

Determinants of First Birth Interval among the Santal Women of Purbi Singhbhum District, Jharkhand

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Abstract

The study aims at determining the factors affecting the first birth interval among the Santal women of child bearing age (15-49 years) in Purbi Singhbhum district, Jharkhand. 47.8 percent of women were found between the first birth interval of 13 months and 24 months. The length of the first birth interval tend to decrease with an increasing age of women. A significant difference in the mean first birth interval with respect to education ($p < 0.05$), household size ($p < 0.05$) and contraceptive use ($p < 0.01$) and working status ($p < 0.01$) was found. Women giving birth after an age of 18 years were six times more likely to have a birth interval of more than 12 months than women who gave birth before 18 years of age. Working women were two times more likely to have a long birth interval than women who did not work (Significant at p value < 0.01 during Bivariate analysis). Age at first birth, women's education and women's working status were among the best predictors for the first birth interval.

Keywords: First Birth Interval; Age at First Birth; Odds.

Introduction

The concept of fertility as a biological reproduction is often combined with the goal of human motivation and with reproductive history of the people involved. Reproductive histories such as birth, pregnancy and marriage have been used by social scientists to understand the fertility behaviour. A better understanding about fertility behaviour leads to a better insights relevant to a wide range of social and economic behaviour of a groups ranging from varied occupational and educational status, income distribution, marriage patterns and various child bearing practices (Fox, 2000). Birth histories analysis provides useful information undoubtedly regarding reproduction and family size preferences. The first visible outcome of fertility process is the birth of the

first child which is followed by the first birth interval. First birth interval can be defined as the length of time between the age at marriage and the age at first birth. However birth interval can be defined as the length of time between two successive live births which is dependent on the duration of each component (Leridon, 2007). The first birth marks a woman's transition into motherhood. It plays a significant role in women's life as it influences the number of child a woman bears in the absence of any fertility control throughout her reproductive period. The reproductive pattern of women can also be revealed by counting on the birth interval experiences. The process of family building consists of "a series of stages where women move successively from marriage to first birth, from first to second, and so on, until they reach their completed family size" (Rodriguez et.al 1980). Thus, the analysis of birth

interval also provides information on the progression from one parity to the next and on the time it takes to make the transition (Srinivasan 1980; Rodriguez et. 1980). Previous studies have shown the influence of social transformations such as urbanization, education and income on the first birth interval. Several correlates of birth interval identified in various studies are contraceptive use, age at marriage, age at first birth, marital cohort, household size, family type and maternal education. Family serves as the basic social institution and an important decision making unit of human society. The behaviour of an individual is moulded to a great extent during the process of socialisation at early as well as later ages (Davis et.al, 1956). There are many demographic consequences through which a family operates. For instance, reproduction taking place within a family is affected by combination of events or decisions taken by couples or other family members. These decisions are largely influenced by the parents and other relatives concerning when to marry, how soon to have their first child or when to stop child bearing by using birth control measures (Hill, 1965). Family type is closely related with life cycle of women (Lorimer, 1964). Education plays a pivotal role in explaining the variation in the first birth interval, as it may lead to changes in aspiration and shift in autonomy in the choice of marriage partner and desire for some period of independence before settling. Mostly educated women tend to have a long first birth interval (Hirschman,1980). Women with higher educational level and gainful employment are more likely to breach various traditional practices like early marriage and early child bearing. However, a study done in Kerala did not find any statistical effects in terms of the education of women on the first birth (Nair,1996). After education of women, age at marriage is the most widely analysed determinants of birth interval. Fertility analysts treat age at marriage to be a proximate determinant of fertility and assume that child bearing only occurs within marriage. This assumption is true for all the traditional societies where births out of the wedlock are not accepted by the society. With an early onset of marriage and child bearing, each stage of decision making is reached at a less mature age than women who began motherhood later. The same is applicable for couples who have to think about the decisions on number of children and use of contraception at an early age. These decisions will affect the birth interval consequently (Bumpass et al.,1978). In Indian context, it is the marriage which coincides with the beginning of exposure to the risk of pregnancy. Age at marriage is further correlated with age at first birth

and it serves as an important determinant for various birth transitions. Studies conducted on age at first birth indicated that the younger a women is at her first birth, the higher is the transition probability. Contraception has been a single most important intervention to reduce burden of unwanted pregnancy and promote healthy living among young women. An early onset of sexual activity (largely with marriage) and desperate demand on young adult to have child, such interventions would yield unmatched dividend in case of India. In social, cultural and political setting like India, access to or promotion of contraception among young adult is very limited because childbearing is essential for a women to obtain social status and prove herself fertile, as well as to continue the parental lineage which leaves them to play no role in the making of reproductive decisions (Jeebhoy et.al;1995).

Objective

The purpose of this paper is to study the pattern of first birth interval across the age groups and marital duration of women. An attempt is also made to identify predictor for determining the first birth interval among ST women.

