध्य अवधि में वृद्धि हुई है तथा शिशु स्वास्थ्य परिचर्या सेवा वितरण प्रणाली एवं स्तनपान कराने के लाभप्रद प्रभावों पर व्यापक अभियान कार्यक्रम चलाने के बारे में सरकारी नीतियां सफल सिद्ध हुई हैं।

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SON PREFERENCE IN THBSQUIUERN STATED OF INDIA: AN ANALYSIS

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ABSTRACT

This paper has analysed the link between gender preference and contraceptive acceptance by women in four southern states of India namely; Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. According to the NFHS-II data, it has been observed that the number of sons in the family is the sole deciding factor in the acceptance of contraception by women in the states of Karnatafa, Kerala, Tamil Nadu and Andhra Pradesh. The findings further reveal that (i) the average number of sons was more than daughters in all the states under study; (ii) son preference was comparatively low in Kerala as compared to Andhra Pradesh; (iii) the rate of sterilisation increases with an increase in the number of children in the family and (iv) the chance of accepting permanent methods of contraception was more when the family had more number of sons or at least one son.

Keywords: Gender-preference, Son, Sex Ratio, Fertility and Contraception.

Son preference has been dominant in the Indian society since ages. Several studies have documented this phenomenon mainly in the northern and central states.

Indian culture advocates son preference. In the early times economic security of the family rested on the-male children. Even today the cultural and traditional practices have a greater impact on the Indian society. Some researchers have the opinion that sex ratio in the society where proportion of female population has been lesser than the male population explains male dominance in the Indian culture. In all the censuses during the previous century and even today sex ratio in India has always been unfavourable to females. The first millennium census of India (2001) shows a four-point increase in the sex ratio

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(933 females per 1000 males) over the 1991 (929 women per 1000 men) figure. Though the overall sex ratio has increased in India including the Southern States, it is still unfavorable to women in Andhra Pradesh, Karnataka and Tamil Nadu. Interestingly, in Kerala, since the formation of the state, there has been a consistent increase in the proportion of females in the state's population which is quite contrary to the all India pattern.

Some studies argue that the high number of male youths is a major factor for the male-majority population; Between 1991 and 2001, among the demographically improved southern states, sex ratio of the child population (0-6 years age group) has fallen from 982 to 961 in Andhra Pradesh, 960 to 949 in Karnataka and 948 to 939 in Tamil Nadu. In contrast, it has risen from 958 to 963 in Kerala. Sex-selective abortion or female infanticide might be the reasons for such a dip in child sex ratio. So, an attempt has been made in this paper to analyze whether son preference exists in the southern states of India experiencing a fertility decline.

METHODOLOGY

National Family Health Survey-II (NFHS-II)/1998-99 data are used for the study. The NFHS-II provides national and state level data relating to fertility, family planning, infant and child mortality, and maternal and child health. Every married women-in the age group of 15-49 years were the respondents in the survey. Respondents with at least one living child and using any type of 1 contraceptive method were included in the study. Thus, the present sample comprised 3,243 women in Andhra Pradesh; 3,587 women in Karnataka; 2,356 women in Kerala and 3,798 women in Tamil Nadu instead of the original sample figures of 3,695; 4,015; 2,675 and 4,245 women in these states respectively.

Gender composition of the families and the type of contraception-accepted by them are taken as the factors responsible for son preference. The Index of Gender Preference is applied to measure the extent of influence, of gender composition on contraceptive acceptance.

FINDINGS

The NFHS-II results show a preference for sons over daughters in all the southern states at varying degrees (Table 1). The findings such as the mean ideal number of sons and daughters wanted in the families, the percentage of families

preferring more sons than daughters or more daughters than sons, percentage of families desiring at least one son and one daughter showed that they valued sons more than the daughters. The percentage of families preferring more number of sons varied from 9.6 in Tamil Nadu to 19.8 in Andhra Pradesh. But, the number of families preferring more daughters than sons was very low in all the states, the highest being in Kerala (5.2%). At least one daughter was preferred by a majority of the respondents. Even the average percentage of families wanting at least a daughter was slightly lesser than the families wanting at least a son. The rate of contraceptive acceptance in the four Southern states of India was found to be high in almost all the segments of population. The rate of acceptance of contraception was 65 per cent or more in Kerala; Andhra Pradesh and Karnataka while in Tamil Nadu, it was lesser than 60 per cent (Table 2). Kerala has the highest number of contraceptive users (69.65%) followed by Andhra Pradesh (67.68%) and Karnataka (64.90%). The contraceptive users were further grouped into, irreversible (sterilized) and users of non-terminal (temporary) methods. Couples found to have gone for sterilization if they achieved their desired family size or when their family size became large. Here, the acceptors of sterilization were found to be more in Andhra Pradesh. It was observed that non-terminal methods were preferred either for limiting the family size or for prolonging the next conception. It was further observed that even the number of temporary contraceptive users through out the Southern states was low. The highest number of couples in Kerala (11.97%) adopted no terminal (temporary)-methods of contraception while it was very less in Andhra Pradesh (2.86%). The figures of high acceptance of non-terminal methods of contraception by the couples indicate preference for a big size rather than son. The inference, here, is that son preference is comparatively low in Kerala as compared to Andhra Pradesh.

TABLE 1
NUMBER OF SONS OR DAUGHTERS WANTED BY WOMEN

States	Mean ideal number of		Want more (%)		Want at least one(%)	
	Sons	Daughters	Sons	Daughters	Son	Daughter
Andhra Pradesh	1.0	0.8	19.8	2.7	76.0	71.3
Karnataka	0.9	0.8	13.0	1.9	70.0	67.5
Kerala	1.0	0.8	14.6	5.2	72.6	70.7
Tamil Nadu	0.8	0.7	9.6	1.9	66.3	63.9

(Source: National Family Health Survey (NFHS-II), 1998-99)

TABLE 2
PERCENTYAGE OF DISTRIBUTION OF WOMEN USING PERMANENT AND
TEMPORARY METHODS OF CONTRACEPTION AT THE TIME OF SURVEY

Type of Contraception	States			
	Andhra	Karnataka	Kerala	Tamil Nadu
Sterilisation	64.82	58.41	57.68	51.40
Temporary	2.86	6.49	11.97	6.57
Nothing	32.32	35.10	30.35	42.03

Parity-wise acceptance rate (table 3)' has shown that the rate of sterilisation increases with an increase in the number of children in the family. The highest percentage of sterilised women was found in the third; parity in all the states which establishes a correlation between the family size and, use of contraception by the women.

TABLE 3
PERCENTAGE OF DISTRIBUTION OF WOMEN BY THEIR NUMBER OF
LIVING CHILDREN AND TYPE OF CONTRACEPTION USED

States	Type of Contraception	Number of Living			
		1	2	3	4
Andhra Pradesh	Sterilisation	10.8	72.1	84.8	74.3
	Temporary	5.5	3.0	1.3	2.4
	Nothing	83.7	24.9	13.9	23.3
Karnataka	Sterilisation	8.5	60.4	80.1	71.0
	Temporary	15.5	8.6	2.0	1.9
	Nothing	76.0	31.0	17.9	27.1
Kerala	Sterilisation	4.8	66.6	77.3	67.5
	Temporary	29.6	13.2	4.4	7.0
	Nothing	65.6	20.2	18.3	25.5
Tamil Nadu	Sterilisation	9.0	60.1	71.1	64.2
	Temporary	11.6	7.3	4.6	1.9
	Nothing	79.4	32.6	24.3	33.9

Some previous studies show a positive relation between son preference and contraceptive use in all the Southern states. Thus, the guiding rule of acceptance of sterilisation by the women is when the desired number of sons is achieved; and/or they opt for non-termihal (temporary) methods, if the desired number of sons is not achieved, then the number of daughters increases,

Table 4 shows the average number of sons and daughters among the sample women and the method of contraception used by them. In all the states, it was observed that the average number of sons was more than daughters. The non-users were not an exception as well. Comparing to the temporary-method of contraceptive users, the average number of sons was more with the sterilised couples.

Though the above inferences prove the existence of son preference, it does not give a clear evidence that son preference is the sole motivating factor for sterilisation. Gender composition could also be a reason for sterilization.

As the average size of the families of the sample women in these states are more than two, the degree of son size preference is exemplified among women with two or more children. The results of Table 5 indicate that more number of sons in the family is the reason behind the acceptance of sterilisation by the couples.

Among the families with two-children in Andhra Pradesh, it was found that 75.7 per-cent of the couples opted for sterilisation when the two children are sons in comparison to, only 54.9 per cent of the couples who opted for sterilisation when both of them are girls. This gap is very sharp in Karnataka (71.3 % and 36.1 %) while it was not so in the case of Kerala (67.7% and 62.9 %). A combination of both sexes is equally acceptable to families with two sons. It means that couples did not decide to stop with two daughters and they would like the option to be left open for having a son (Table 5).

In the case of couples with three children, if all are boys, the acceptance rate of sterilisation was high. But, compared to the two-children families with two daughters, here the acceptance rate was more. Size preference becomes strong at higher parities though son preference exists. The other two combinations of three children families' two sons and one daughter and one son and two daughters the preferred one is the former.

Amongst the women, with four or more children, it was observed that the acceptance rate of sterilisation was more when there were more daughters than sons in all the states except Kerala. This once again confirms the family size preference at higher parities.