Material and Methods

The study area for the present study was in the Purbi Singhbhum district of Jharkhand, which was formed in the year 2000 by combining the regions of Chotanagpur and Santal Pargana of Bihar. The state began with an adverse legacy of high levels of fertility, low levels of literacy and high income inequality. The data for the present study was collected in a cross sectional survey from first week of April through the last week of July 2015. At the time of first stage of sampling all the villages were arranged according to their size of population out of which fifteen villages of Golmuri cum Jugsalai block were selected on the basis of PPS Sampling (Probability Proportional to the size of the population). Interview schedule method was used to gather information from ever married women in the age group of 15-49 years and 500 household of Santal women was selected by random systematic sampling method. Three different schedules (household schedule and reproductive schedules) were prepared and pre-tested and pre-structured before the final interview. The doubted information were verified and confirmed from their spouses or elders of the family. Data was entered, edited, sorted and analysed using SPSS version 20 software. One way ANOVA, Bivariate correlation

and binary logistic regression analysis was performed to identify the association of dependent and independent variable and to also see the association between various social, biological variable affecting birth interval among the tribal women. The dependent variable to be tested is birth interval whereas the independent variables are age at marriage, age at first birth, woman's education, current age, women's occupation, household size, contraceptive use and marital duration. The variable birth interval is defined to be 2 if the birth interval is more than 24 months, 1 if the woman has a birth interval between 13 months and 24 months and 0 if the birth interval is equal to and less than 12 months. The eight independent variables of interest are age at marriage of women (less than and 16 years= 0, between 16 and 18 years=1, more than 18 years=2), current age of wife (less than and equal to 25 years=0, between 26 and 35 years=1, more than 35 years=2), educational level of woman (Illiterate=0, Primary education=1, more than primary education=2) working status (not working=0, working=1), contraceptive use (no=0, yes=1), marital duration(0= less than and equal to 5 years, 1=between 6 and 10 years, 2=more than 10 years),

household size (0= less than and equal to 4 members, 1= more than 4 members) and age at first birth (0= less than equal to 18 years, 1= more than 18 years). Prior ethical clearance was obtained from the Institutional Review Committee, Department of Anthropology, University of Delhi. Informed written consent from the participants of the study was obtained prior to the actual commencement of the study.

Results and Discussion

The first birth interval can be defined as the duration between the age at marriage of women and the age at first birth of women. Figure 1 shows the distribution of ever married Santal women across the three categories of first birth interval. 30.4 percent of women were found in the first category of first birth interval (less than and equal to 12 months), 47.8 percent of women were found between the first birth interval of 13 months and 24 months (second category). A small proportion of women (20.6 percent) were found in the third and last category of first birth interval (more than 24 months).