TABLE 4
EXISTING NUMBER OF SONS AND DAUGHTERS IN PERCENTAGE
AND THE METHOD OF CONTRACEPTION USED BY WOMEN

Type of Contraception	Andhra Pradesh		Karnataka		Kerala		Tamil Nadu	
	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
Sterilisation	2.27	1.77	2.34	1.89	1.96	1.61	2.02	1.74
Temporary	2.01	1.55	1.52	1.35	1.46	1.60	1.45	1.49
Non-users	1.96	1.59	2.00	1.51	1.75	1.45	1.74	1.54

TABLE 5
CONTRACEPTIVE ACCEPTANCE ACCORDING TO COMPOSITION OF FAMILY
OF SAMPLE WOMEN IN THE FOUR SOUTHERN STATES

Composition of Family	Andhra Pradesh			Karnataka			Kerala			Tamil Nadu		
	STR	NMT	T	STR	NMT	T	STR	NMT	T	STR	NMT	T
One Child												
1 Son (no Daughter)	10.0	4.2	14.2	7.7	15.4	23.1	3.2	30.1	33.3	10.1	12.9	23.0
1 D (no Son)	11.7	6.6	18.3	9.4	15.6	25.0	6.7	28.9	35.6	7.8	10.2	18.0
2 Children												
2 sons	75.7	2.7	78.4	71.3	5.3	76.6	67.6	13.3	80.9	69.7	5.5	75.2
1 Son + 1 Daughter	76.1	3.0	79.1	62.4	9.4	71.8	67.5	13.1	80.6	61.3	6.7	68.0
2 Daughters	54.9	3.9	58.8	36.1	11.3	47.4	62.9	13.4	76.3	42.7	11.8	54.5
3 Children												
3 sons	81.5	3.1	84.6	85.2	1.8	87.0	78.9	5.7	84.6	75.7	5.1	80.8
2 Sons + 1 Daughter	91.1	1.0	92.1	85.8	2.1	87.9	79.1	3.7	82.8	73.7	4.3	78.0
1 Son + 2 Daughters	84.1	0.3	84.4	77.4	1.7	79.1	79.1	3.8	82.9	72.5	2.7	75.2
3 Daughters	57.8	3.1	60.9	53.4	2.9	56.3	64.7	6.8	71.5	51.4	12.9	64.3
4+ Children												
More Sons	73.2	2.0	75.2	70.4	2.1	72.5	67.6	5.6	73.2	63.6	2.0	65.6
More Daughters	77.4	3.6	80.8	72.2	1.9	74.1	61.9	14.3	76.2	65.2	1.6	66.8

(STR- Sterilisation, NMT- Non-terminal Methods, T- Total)

The relative strength of son preference for fertility can be measured by using the Index of Gender Preference (IGP). The effect of size preference on Contraceptive acceptance and Index of Gender Preference (IGP) are presented in Table-6. The positive value of the difference of the index of size preference indicates that the number of sons in the family is the influencing factor for the acceptance of contraception.

TABLE 6

IMPACT OF SEX OF THE CHILD ON CONTRACEPTIVE ACCEPTANCE AND INDEX OF GENDER PREFERENCE

States	Index of Size Preference								Index of Gender Preference	
	Sterilisation			Non-terminal Methods			All Types			
	ISP.F	ISP.M	Diff.	ISP.F	ISP.M	Diff.	ISP.F	ISP.M		Diff.
A.P.	67.29	73.78	-6.49	3.00	2.39	0.61	70.29	76.17	-5.88	
KAR.	68.50	58.83	9.67	4.79	5.90	-1.11	73.29	64.73	8.56	
KER.	64.79	62.50	2.29	11.36	11.37	-0.01	76.15	73.87	2.28	
T.N.	62.00	52.89	9.11	5.55	7.15	-1.60	67.55	60.04	7.51	

(A.P.- Andhra Pradesh; KAR.- Karnataka; KER.- Kerala; T.N.- Tamil Nadu)

ISP.F- Index of Size Preference ignoring Daughters; ISP.M- Index of Size Preference ingoring Sons)

It was found that the number of sons in the family is the sole deciding factor for the acceptance of contraception in Karnataka, Kerala and Tamil Nadu. In Karnataka, it was observed .that 73.29 per cent of the couples accepted contraception for whom the number of daughters in the family was not an influencing factor. When the number of additional sons was a deciding factor, the percentage of contraceptive acceptance got reduced to 64.73 per cent. The IGP value states that 8.56 per cent of more couples would have accepted contraception had the number of sons in their families been the sole deciding" factor. In other words, if there had been no son preference at all, 8.56 per cent of more couples who had more daughters would have accepted contraception, irrespective of the number of sons they had. Similarly, in Kerala and Tamil Nadu, IGP values of 2.28 and 7.51 explain the influence of the number of sons in the family for the acceptance of contraception. The negative value of IGP for Andhra Pradesh shows that any type of contraception was accepted only when the number of daughters was more. Here, it explains that the hope for a son increases the size of the family with more number of daughters.

In the three states of Karnataka, Kerala and Tamil Nadu, it was observed that the number of sons in the family was the sole deciding factor for the acceptance of sterilisation. The negative value of IGP for the users of non-terminal methods shows that mothers with more daughters were reluctant to accept sterilisation but opt. for temporary methods, thus, keeping the option open for having a son. Here also, Andhra Pradesh was an exception.

All these evidences clearly substantiate the existence of son preference in all the southern states of India with varying degrees. The presence of son preference is more in Karnataka and Tamil Nadu but in Kerala, even though son preference exists, it is not that much crucial.

CONCLUSION

The results of the present study indicates that as the average size of the family declines, the preference for sons decreases. That is why in all the south Indian states, the intensity of son preference is comparatively low. Among these states, the chances of accepting permanent methods of contraception are more when the family has more sons or at least a son. If all the children are boys, couples are found to be satisfied with the family size, but not if all the children are girls. But, if the family size is more than three, they are ready to accept sterilisation even without sons. Thus, this study confirms that, son preference still exists in all; these southern states at varying degrees; and concerned, authorities, and personnel should take appropriate measures to make the family planning programmes a success where there is no difference between a son and a daughter.

इस लेख में भारत के चार दक्षिणी राज्यों अर्थात् आन्ध्र-प्रदेश, कर्नाटक, केरल तथा तमिलनाडू में महिलाओं द्वारा लैंगिक वरीयता तथा गर्भनिरोधक स्वीकार्यता के बीच संबंध का विश्लेषण किया गया है। राष्ट्रीय परिवार एवं स्वास्थ्य सर्वेक्षण (एनएफएचएस) II आंकड़ों के अनुसार यह प्रेक्षण किया गया है कि कर्नाटक, केरल तमिलनाडू तथा आन्ध्र प्रदेश राज्यों में परिवार में पुत्रों की संख्या महिलाओं द्वारा गर्भनिरोधक की स्वीकार्यता के बारे में एकमात्र निर्णायक घटक है कि निष्कर्षों से यह भी पता चलता है कि (i) अध्ययन के अन्तर्गत सभी राज्यों में पुत्रियों की तुलना में पुत्रों की औसत संख्या अधिक थी, (ii) आन्ध्र प्रदेश की तुलना में केरल राज्य में पुत्र की वरीयता तुलनात्मक रूप से कम थी, (iii) नसबन्दी कराने की दर में परिवार में शिशुओं की संख्या बढ़ने से वृद्धि हुई थी तथा (iv) गर्भनिरोधक की स्थायी विधि की स्वीकार्यता के अवसर परिवार में पुत्रों की संख्या अधिक होने अथवा कम से कम एक पुत्र होने पर अधिकपाए गए थे।

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AWARENESS AND PREVALENCE OF REPRODUCTIVE TRACT INFECTIONS IN NORTH-EAST DISTRICTS OF INDIA

M. Hemanta Meitei*, Latashori K and Ksh. Gopal *****

ABSTRACT

Reproductive tract infection is a generic term used to cover three types of infections viz. sexually transmitted disease (and infection), endogenous vaginal infections and infections related to reproductive tract. The current study revealed that (i) the awareness level among both males and females regarding RTI is relatively low in majority of the districts in northeastern part of India; (ii) electronic media and newspapers were the main sources of information regarding RTIs for both males and females in the districts of Arunachal Pradesh, Assam and Sikkim; (iii) sexual intercourse was reported to be the main mode of transmission of RTIs by more number of males than females in most of the districts; (iv) a higher proportion of male respondents from Cachar, Jorhat and Nalbari in Assam, Imphal and Senapati in Manipur, and Jaintia Hills and West Khasi in Meghalaya, Makokchung and Wokha in Nagaland and East Siang in Arunachal Pradesh reported lack of personal hygiene as one of the means of RTIs transmission; and (v) a wide gap between knowledge and prevalence of RTI in both males and females was observed which was higher among females.

Keywords: RTI, Awareness, Prevalence, Transmission and Curability.

Reproductive health is one of the fundamental human rights. "Reproductive health is a state of complete physical, mental, and social well being and not merely the absence of diseases or infirmities, in all matters relating to the reproductive system and its process," defined by UN¹. The agenda gives a special focus on 'safe sex' and 'freedom to choose and access to family planning services' for safe motherhood. It also lays emphasis on sexual health which should improve the personal relationship to ensure an individual free from reproductive tract infections (RTIs) and sexually transmitted diseases (STDs). Thus, reproductive health has to be looked with a holistic view.

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Reproductive tract infection is a generic term used to cover three types of infections viz. sexually transmitted disease (and infection), endogenous vagina infections, and infections related to reproductive, tract. RTIs are caused by a variety of bacterial, viral, parasitic and fungal micro-organisms which have major consequences such as infertility, ectopic pregnancy, chronic pelvic pain, genital neoplasia and enhanced transmission of the human immunodeficiency virus². RTI has also been associated with pre-maturity and low birth weight. The strong relationship between RTIs and HIV/AIDS is highlighted in some studies. The prevalence of RTIs not only gives pain and disorder in the reproductive system but also it contributes to infertility, ectopic pregnancy, recurrent infection and chronic pain. These often lead to marital discord and social ostracism, especially in developing countries⁵.

Besides the basic reproductive health problems, there is an additional problem of HIV/AIDS which is closely related to RTIs. Therefore, it becomes imperative to put a massive effort to identify the prevalence of RTIs in the population. However, despite its great implications, RTI is an area hardly talked about and often tried to internalise because of the stigma attached to sexually transmitted infections (STIs) while some of the infections are asymptomatic. But if proper treatment is not sought timely, they become chronic and may cause severe problem later particularly to women who are more prone to these infections. The emergence of HIV/AIDS also necessitates the concern about sexually transmitted diseases which had so far been remained neglected.

In India, the magnitude of prevalence of reproductive tract infection is 92 per cent among women in a tribal population of Maharashtra but only 7.8 per cent of them sought medical care for these problems. Studies have shown that RTIs are important reasons for the poor acceptance and low continuation rates of contraceptive methods such as the IUD. Bhatia and Cleland found a higher incidence of gynaecological symptoms among women who had undergone a tubectomy than the other women.

The correct knowledge and awareness of the problem among the masses is more important than tackling the problem. When majority of the community people have one or the other problem of RTIs, there may be possibility to perceive the prevalence of RTI to be normal. This will make the health-seeking attitude of people very much delayed. Moreover, sexually transmitted infections and reproductive tract infections are the diseases which are associated with some sort of socio-cultural stigmas. This is more in case of females. Thus, people,

Particularly the females have constraints and hesitations in expressing their problems and needs for seeking treatment. All RTIs are preventable and most of them are curable. Because of ignorance, socio-cultural inhibitions and stigmas, treatment is hardly sought until the problem becomes severe. This makes the process of treatment lengthier and costlier. This calls for a focussed campaign for the utilisation of the existing health care system particularly for screening and treating RTIs. Therefore, this study was undertaken to examine the overall situation of how far people are aware of the existing infections relating to reproductive system and process using the data from District-level Household Survey (RHS) under Reproductive Child Health, Phase-I (1998-99).

Setting

The seven north-eastern states include Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura; but of late, Sikkim is also proposed to be included in the North-Eastern. Council (NEC). The people of this region are mostly Mongoloid by ethnic and different from, the people of the mainland. Each ethnic- group has different traditions and cultures which characterise the way of their respective lives. The growth rate of population is higher in all the states than the national level. However,- the level of literacy is above the national average in all the states. Mizoram is having the second highest level of literacy; **next** to Kerala. Except Assam, in Manipur and some parts of Tripura, Christianity is the main religion. Being small in size and away from the mainland of India, the pace of development in this region is very slow.

FINDINGS AND DISCUSSION

Knowledge of RTIs

Table 1 presents the level of awareness of males and females about RTI in different districts of north-eastern States of India. The knowledge of both males and females about RTI was observed to be relatively poor. The level of knowledge of females about RTI was 3.8 per cent in Arunachal Pradesh and 37.5 per cent in Manipur compared to the all India average of 45.4 per cent. However, females had better knowledge about; RTI than males in nine out of 34 districts. The nine districts are Sibsagar and Sonitpur in Assam; Ukhrul, Senapati, Imphal and Bishnupur in Manipur; Jaintia Hills'in Meghalaya; and Phek and Makokchung in Nagaland. The knowledge of females about RTI was reported to be the highest (82.4%) in Makokchung district of Nagaland, whereas it was the lowest (0.1%) in West Khashi district of Meghalaya followed by Changlang (0.5%) and Tirap (0.7%)

districts of Arunachal Pradesh. The highest level of awareness of males about RTI was observed to be 62.5 per cent in Golaghat of Assam followed by Makokchung, Dibrugarh and Cachar while it was very poor in Sibsagar (0.2%), West Khasi (0.3%) and Changlang (0.7%).

TABLE 1
KNOWLEDGE OF MALES AND FEMALES ABOUT RTI IN NORTH-EASTERN STATES OF INDIA

State/District	RTI		Total Number	
	Male	Female	Male	Female
India	37.2	45.4	7245	4463
Arunachal Pradesh¹³	5.2	3.8	-	-
Lower Subansiri	3.7	1.9	752	1000
Tirap	1.5	0.7	519	1006
Changlang	0.7	0.5	634	1010
Lohit	4.7	1.5	759	1001
Dibang	4.8	2.6	655	932
East Siang	5.6	2.9	794	1001
West Kameng	3.5	1.2	477	994
Assam¹⁴	36.0	29.6	-	-
Barpeta	26.4	14.2	310	1096
Cachar	51.8	33.1	407	909
Dhemaji	5.2	2.6	189	958
Dibrugarh	53.1	23.5	32	1053
Golaghat	62.5	30.3	16	1017
Jorhat	14.9	5.5	295	1062
Karbi Anglong	29.9	7.0	377	924
Marigaon	2.3	4.5	298	1083
Nalbari	27.0	1.8	222	1003
Sibsagar	0.2	8.6	745	933
Sonitpur	1.2	4.5	309	1036
Tinsukia	8.1	0.4	750	1067
Manipur¹⁵	13.0	37.5	-	-
Chandel	3.3	2.8	606	809
Ukhrul	1.3	7.2	689	938
Senapati	7.8	17.7	570	799
Imphal	17.8	56.6	567	796
Bishnupur	5.3	41.6	433	773
Meghalaya¹⁶	7.9	4.8	-	-
East Garo	13.0	11.8	353	996
Jaintia Hills	2.1	2.9	423	1069
West Khasi	0.3	0.1	547	1001
Mizoram	5.6	5.4	-	-
Chhimituipur	1.9	1.3	633	1059
Nagaland¹⁷	24.2	29.4	-	-
Makokchung	59.2	82.4	348	909
Phek	14.1	41.1	907	1004
Wokha	40.8	25.5	568	909
Sikkim¹⁸	8.2	6.8	-	-
East Sikkim	11.5	4.6	589	1012
South Sikkim	3.1	1.3	775	1091
Tripura¹⁹	7.1	7.9	-	-
South Tripura	4.4	3.0	655	947

Sources of Knowledge regarding RTIs

Electronic media (e-media), newspaper, doctor, health worker and S friends/relatives were the main sources of knowledge regarding RTIs as per the f RCH survey. Table 2 further reveals that electronic-media and newspapers were the main sources of information regarding RTIs for both the male and female respondents in the districts of Arunachal Pradesh, Assam, and Sikkim. Doctors were also reported to be an important source of knowledge in Manipur and Arunachal Pradesh. Friends and relatives constitute a popular source in the districts of Manipur, Meghalaya, Nagaland and Tripura. Health worker is the least quoted one as a source of information in almost all the districts in the region.

Knowledge about Modes of Transmission of RTIs

Sexual intercourse was reported to be the main mode of transmission of RTIs by more number of males than females in most of the districts of northeastern States of India (Table 3). However, the females had better knowledge about it in Changlangin Arunachal Pradesh, Dhemaji and Dibrugarh in Assam, Jaintia Hills in Meghalaya and Chhimtuipur in Mizoram. Table 3 further reveals that surprisingly almost all the respondents (100%) in Sibsagar district of Assam had no knowledge about, the transmission of RTIs followed by 80.4 per cent in Phek district of Nagaland and more than 50 per cent each in West Kameng of Arunachal Pradesh and Ukhrul district of Manipur.

Besides sexual intercourse, lack of personal hygiene was also reported as one of the important means of RTIs transmission. A higher proportion of male respondents from Cachar, Jorhat and Nalbari in Assam, Imphal and Senapati in Manipur, and Jaintia Hills and West Khasi in Meghalaya, Makokchung and Wokha in Nagaland and East Siang in Arunachal Pradesh reported lack of personal hygiene as one of the means of RTIs transmission (Table-3). Lack of personal hygiene as an important mode of transmission was also reported by females in Jorhat (89.8%) and Sonitpur (82.9%) in Assam, Jaintia Hills (65.6%) in Meghalaya, East Sikkim (57.4%) in Sikkim and Makokchung (55.4%) in Nagaland.

Knowledge of Curability of RTI

A wide variation with regard to the knowledge of both males and females about the curability of RTIs was observed among the districts (Table 4). Knowledge of curability of RTI among males and females was relatively high in majority of the districts of Assam, Meghalaya, Nagaland and Sikkim as compared

to the rest of the districts. Dibrugarh (82.3%), Jorhar(81.8%) and West Kameng (59.9%) were the districts where a higher proportion of males knew the curability of RTIs whereas a higher proportion of females knew the curability of RTIs in the districts of Imphal (88.2%), South Sikkim (86.6%), Jorhat (83%) and Makokchung (80.9%). A sizeable proportion of respondents particularly in all "the districts of Arunachal Pradesh'reported as RTI is not curable.

TABLE 2
PERCENTAGE DISTRIBUTION OF RESPONDENTS BY SOURCES OF
KNOWLEDGE REGARDING RTI IN THE NORTH-EASTERN STATES OF
INDIA

State/District	E-media		News paper		Doctor		Health Worker		Friends/relatives	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Arunachal Pradesh										
Lower Subansiri	60.7	63.1	46.4	47.3	10.7	26.3	14.2	5.2	25.0	26.3
Tirap	75.0	100.0	25.0	42.8	37.5	71.4	37.5	28.5	12.5	42.8
Changlang	40.0	100.0	40.0	100.0	20.0	20.0	20.0	0.0	20.0	40.0
Lohit	77.7	73.3	44.4	66.6	27.7	33.3	11.1	13.3	50.0	13.3
Dibang	46.8	48.0	15.6	16.0	12.5	28.0	0.0	8.0	37.5	36.0
East Siang	77.7	79.3	46.6	17.2	20.0	6.9	4.4	6.9	42.2	20.6
West Kameng	435.2	75.0	23.5	41.6	29.4	8.3	17.6	0.0	52.9	33.3
Assam										
Barpeta	26.8	18.5	25.6	16.6	4.8	2.5	1.2	0.6	74.3	85.2
Cachar	16.5	8.6	12.3	4.6	6.1	1.9	5.2	2.9	75.8	78.7
Dhemaji	70.0	60.0	50.0	56.0	0.0	4.0	0.0	8.0	20.0	28.0
Dibrugarh	94.1	95.9	52.9	52.4	5.8	2.4	0.0	0.4	0.0	4.0
Golaghat	90.0	99.6	40.0	83.5	0.0	1.9	0.0	0.6	80.0	22.9
Jorhat	63.6	67.8	56.8	67.8	25.0	15.2	6.8	6.7	18.1	13.5
Karbi Anglong	33.6	35.3	46.9	26.1	18.5	7.6	3.5	1.5	42.4	13.8
Marigaon	57.1	69.3	28.5	48.9	0.0	0.0	0.0	20.4	0.0	65.3
Nalbari	20.0	26.3	28.3	26.3	10.0	26.3	16.6	0.0	41.6	78.9
Sibsagar	50.0	92.5	100.0	51.8	0.0	2.4	0.0	1.2	0.0	46.9
Sonitpur	75.0	76.6	25.0	53.1	0.0	2.1	0.0	10.6	75.0	51.0
Tinsukia	57.3	60.0	60.6	40.0	6.5	0.0	8?	0.0	32.7	60.0
Manipur										
Chandeei	55.0	47.8	30.0	21.7	25.0	34.7	15.0	0.6	45.0	26.0
Ukhrul	66.6	14.7	55.5	10.2	33.3	20.5	11.1	1.4	0.0	79.4
Senapati	35.5	15.4	13.3	2.8	31.1	26.7	2.2	2.8	55.5	61.2
Imphal	32.6"	24.3	21.7	5.1	23.7	19.0	2.9	0.6	55.4	84.7
Bishnupur	60.8	27.0	26.0	2.4	13.0	11.1	0.0	2.1	43.4	80.4
Meghalaya										
East Garo	47.8	38.1	8.7	1.6	8.7	12.7	2.1	3.3	54.3	66.9
Jaintia Hills	0.0	40.6	0.0	3.1	44.4	56.4	0.0	0.0	44.4	37.5
WestKhasi	50.0	0.0	50.0	0.0	50.0	0.0	0.0	0.0	50.0	100.0
Mizoram										
Chhinctuipur	16.6	28.5	16.6	35.7	16.6	35.7	33.3	14.2	50.0	42.8
Nagaland										
Makokchung	43.2	21.9	41.2	8.1	21.8	8.8	10.6	3.0	84.4	81.4
Phek	30.4	49.3	12.5	10.6	5.4	3.1	3.9	2.4	94.5	97.0
Wokha	49.5	37.9"	50.0	34.9	15.5	7.7	8.6	8.6	87.0	81.0
Sikkim										
East Sikkim	720	44.6	19.1	27.6	32.3	14.8	13.2	12.7	29.4	42.5
South Sikkim	79.1	73.3	37.5	60.0	37.5	46.6	20.8	33.3	20.8	6.6
Tripura										
South Tripura	55.1	10.3	48.2	0.0	13.7	6.9	10.3	3.4	27.5	72.4

Relatively a higher proportion of males in the districts of Lower Subansiri, Karbi Anglong, Sibsagar, Bishnupur, Chandel, Senapati, Wokha, and South Tripura reported that they did not have any idea about the curability of RTIs. At the samelime, more number of females in the districts of Tirap, West Kameng, Karbi Anglong, Sibsagar, Tinsukia, Ukhrul, West Khasi, Chhimitupur, Phek, Wokha, and South Tripura mentioned that they did not have any knowledge about the curability of RTIs.

TABLE 3
PERCENTAGE DISTRIBUTION OF RESPONDENTS BY THEIR KNOWLEDGE
ABOUT MODE OF TRANSMISSION OF RTI IN NORTH-EASTERN STATES OF INDIA

State/District	Sexual intercourse		Lack of hygiene		Others		Do not know	
	Males	Females	Males	Females	Males	Females	Males	Females
Arunachal Pradesh¹³								
Lower Subansiri	46.4	42.1	28.5	42.1	0.0	5.2	42.8	36.8
Tirap	87.5	71.4	25.0	42.8	0.0	71.4	12.5	42.8
Changlang	80.0	100.0	20.0	20.0	20.0	20.0	20.0	0.0
Lohit	75.0	66.6	8.3	33.3	2.7	6.6	25.0	26.6
Dibang	43.7	40.0	9.3	20.0	9.3	16.0	43.7	52.0
East Siang	82.2	68.9	51.1	27.5	8.8	3.4	8.8	34.4
West Kameng	41.1	33.3	11.7	8.3	11.7	0.0	52.9	66.6
Assam¹⁴								
Barpeta	64.6	50.6	39.0	18.5	0.0	0.0	29.2	47.7
Cachar	45.5	9.9	59.2	33.5	2.3	1.3	31.7	62.1
Dhemaji	60.0	76.0	10.0	48.0	0.0	0.0	40.0	16.0
Dibrugarh	82.3	87.9	5.8	23.7	0.0	1.2	17.6	11.2
Golaghat	60.0	55.9	20.0	11.6	10.0	15.2	30.0	43.3
Jorhat	93.1	91.5	95.4	89.8	0.0	1.6	0.0	6.7
Karbi Anglong	62.8	52.3	2.6	4.6	0.0	0.0	37.1	47.1
Marigaon	71.4	51.0	14.2	44.9	0.0	0.0	28.5	40.8
Nalbari	45.0	26.3	61.6	26.3	3.3	0.0	35.0	73.6
Sibsagar	0.0	77.7	0.0	4.9	0.0	0.0	100.0	20.9
Sonitpur	75.0	65.9	75.0	82.9	0.0	0.0	25.0	12.7
Tinsukia	68.8	20.0	34.4	0.0	0.0	0.0	29.5	80.0
Manipur¹⁵								
Chandel	55.5	47.8	25.0	47.8	10.0	4.3	35.0	13.0
Ukhrul	44.4	8.8	22.2	13.2	0.0	2.9	55.5	79.4
Senapati	46.6	32.3	40.0	33.8	0.0	0.7	37.7	50.7
Imphal	18.8	7.5	40.5	37.4	15.8	18.8	37.6	47.8
Bishnupur	56.5	14.2	17.3	28.8	4.3	3.4	30.4	59.9
Meghalaya¹⁶								
East Garo	60.8	50.8	23.9	43.2	0.0	0.0	34.7	25.4
Jaintia Hills	33.3	50.0	55.5	65.6	0.0	0.0	33.3	31.2
West Khasi	50.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
Mizoram								
Chhimitupur	50.0	78.5	16.6	21.4	0.0	7.1	41.6	21.4
Nagaland¹⁷								
Makokchung	76.2	48.8	55.8	55.4	0.0	0.4	18.9	8.2
Phek	18.7	56.9	2.3	16.9	0.0	0.2	80.4	42.1
Wokha	74.5	62.4	51.2	37.9	0.0	0.0	17.2	33.1
Sikkim¹⁸								
East Sikkim	61.7	51.0	16.1	57.4	1.4	0.0	26.4	25.5
South Sikkim	83.3	86.6	20.8	40.0	0.0	6.6	16.6	6.6
Tripura¹⁹								
South Tripura	27.5	10.3	10.3	3.4	0.0	0.0	65.5	86.2

TABLE 4
PERCENTAGE DISTRIBUTIONS RESPONDENTS BY THEIR
KNOWLEDGE ABOUT CURABILITY OF RTI IN NORTH-EASTERN STATES OF INDIA

State/District	Curable		Not curable		Do not know	
	Males	Females	Males	Females	Males	Females
Arunachal Pradesh						
Lower Subansiri	35.7	26.3	21.4	52.6	42.8	21.0
Tirap	50.0	0.0	25.0	57.1	25.0	42.8
Chang lang	40.0	60.0	40.0	40.0	20.0	0.0
Lohit	36.1	66.6	41.6	20.0	22.2	-13.3
Dibang	50.0	48.0	25.0	16.0	25.0	36.0
East Siang	37.7	37.9	40.0	37.9	22.2	24.1
West Kameng	52.9	8.3	23.5	0.0	23.5	91.6
Assam						
Barpeta	79.2	71.1	3.6	7.6	17.0	21.1
Cachar	68.7	65.4	10.4	8.3	20.8	26.2
Dhemaji	70.0	56.0	0.0	12.0	30.0	32.0
Dibrugarh	82.3	47.5	0.0	42.3	17.6	10.0
Golaghat	40.0	33.0	30.0	52.7	30.0	14.2
Jorhat	81.8	83.0	6.8	5.0	11.3	11.8
Karbi Anglong	54.8	36.9	6.1	4.6	38.9	58.4
Marigaon	57.1	46.9	14.2	36.7	28.5	16.3
Nalbari	73.3	63.1	3.3	0.0	23.3	36.8
Sibsagar	0.0	22.2	50.0	30.8	50.0	46.9
Sonitpur	75.0	57.4	25.0	40.4	0.0	2.1
Tinsukia	70.4	20.0	4.9	0.0	24.5	80.0
Manipur						
Chandel	35.0	56.5	20.0	21.7	45.0	21.7
Ukhrul	44.4	47.0	22.2	13.2	33.3	39.7
Senapati	44.4	59.1	15.5	9.8	40.0	30.9
Imphal	73.2	88.2	0.9	1.5	25.7	10.2
Bishnupur	26.0	63.0	17.3	10.5	56.5	26.4
Meghalaya						
East Garo	65.2	74.5	10.8	14.4	23.9	11.0
Jaintia Hills	77.7	75.0	11.1	6.2	11.1	18.7
West Khasi	-100.0	0.0	0.0	0.0	0.0	100.0
Mizoram						
Chhimituipur	41.6	14.2	25.0	14.2	33.3	71.4
Nagaland						
Makokchung	74.7	80.9	9.7	9.4	15.5	9.6
Phek	68.7	52.3	22.6	13.3	8.5	34.3
Wokha	35.7	28.4	24.1	29.3	40.0	42.2
Sikkim						
East Sikkim	66.1	65.9	16.1	6.3	17.6	27.6
South Sikkim	62.5	86.6	20.8	6.6	16.6	6.6
Tripura						
South Tripura	41.3	41.3	10.3	13.7	48.2	44.8

Prevalence of RTIs

The extent of gap between the level of knowledge (awareness) and prevalence of RTI in the districts of north-eastern States of India is presented in Table 6. A wide gap between knowledge and prevalence of RTI in both males and females has been observed. The magnitude of gap is higher among the females than the males. Even among males, in 22 districts the prevalence rate of RTI was higher than the level of knowledge and the prevalence rate was higher than their level of knowledge among females in 24 districts. Though the number of districts does not differ much between males and females in terms of gap between knowledge and prevalence of RTI, the magnitude of gap is much higher among the females than males. Mention may be made of districts like South Tripura, Chhimituipur, Dhemaji and Changlang for females while in the districts of Chandel and Marigaon, the relative gap was much higher for the males.

Figures presented in Table 5 reveal that at least one problem of RTI was more common among women as compared to men in almost all the districts of north-eastern States of India. However, a few districts namely; Tirap in Arunachal Pradesh; Dibrugarh and Nalbari in Assam, East Garo and West Khasi in Meghalaya./and Makokchung and Wokha in Nagaland where at least one problem of RTI was more common among men as compared to women.

CONCLUSION

Males and females had a higher level of awareness of RTI only in 11 and 9 districts respectively out of the total of 34 districts in the north-eastern States of India. This gives a strong policy implication that more awareness programmes should be taken up to propagate the messages on RTIs and its associated risks in the region. Health seeking behavior by women needs to be improved by making the services easily available to them at a lower cost.

It would also be better if the RTI and family welfare services are combined for the benefit of women in the region which would help them in the long run. To achieve this; in addition to the existing health care facilities, additional specialised centres may be opened up in the districts to provide quality care. Therefore, both government and non-government organisations should work together to make people to come out for seeking health for themselves to avoid these kinds of problems.

TABLE 5
PERCENTAGE DISTRIBUTION OF RESPONDENTS HAVING RTI PROB
IN THE NORTH-EASTERN STATES OF
INDIA

State/District	Having at least one problem of RTI	
	Male	Female
India	12.3	29.7
Arunachal Pradesh	13.3	20.6
Lower Subansiri	19.1	27.8
Tirap	5.7	2.8
Changlang	12.6	30.1
Lohit	14.1	19.1
Dibang	5.8	23.0
East Siang	13.3	14.6
WestKameng	7.3	17.1
Assam	15.1	28.5
Barpeta	3.8	10.9
Cachar	12.5	49.6
Dhemaji	7.9	31.7
Dibrugarh	28.1	154
Golaghat	-	4.1
Jorliat	15.9	29.0
Karbi Anglong	12.2	14.7
Marigaon	23.4	24.3
NaJbari	7.6	22.5
Sibsagar	16.1	7.0
Sonitpur	11.0	22.5
TinsukVa	2.6	28.3
Manipur'	-12.7	23.6
Chandel	28.0	28.3
Iiurul	17.7	25.0
Senapati	12.4	21.5
Imphal	11.1	23.1
Bishnupur	19.4	33.2
Meghalaya	8.5	26.6
EastGaro	11.0	7.0
Jaintia Hills	3.3	-6.4
WestKhasi	15.7	-1.1
Mizoram	10.2	36.4
Crihi'mtuipur	16.9	39.8
Nagaland	14.3	16.5
Makokchung	23.5	18 8
Phek	15.9	28.6
Wokha	14.6	5 5
Sikkim	8.7	11.3
East Sikkim	9.5	12.2
South Sikkim	4.7	12.0
Tripura	15.1	39.8
South Tripura	18.7	49.9

TABLE 6
PERCENTAGE DISTRIBUTION OF GAP BETWEEN KNOWLEDGE AND
PREVALENCE RATE OF RTI IN NORTH-EASTERN STATES OF INDIA

State/District	Gap between knowledge and prevalence rate of RTI	
	Males	Females
Arunachal Pradesh		
Lower Subansiri	-15.9	-25.9
Tirap	4.2	-2.1
Changlang	-11.9	-29.6
Lohit	-9.4	-17.6
Dibang	-1.0	-20.4
East Siang	-7.7	-11.7
West Kameng	-3.8	-15.9
Assam		
Barpeta	22.6	3.3
Cachar	39.3	-16.5
Dhemaji	-2.7	-29.1
Dibrugarh	25.0	8.1
Golaghat	62.5	26.2
Jorhat	-1.0	-23.5
Karbi Anglong	17.7	-7.7
Marigaon	-21.1	-19.8
Nalbari	19.4	-20.7
Sibsagar	15.9	1.6
Sonitpur	-9.8	-18.0
Tinsukia	5.5	-27.3
Manipur		
Chandel	-24.7	-25.5
Ukhrul	-16.4	-17.8
Senapati	4.6	-3.8
Imphal	6.7	33.5
Bishnupur	-14.1	8.4
Meghalaya		
East Garo	2.0	4.8
Jaintia Hills	1.2	-3.5
West Khasi	-15.4	-1.0
Mizoram		
Chhifai	-15.0	-38.5
Nagaland		
Mokokchung	35.7	63.6
Phek	1.8	12.5
Wokha	26.2	2.0
Sikkim		
East Sikkim	2.0	-7.6
South Sikkim	-1.6	-10.7
Tripura		
South Tripura	-14.3	46.9

सामान्यतः प्रजनन मार्गीय संक्रमण (आरटीआई) के अन्तर्गत तीन प्रकार के संक्रमणों अर्थात् यौन संचरित रोग तथा (तथा संक्रमण), अर्न्तर्जनित योनि संक्रमण तथा प्रजनन मार्गीय संक्रमणों को कवर किया जाता है। वर्तमान अध्ययन द्वारा यह पता चला है कि (I) भारत के उत्तर-पूर्वी भागों के जिलों में प्रजनन मार्गीय संक्रमण के बारे में पुरुषों तथा महिलाओं दोनों में जानकारी का स्तर बहुत कम पाया गया है। (II) आन्ध्र प्रदेश, असम तथा सिक्किम के जिलों में इलैक्ट्रॉनिक मीडिया ताम समाचार पत्र पुरुषों तथा महिलाओं दोनों के लिए प्रजनन मार्गीय संक्रमण के बारे में सूचनायें उपलब्ध कराने का मुख्य स्रोत थे, (III) अधिकांश जिलों में ज्यादातर पुरुषों एवं महिलाओं द्वारा यौन सहवास को प्रजनन मार्गीय संक्रमण का मुख्य साधन माना गया था, (IV) पुरुष उत्तरदाताओं का अधिक अनुपात असम, इम्फाल में काछर, जोरहाट तथा नलबारी, मणिपुर में सेनापति, मेघालय में जैनतिया पहाड़ी तथा पश्चिम खासी, नागालैण्ड में माकोचुंग तथा वोखा और अरुणाचल में पूर्वी सियांग क्षेत्र से था, रिपोर्ट प्राप्त हुई है कि इनमें वैयक्तिक स्वच्छता का अभाव था, जो प्रजनन मार्गीय संक्रमण फैलने का एक प्रमुख कारण था। तथा (V) पुरुषों एवं महिलाओं दोनों में प्रजनन मार्गीय संक्रमण के बारे में ज्ञान तथा व्यापकता में बहुत अन्तराल पाया गया था, जो महिलाओं में अधिक था।

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**SATISFACTION OF PATIENTS' ATTENDANTS
IN THE PAEDIATRIC WARD OF I.G. MEDICAL COLLEGE, SHIMLA**

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ABSTRACT

This survey on the satisfaction of patients' attendants was carried out during May-June 2003. Feedback was obtained from the attendants of the inpatients using a 22-item interview schedule. In all, 100 attendants of the inpatients were interviewed excluding the child attendant. Overall level of attendants' satisfaction was found to be 67.16 per cent. Item-wise score showed that the least mean score for the attitude of sweepers was 6.92 and the highest score was 1.78 for the visitors' policy. It was seen that while 66.66 per cent of the attendants belonging to the business community were fully satisfied with the opportunity to talk to the doctors, the same percentage of farmers expressed dissatisfaction with regard to the information on the illness of their respective patients. The findings of the survey can help the policy makers of the hospital in further improving the patient satisfaction level in the hospital.

Key words: Composite score, Satisfaction, Quality of patient care, and Attendants.

Hospitals are meant to deliver quality health care services to the entire community irrespective of age, sex, caste, creed or colour. Different types of medical and para-medical personnel ranging from highly skilled to unskilled contribute towards patient care. While availing of health care services during their stay in the hospital, the patients and their attendants frame the image of a hospital whether it is good or bad.

Patient satisfaction is an important indicator to measure the quality of health care services being provided to the patients by the hospital. In Shimla, Himachal Pradesh, both government and private hospitals are providing health care services but I.G. Medical College and Hospital is the State's pioneer institute that caters to a maximum number of referred cases and the local population of Shimla.

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OBJECTIVE

This study was- undertaken during the month of May-June 2003 in the Paediatric Ward of I.G.M.C., Shimla, to measure the level of satisfaction of the patients' attendants with the hospital services and to correlate it with their characteristics.

METHODOLOGY

100 attendants of the inpatients who stayed in the hospital for four days or more in the paediatric Ward of I.G. Medical College and Hospital were selected as the sample respondents of the study. An interview schedule consisting of 22 items was developed to measure the level of satisfaction of the attendants who formed the core part of the survey. Twenty items were grouped into five main categories such as (i) Access, availability convenience; (ii) Communication; (iii) General satisfaction; (iv) Inter-personal aspects; and (v) Technical quality.

Response- to each item was obtained with the help of a 3point rating scale- 0, 1 and 2. 0 was for totally dissatisfied, 1 for mildly/partially satisfied and 2 for fully satisfied. Thus, a respondent could score a maximum of 44 and a minimum of '0'. Opinion from the attendants was sought in local language regarding the hospital services. In order to avoid any interference in attendant's response to items in the questionnaire, information regarding socio-demographic data like education, occupation, nature of residence (urban/rural) was also taken into consideration.

FINDINGS

The paediatric ward is situated on the fourth floor of the new building complex. In total, there are 60 beds of which 13 beds each are in the diarrhoea, general and ICU section, 10 beds each in cardiology and nursery and one bed is in the isolation room.

Since paediatric ward, was considered for the study, the child patients admitted in the ward could not be interviewed but their attendants were interviewed. Out of the total of 100 attendants, 44 were males and 56 were females. Only 8 per cent of the respondents were illiterate and the others were literate. It was found that 63.63 per cent of males and 39.29 per cent of female attendants had a qualification of matriculation and above (Table 1).

TABLE 1
DISTRIBUTION OF PATIENTS ATTENDANTS ACCORDING TO THEIR
SEX AND LITERACY STATUS

Sr. No.	Literacy	Males	%	Females	%	Total	%
1	Illiterate	4	9.10	4	7.14	8	8
2	Primary	5	11.36	21	37.5	26	26
3	Middle	7	15.91	9	16.1	16	6
4	Matric	8	18.18	10	17.86	18	18
5	Higher	20	45.45	12	21.43	32	32
Total		44	100	56	100	100	100

The item-wise distribution of responses shows that the attitude of sweepers (mean score 0.92) was the highest level of dissatisfaction among the attendants. Only 20 attendants were observed to be fully satisfied with the attitude of the sweepers. Most of the respondents were found to be highly satisfied With regard to the visitor's policy (mean score of 1.78). Not a single attendant reported that he/she was fully satisfied with the overall hospital services (Table 2).

The overall level of satisfaction was 67.16 per cent (Table 3): The average composite satisfaction score was 29.55 against a maximum possible score of 44. The respondents highest level of satisfaction was with the technical quality (71.75%) whereas communication of the medical and para-medical personnel with the patients and their attendants was found to be the low level of satisfaction (58%).

54.54 per cent of the urban people were satisfied with the opportunity to talk to the doctors as compared to 14.28 per cent of rural people. Illiterates were neither satisfied with the opportunity to talk to doctors nor with the information regarding the illness of patients. People belonging to the business community had the highest level of satisfaction with regard to the opportunity to talk to the doctors and getting information regarding the illness of patients (Table 4). Table 5 shows that 16 attendants reported that they-were fully satisfied with the opportunity to talk to the doctors and 20 were fully satisfied with the information regarding the illness of their patients while only 12 attendants were satisfied with both. The association was found to be statistically significant. Out of 44 respondents who were dissatisfied/partially satisfied with the attitude of sweepers, 32 patients were also dissatisfied/partially satisfied with the cleanliness of toilets. Association between 'influence and kind of medical treatment was not found to be statistically significant. Out of 32 attendants dissatisfied with the promptness of response given by the nurses, 26 were also dissatisfied with the nurses' behaviour.

TABLE 2
ITEM-WISE DISTRIBUTION OF RESPONSES GIVEN BY PATIENT'S
ATTENDANTS

Items	0 score	1 score	2 score	Mean score	Rank
1. Access, availability and convenience					
i) Location of the hospital	12	54-	34	1.22	12
ii) Admission to the hospital	5	20	70	1.60	4
iii) 1st. Experience in the ward	2'	46	52	1.50	5
iv) Influence of 'pull' on medical care	.8	48	44	1.36	9
II. Communication					
i) Opportunity to talk to doctors	4	64	32	1.28	10
ii) Use of medical terms and their explanation	0	84	16	1.16	14
iv) Explaining reasons for conducting medical tests	4	88	8	1.04	16
III. General satisfaction					
i) View about visitors' policy	2	18	80	1.78	1
ii) Cleanliness of toilets	24	40	36	1.12	15
iii) Linen	12.	48	40	1.28	10
iv) Food	4	54	42	1.38	8
iv) Quietness in hospital	3	69	28	1.25	11'
vi) General cleanliness in wards	12	56	32	1.20	13
IV. Interpersonal aspects					
i) Privacy	8	44	48	1.40	7
ii) Doctors' behaviour	0	36	64	1.64	3
iii) Nurses' behaviour	8	44	48	1.40	8
iv) Promptness of response by nurses	8	56-	36	1.28	' 10
v) Attitude of sweepers	20	68	12	0.92	17
V. Technical quality					
i) Information regarding illness	2	58	40	1.38	8
ii) Views about kind of medical treatment	0	32	68	1.68	2
iii) Diagnosis made by doctors	8	36	56	1.48	6
iv) Patience shown by doctors	12	56	32	1.20	13

TABLE 3
SATISFACTION SCORE OF PATIENTS' ATTENDANTS

Service component	No. of items	Maximum possible score	Actual score	Level of satisfaction
Composite score	22	44	29.55	67.16
Access- availability-Convenience	4	8	5.68	71.00
Communication	3	6	3.48	58.00
General satisfaction	6	12	8.01	66.75
Interpersonal aspects	5	10	6.64	66.40
Technical quality	4	8	5.74	71.75

TABLE 4
CORRELATION OF ATTENDANTS' RESIDENCE, OCCUPATION AND
EDUCATION WITH THEIR SATISFACTION REGARDING OPPORTUNITY
TO TALK TO DOCTORS AND INFORMATION REGARDING ILLNESS

Type	No. attendants of responded	No. of fully satisfied patients			
		Opportunity to talk to doctors		Information/ regarding illness	
		n	%	n	%
Residence					
i) Rural	56	8	14.28	24	42.85
ii) Urban	44	24	54.54	16	36.36
Occupation					
i) Labourer	16	0	0	0	0
ii) Agriculturist	24	4	16.66	16	66.66
iii) Service	40	20	50	12	30
iv) Housewife	8	0	0	4	50
v) Business	12	8	66.66	8	66.66
vi) Others	0	0	0	0	0
Education					
i) Illiterate	8	0	0	0	0
ii) Primary	26	0	0	4	15.38
iii) Middle	16	0	0	4	25
iv) Matric	18	2	11.11	12	66.66
v) Higher	32	14	43.75	20	62.50

TABLE 5
CORRELATIONS BETWEEN DIFFERENT ITEMS.

Items	Score:		Level of Significance
	'0' + 1	'2'	
Information regarding illness	Opportunities to talk to doctors		$\chi^2=12.01$ $p<.001$
'0'+1	26	4	
'2'	8	12	
Cleanliness	Attitude of sweepers		$\chi^2=12.12$ $p<.001$
'0'+1	32	0	
'2'	12	6	
Kind of medical treatment	Influence of pull		$\chi^2=.40$ $P>.05$
'0'+1	10	6	
'2'	18	16	
'Nurses' behaviour	Promptness of response by nurses		$\chi^2=30.47$ $P<.001$
'0'+1	26	0	
'2'	6	18	

The study reveals that most of the patients attendants were satisfied with the services rendered by the 'hospital General opinion of patients' attendants about the image of the hospital was graded as good by 44 per cent. 28 per cent of the respondents viewed the-services of the hospital as of excellent standard and 24 per cent termed it average.

DISCUSSION

In the present study, out of the maximum possible composite score of 44, the general composite score was found to be 29.55 which indicates 67.16 per cent of satisfaction level. Wide variations are found in patients' satisfaction level in different studies carried out in different parts of the country. The results of the present study are to some extent similar to a patient satisfaction survey conducted by Mahapatra et al; wherein the over all level of satisfaction was about 65 per cent in contrast to a similar study in a teaching hospital of Delhi where satisfaction level of patients was 84.79.

In the current research, attendants of the patients in large numbers were found to be quite satisfied with the kind of medical treatment they were getting, though the information-given to them about the illness of their respective patients was less. This could be due to the fact that telling patients or their attendants about the illness is still not given importance. There were six questions under the category 'General Satisfaction'. Views about visitor's policy stood at the highest (mean score 1.78) as compared to cleanliness of toilets, wards and linen, etc. It means that majority of patients' attendants did not feel the need of too many visitors in the hospital. Under this category, cleanliness of toilet was at the lowest mean score (1.12). The findings of the present study also reveal that 32 per cent of the attendants were fully satisfied with general cleanliness in wards and 40 per cent with linen as compared to only 85 per cent and 66 per cent respectively in a Corporate Hospital in New Delhi.

Majority of the respondents (64%) were satisfied with the doctors behaviour in comparison to only 48 per cent with the nurses behaviour. Similar findings were also observed in a study where 63.3 per cent and 45.5 per cent of the patients found the services of doctors and nurses as excellent. Regarding opportunity to talk to the doctors, 32 per cent of the respondents were fully satisfied while 4 per cent very much dissatisfied. Association between opportunity to talk to the doctors and information regarding the illness of the patient was highly significant and the findings are comparable to a similar study. Majority of the

attendants were partially satisfied with the medical terms used by the doctors (84%) and reasons for conducting medical tests and their explanation (88%). It has been observed that 40 per cent of the attendants were fully satisfied with information regarding illness in contrast to 94.97 per cent patients who were very much dissatisfied in another study.

The study findings reveal that only a few attendants of the patients were dissatisfied with the location of the hospital, admission to the hospital and first experience in the ward and effect of influence of pull on medical care. Statistically, significant association was; found between items like opportunity to talk to the doctors and information regarding the illness of the patient, attitude of sweepers and cleanliness of toilets and promptness of response given by nurses and their behaviour. Whereas association was found to be insignificant with regard to influence of pull and kind of medical treatment. General opinion of patients about the image of the hospital was good and most of the patients were seemed to be satisfied with various services.

Patient satisfaction surveys done in hospitals from time to time can further improve the quality and. quantity of health care services which in turn raise the standard and image of the concerned hospitals and the hospital administrators can judge themselves by evaluating their merits and flaws. Such surveys can sensitize the hospital staff and administrators to take steps to improve the patient care so that the patient admitted to the concerned health care facility gets the optimal quality health care services.

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रागियों के परिचारकों पर यह सर्वेक्षण अप्रैल-मई 2003 के दौरान संचालित किया गया था। एक 22 मर्दों वाली साक्षात्कार अनुसूची का प्रयोग करके अंतरंग रोगियों के परिचारकों से फीडबैक प्राप्त किया गया था। बाल परिचारकों के अतिरिक्त अंतरंग रोगियों के सभी 100 परिचारकों से साक्षात्कार किया गया था। मदवार स्कोर द्वारा यह प्रदर्शित हुआ है कि सफाई कर्मचारियों के दृष्टिकोण के संबंध में न्यून माध्य-स्कोर 0.92 था तथा आगंतुक नीति के लिए उच्चतम स्कोर 1.78 था। यह देखा गया था कि जबकि 66.66 प्रतिशत परिचारक व्यापारिक समुदाय से थे, वह डाक्टरों के साथ बातचीत करने का अवसर पाकर पूर्ण संतुष्ट पाए गए थे, यही समान प्रतिशत कृषक वर्ग द्वारा अपने संबंधित रोगियों की बीमारी के बारे में सूचनायें न पाकर असंतुष्टि व्यक्त की गई थी। सर्वेक्षण से प्राप्त निष्कर्षों से अस्पताल के नीति निर्माताओं को अस्पताल में रोगी संतुष्टि में और अधिक सुधार लाने में सहायता मिल सकती है।

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**DETERMINANTS OF UTILIZATION OF ANTE-NATAL CARE
SERVICES AMONGST ATTENDEES
IN A PUBLIC SECTOR HOSPITAL IN DELHI**

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ABSTRACT

The cross-sectional study was conducted in an ante-natal OPD of a public sector hospital in Delhi to study the socio-demographic determinants of women utilizing ante-natal services and their knowledge regarding ante-natal care. In all, 500 women attending the ante-natal OPD were interviewed. Majority of the women (420) were in the age group of 20-29 years, 395 (79%) of them were literate and 218 (43.6%) were primigravidas. Of the 241 women who had previous deliveries, 150 (62.24%) had delivered at a hospital, 213 (42.6%) and 273 (54.6%) had received one dose and two doses of tetanus toxoid respectively. Out of the total 500 of respondents, 263 (52.6%) were taking iron and folic acid tablets and 237 (47.4%) were not taking it at all. 93.4 per cent of the women opined that the ante-natal care was essential while 1.6 per cent said that it was not essential and 3 per cent did not know whether it was necessary. In response to a question on the main reason for choosing a hospital for availing of ante-natal services; 33.4 per cent of the women stated that it was a large hospital, so they can have good care.

Keywords: Ante-natal care, Socio-demographic determinant pregnancy, Iron tablets and Awareness.

Pregnancy is a physiological process but it predisposes women to several health hazards. Thus, routine checks are highly desirable to avert the potentially serious complications that may occur during pregnancy: The recommended context of antenatal care has three main categories; (i) Assessment including history taking, physical examination and laboratory tests to identify problems or risk factors; (ii) Health promotion- advice on nutrition, planning birth, information on danger and (iii) Care provision- IFA tablets, Tetanus immunisation, record keeping, etc.

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OBJECTIVES

The basic objectives of this study were to - (i) identify the socio-demographic determinants of women seeking ante-natal care; and (ii) find out the reasons for seeking health care by them in a public sector health facility.

MATERIALS AND METHOD

The cross-sectional clinic-based study was conducted during December 2003-February 2004 in an ante-natal OPD of a public sector hospital in Delhi. 500 women availing of the services of the ante-natal OPD of the hospital were interviewed as the sample respondents. The first ten-women attending the antenatal OPD were included as the sample subjects on daily basis for a period of 50 days. A pre-tested questionnaire was used to obtain information on their socio-demographic variables. Information was also collected on their knowledge of antenatal care and health seeking behaviour concerning pregnancy. Data, thus, collected were analyzed by using EXCEL software. A value of less than 0.05 was considered statistically significant.

FINDINGS

Socio-demographic Profile

The study results found that majority of the women (84%) was in the age group of 20-29 years. 34 (6.8%) of them were in the under-19 age group. It was seen that 395 (79%) of the women were literate while 105 (21%) were illiterate. Out of the total respondents, only 5.6 per cent was employed while the rest 94.4 percent was housewives. It was seen that 441 (88.2%) were Hindus by religion; 49 (9.8%) were Muslims; 4 (0.8%) were Christians and 6 (1.2%) were Sikhs (Table 1). Based on the MC Gupta per-capita scale, the findings showed that 28.8 per cent of the women belonged to the upper class; 39.2 per cent to the upper-middle class; 28.8 per cent to the lower middle; 1.8 per cent to the upper lower and 1.4 per cent belonged to the lower class.

Primigravidas constituted 43.6 per cent women whereas multi-gravidas constituted 56.4 per cent. Out of the 282 women in multi-gravidas, 41 women had history of previous abortion. Nearly half of the women (45.2%) had one or two living children, and only 1.4 per cent had three or more living children. Of the 241 women who had previous deliveries, 62.24 per cent had delivered in a hospital

while 37.76 per cent had delivered in home. Statistically, a significant association was found between the place of delivery and literacy status of the women ($p < 0.05$).

Health Seeking Behaviour

Registration: The study observed that 200 women had registered themselves at a health care facility in the first trimester; 261 (52.2 %) in the second trimester while 39 (7.8%) women had registered in their third trimester. Of those who had registered in the first trimester, 88 per cent were literate and this is significant at < 0.001 .

Distance: It was observed that 25 per cent of the total women resided within 5 km radius of the health care centre while the remaining 75 per cent of the total subjects resided beyond -5 km distance from the hospital. For the 291 women respondents, hospital was the first level of contact. Out of the rest 209 women, 102 (52.15%) were referred from- various hospitals, 62 (29.6%) from private practitioners, 21 (10%) from maternal and child health centers', 14 (6.6%) from dispensaries and 10 (4.7%) from registered medical practitioners.

Immunisation and Consumption of Iron Tablets: With regard to their current pregnancy, 2.8 per cent of the respondents had not received even a single dose of tetanus toxoid while 42.6 per cent had received one dose and 54.6 per cent had received two doses of tetanus, toxoid. Further, it was found that 263 respondents were taking iron and folic acid tablets and 237 respondents were not taking iron at all. Further it was seen that a total of 70.8 per cent of the respondents had been prescribed IFA tablets by their respective doctors during their previous visits. From amongst the women prescribed to take IFA tablets, 69.49 percent were taking iron tablets and 30.51 per cent were not taking IFA tablets at all. The reason for not consuming the iron tablets given by a majority of the women (45.4%) was that they forgot to take the tablets. 25 percent of them, said that they had constipation, 17.6 per cent sample respondents did not like the taste and 12 per cent women said that since pregnancy was a natural process, -iron was not needed. The consumption of iron showed a statistically significant association with the literacy status of the women ($p < 0.01$) (Table 1).

TABLE 1

SOCIEMOGRAPHIC DETERMINANTS FOR SEEKING HEALTH CARE AMONG ANC ATTENDERS

	Registration of pregnancy N=600			Tetanus toxoid N=500			Iron folic acid *N=50Q		Place of previous delivery (N=241)	
	First trimester 200 (40)	Second -trimester 261 (52.2)	Third trimester 39 (7.8)	0 4' (2.8)	1 213 (42.6)	2 273 (54.6)	Nil 237 (47.4)	Taken 263 (52.6)	Home 91 (37.76)	Hospital 150 (62.24)
Maternal age										
< 19 (N=34)	14(7)	17(7)	3(8)	1(7)	19(9)	14(5)	21 (9)	13(5)	2(2)	1(1)
20-29 (n=420)	164(82)	223 (85)	33 (84)	13(93)	171(80)	236 (86)	199 (84)	221(84)	78 (86)	123 (82)
> 30 (n=46)	22(11)	21 (8)	3(8)	0	23 (11)	-23 (9)	17(7)	29(11)	11(12)	26(17)
Maternal education										
Illiterate (n=105)	24(12)	64(25)	17(44)	2(14)	50 (24)	53 (19)	63 (27)	42(16)	32*(35)	34(23)
Literate (n=395)	176(88)	197 (75)	22(56)	12(86)	163(76)	220 (81)	174(73)	221(84)	59 (65)	116(77)
Maternal occupation										
Housewife (472)	183(91.5)	252(97)	37 (95)	10(71)	203 (95)	259(95)	227 (96)	245 (93)	87 (95)	139 (93)
Employed (28)	17(8.5)	9(3)	2(5)	4(29)	10(5)	14(5)	10(4)	18(7)	4(5)	11(7)
No of living children										
N=233	79 (33.9)	132 (56.7)	22 (9.4)	6(3)	112(48)	115(49)	107 (46)	126(54)	87(37)	146(63)
1 (n=163)	64(81)	86(65)	13(59)	6(100)	71(63)	86 (75)	81 (76)	82 (65)	60 (69)	103(70)
2 (n=63)	15(19)	40 (30)	8(36)	0	38 (34)	25 (22)	3(21)	40(32)	-24(28)	39(27)
>3(n=7)	0	6(5)	1(5)	0	3(3)	4(3)	3(3)	4(3)	3(3)	4(3)
Type of family										
Nuclear (n=228)	86 (43)	117(45)	25 (64)	8(57)	103(48)	117(43)	125 (53)	103(39)	50(55)	77(51)
Joint (n=272)	114(57)	144(55)	14 (36)	6(43)	110(52)	156(57)	112(47)	160(61)	41 (45)	73(49)

Chi-square is statistically significant at $p < 0.05$

Figures in parentheses indicate percentage.

Knowledge on Ante-natal Care

Responding to question whether ante-natal care was essential and about the components of ante-natal care, 467 women responded in the affirmative while 8 viewed that ANC was not necessary. The findings show that 109 subjects did not know what ante-natal care was. The results further show that while 15.2 per cent of the total respondent women had come to the hospital for availing of information, advice from the doctor on precautions to be taken 7.8 per cent told that they visited the hospital to know about 'care during pregnancy (Table 2).

TABLE 2
KNOWLEDGE ON COMPONENTS OF ANTE-NATAL CARE
AMONGST ANC ATTENDERS

Sl. no.	Knowledge about components of antenatal care	Number (%)
1	Examination by doctor	206 (41.2)
2	Information, advice and precautions	76(15.2)
3	Taking medicines	80(16.0)
4	Taking injections	69(13.8)
5	Problem solving	48 (9.6)
6	Care during pregnancy	39(7.8)
7	Undergoing laboratory tests	11 (2.2)
8	Relief from pain	7(1.4)
9	For good health of baby	6(1.2)
10	Don't know	109(21.8)

Reasons for Visiting Hospital

Replying to a question on the reasons for seeking ante-natal care at a tertiary level hospital, 33.4 per cent of woman said that it was a large hospital and better ante-natal care would-be provided: 17.8 per cent of the respondents informed that they had come due .to peer group influence'while 14.2 percent stated that they had come for routine check-up. Interestingly, only one woman said that she had come to the hospital so that she could'again avail of the services of the hospital in case of an emergency concerning the pregnancy and eight women replied that they did not know why they had come to the hospital (Table 3).

TABLE 3
REASONS GIVEN BY ANC ATTENDERS FOR VISITING A HOSPITAL

S. No.	Reasons for visiting a hospital	Number (%)
1	Better care because it is a large hospital	167 (33.4)
2	Peer group influence	89 (17.8)
3	Referred by other doctors	59(11.8)
4	Routine check-up	71.(14.2)
5	For delivery in a big hospital	51 (10.2)
6	Close proximity to place of residence	46(9.2)
7	Had sought services previously	43 (8.6)
8	Free services	42(8.4)
9	Know someone from the staff	16(3.2)
10	Problem solving and relief from pain	14 (2.8)
11	Can come in case of an emergency	1 (0.2)
12	Don't know	8(1.6)

DISCUSSION

In the study, it was found that a majority of the women, 84 per cent, were in the age group of 20-29 years and 6.8 per cent had teenage pregnancies. This is a matter of serious concern. Though the average age at marriage has advanced to 18.3 years and the legal age at marriage is 18 years but there were teenage pregnancies. This reflects that we must have programmes in place to address the adolescent issues. The young girls and their parents should be provided with adequate knowledge about the affects of early pregnancy.

The study further found that 395 of the women were literate while 105 were illiterate. According to the 2001 census, the literacy rate for females in Delhi stands at 75 per cent against the national average for females at 54.16 per cent. Since it is largely an urban tertiary hospital in Delhi, the literacy rate of the women is comparable with the State statistics.

Of the 241 women who had previous deliveries, 62.24 per cent of them had delivered in hospitals While 37.76 per cent had home deliveries. This shows a significant association between the literacy status of women and their literacy level ($p < 0.05$). In a study on status of reproductive health among women in rural Meerut, it has been observed that 92 per cent of the women had home deliveries. This difference could be due to the fact that the study was conducted in a rural setting whereas the present study was conducted in a tertiary care hospital in Delhi.

From the 500 women respondents, only 40 per cent was found to have registered themselves during their first trimester of pregnancy whereas the reproductive and child health programme stresses on early registration of all antenatal cases. An early intervention can lead to safe pregnancy and safe childbirth. The findings of a previous study in south India shows that 56 per cent of the women had registration in their first trimester while another study reveals that 12.4 per cent of women had got themselves registered during their first trimester. The study by Matthews et al was conducted in South India with a better-literacy rate explains the higher percentage of registrations in comparison to the findings of the study by Chopra et al which was undertaken in rural Meerut where literacy level among women-could be comparatively lower.

In the present research, 75 per cent of the ANC women attendees were those who resided beyond a distance of 5 km from the hospital and 25 per cent resided within 5 km radius of the hospital. Since this is a large hospital, it caters to a large public and acts as a referral centre for neighbouring States as well.

One of the findings of the study showing that for 58.2 per cent of women, the hospital was the first level of contact which reflects the poor infrastructure of health care services in the country. -Women coming from far off areas came for routine check-ups which could easily be done at the health-care centres close to their homes. The load-of routine patients could be reduced to a greater extent by which the tertiary.hospital could.cater to high-risk cases and providebetter health care services.

In the present study, 263 women were taking iron and folic acid (IFA) tablets and 237 of the respondents were not consuming iron tablets at all. It was found that only 70.8 per cent of the respondents had been prescribed IFA tablets by their respective doctors during their previous visits. From amongst the total ANC women attendees who were prescribed to consume IFA tablets during their previous visits, 69.49 per cent of them reported that they were taking the iron tablets as prescribed by the doctors. Matthews et al has reported that 85 percent of his subjects consumed iron. Whereas Sinha et al in their study on evaluation of MCH services in West Bengal, reported that only a small section of mothers (12.7% to 23.7%) consumed 100 or more IFA tablets during pregnancy. In the study by Chopra et al, it has been observed that only 31.4 per cent of women in their study had consumed iron prophylaxis. It is a matter of concern that though two-third of pregnant women in the developing countries are anaemic and the findings of the current study on the number of women not taking iron supplements

is not satisfactory. This needs an introspection by the health programmers and counselling services must be there for the pregnant women in our health promotional activities. Pregnant women must be clearly explained about the benefits of iron supplements and they could, be encouraged to consume iron to avoid anaemia; Alternate preparations of iron can also be made available in the form of syrup for increased compliance.

Knowledge of Ante-natal Care

Ante-natal visits play a critical role in preparing a woman and her family for proper child birth. ANC service providers a platform to establish a confidence between the pregnant woman and the health care providers and the health care providers inform the pregnant woman about proper mother and child care.

In the present study, a large number (21.8%) of women stated that they did know nothing about it. This, finding emphasizes on the fact that widespread awareness on ante-natal care should be enhanced and the women should be well informed about all the components of ante-natal care and their benefits.

In the present study, 33:4 women pointed that they came for better care as it was a large hospital, 17.8 per cent said that they came due to peer group influence, 14.2 per cent came for routine check-ups and only 2.8 per cent responded that they had come to the hospital for some pregnancy-related problems. Whereas, Matthews et al has reported that 93 per cent of the women in his study came for routine check-ups and personal problem care, whereas 63 per cent came only for routine care.

According to WHO, 75 per cent of maternal deaths are avoidable. Though major complications can strike, unpredictably, planning for delivery is as important as pregnancy. When asked in detail, why the subjects visited a hospital, one-third (33.4%) of them responded that they came to the hospital as they thought care would be better as it is a large hospital. Only 10.2 per cent expressed that they had come to the hospital only for registration of pregnancy and .with the help of the registration card, they could come to the hospital for delivery. This paradox in which health care is important for childbirth but not during pregnancy is embodied in a majority of women's primary reason for seeking antenatal care in the hospital.

CONCLUSION

The present study has brought to light some important aspects of health care seeking behaviour of women during pregnancy. It has established that education/literacy has significantly a positive impact on the behaviour of the ANC women attendees. A crucial 6.8 per cent of the ANC attendees were teenagers which emphasizes the need for improving health awareness among the masses to follow the right age at marriage and motherhood. This can also be a part of the school curricula that can educate the adolescents who are the potential mothers and fathers. Certain programmes must have to be undertaken to address the issues concerning adolescents to prevent such instances of under-age marriage, teenage-pregnancy, etc. in future. Though the health care facility under study is not truly a referral hospital and caters to a large population, better services could be provided if it only caters to the most needy in terms of health risks. This surely indicates that health care infrastructure facilities should be developed in primary health care facilities so that at least ante-natal care can be provided close to the homes of the people. Steps must be initiated so that more women could be encouraged to register during their first trimester. The study findings also suggests for proper counselling to the targeted women to prevent anaemia by improving the consumption of iron and folic acid tablets and better self-care for a safe delivery.

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प्रसवपूर्व सेवाओं का उपयोग करने के बारे में महिलाओं के सामाजिक-जनांकिकी निर्धारकों तथा प्रसवपूर्व परिचर्या संबंधी उनके ज्ञान के बारे में अध्ययन करने के लिए दिल्ली के एक सार्वजनिक क्षेत्र अस्पताल के एक प्रसवपूर्व बहिरंग रोगी विभाग में क्रॉस सेक्शनल अध्ययन संचालित किया गया था। प्रसव-पूर्व बहिरंग रोगी विभाग में सेवाएं प्राप्त करने के लिए आने वाली कुल 500 महिलाओं का साक्षात्कार किया गया था। इनमें से अधिकांश महिलाओं (420) 20-29 वर्ष के आयुवर्ग में थीं, उनमें 395 (79%) महिलाएं साक्षर थीं तथा 218 महिलाएं (43.6%) प्रथम प्रसूता थीं। जिन 241 महिलाओं का प्रसव कराया गया था, उनमें 150 (62.24%) महिलाओं का प्रसव अस्पताल में कराया गया था। 213 (42.6%) तथा 273 (54.6%) महिलाओं को टेटनेस टॉक्साइड की क्रमशः एक तथा दो डोज दी गई थी। कुल 500 उत्तरदाताओं में से 263 (52.6%) महिलायें आयरन एवं फालिक एसिड की गोलियों का प्रयोग कर रही थी तथा 237 (47.4%) इन्हें बिल्कुल नहीं ले रही थी। 93.4 प्रतिशत महिलाओं द्वारा यह विचार व्यक्त किया गया कि प्रसव-पूर्व परिचर्या अनिवार्य थी, जबकि 1.6 प्रतिशत महिलाओं के अनुसार यह बिल्कुल अनिवार्य नहीं थी तथा 3 प्रतिशत महिलाएं यह नहीं जानती थी य सेवायें आवश्यक हैं अथवा नहीं। प्रसव-पूर्व परिचर्या सेवाएं प्राप्त करने के लिए अस्पताल का चयन करने संबंधी मुख्य कारण के बारे में पूछे गए एक प्रश्न के उत्तर में 33.4 प्रतिशत महिलाओं द्वारा यह उल्लेख किया गया कि एक बड़ा अस्पताल होने की वजह से इससे उन्हें परिचर्या सेवायें प्राप्त हो सकती हैं।

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