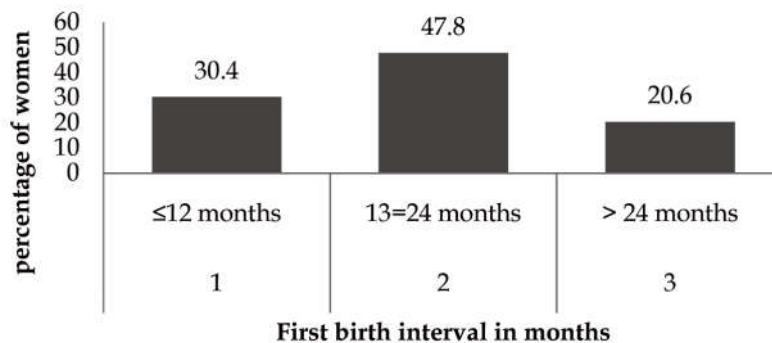


Fig. 1: Distribution of women across three categories of first birth interval

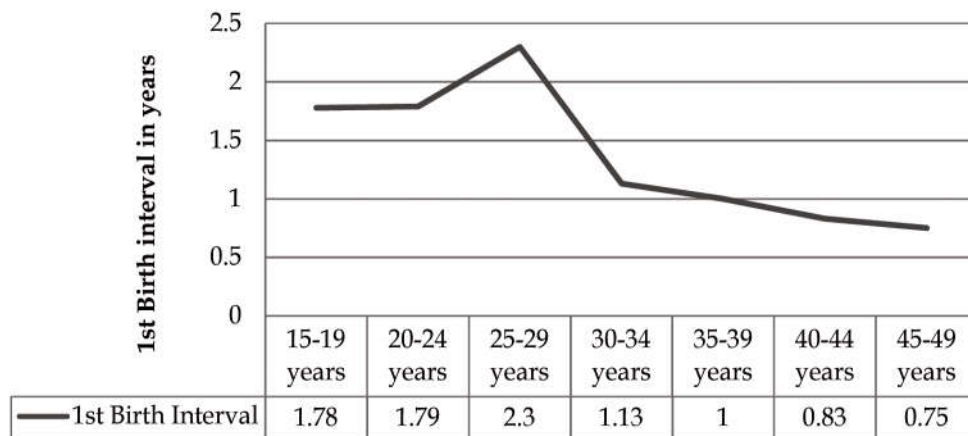


Fig. 2: Trends in the Mean First Birth Interval by age group

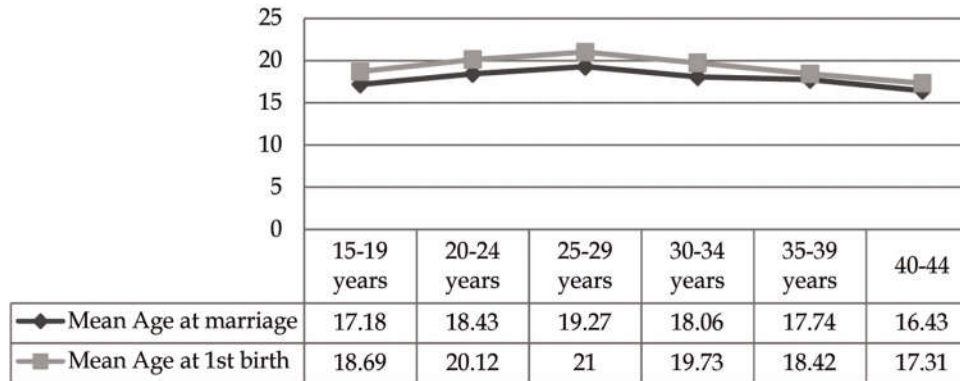


Fig. 3: Mean age at marriage and age at first birth by age groups

Figure 2 shows the trends in the first birth interval across the age groups of 15 through 49 years among Santal women. Women in the age group of 25-29 years spaced their birth for 27 months (2.3 years) followed by the women in the age group of 20-24 years (1.79 years). The first birth interval decreased further with an increasing age among Santal women.

Figure 3 shows the mean age at marriage and mean age at first birth by age groups. The mean age at marriage and the mean age at first birth tend to decrease with an increasing age group.

The factors like age at marriage and age at first birth have a direct influence on the fertility levels by

influencing the birth interval. In both developing as well as less developed countries, increase in age at marriage is most essential for reducing the fertility (Nag,1974). Some studies have emphasised on short birth interval for those women who married earlier in their life as compared to those who were married at the later stage of their life (Andorka, 1978, Mahadevan and Sumangala, 1987). The results of the first birth interval according to selected background characteristics of Santal women are presented in Table 1. It can be seen from the Table that 53.6 percent of ever married women in the studied population were found to be married before 16 years of age whereas only 38 percent of women were

Table 1: First birth interval according to selected background characteristics of Santal women

S. No.	Background Characteristics of respondents	Respondents		First Birth Interval Mean±S.D. (in years)	95% C.I. for Mean
1	Age at marriage	N	Percentage		
	<16 years	268	53.6	0.8±0.46	0.63-0.74
	16-20 years	43	8.6	0.8± 0.45	0.57-0.87
	>20 years	189	37.8	0.9 ±0.46	0.63-0.76
2	Current age				
	<35	329	65.8	1.4± 0.48	0.71-1.8
	>35	171	34.2	0.87± 0.36	0.65-0.99
3	Educational Status				
	Illiterate	132	26.4	0.86± 0.63	0.83-0.96
	Literate	368	73.6	1.4 ±0.81	0.99-1.7
4	Working Status				
	Not working	415	83	0.8± 0.48	0.7-0.92
	Working	85	17	1.8± 0.68	0.9-1.1
5	Contraceptive use				
	Yes	150	30	1.2±0.44	0.98-1.4
	No	350	70	0.84±0.67	0.76-1.1
6	Household Size				
	≤4	322	64.4	1.3± 0.58	0.99-1.5
	≥5	174	34.8	0.91± 0.48	0.91-1.1
7	Marital Duration				
	0-4	241	48.2	1.1± 0.63	0.99-1.8
	5-9	105	21	0.91 ±0.71	0.8-1.4
	10+	154	30.8	0.89± 0.23	0.79-0.91
8	Age at 1 st Birth				
	≤18	292	58.4	0.83± 0.41	0.72-0.89
	≥19	208	41.6	1.95± 0.52	1.82-0.2.4

married after 20 years. 65.8 percent of women were more than 35 years of age while 34.2 percent of women were less than 35 years. The mean first birth interval for the former was 16 months (1.4 years) and for the latter was 10 months (0.96 years). The mean birth interval for illiterate women (0.86 ± 0.63 years) was less than the mean birth interval of literate women (1.4 ± 0.81 years). The mean birth interval was long for women who worked (1.8 ± 0.68 years) than women who didn't work (0.8 ± 0.48 years). 30 percent of women who used any kind of contraceptive method had their first birth interval of 1.2 years whereas 70 percent of women who did not use any kind of contraception had their mean birth interval of 10 months. Household size emerged as an important factor in determining the length of first birth interval. Women having more family members had a short mean birth interval when compared to women who had less family members. It becomes easy for women to raise a child in a joint family structure as she receives help in child care through various kinship ties. Marital duration played no significant role in determining the first birth interval. Almost 70 percent of women who gave birth after 19

years spaced their birth for around 2 years when compared to women who gave birth at an early age of 18 years.

Table 2 presents the results of one way ANOVA, applied for studying variation among Santal women in the first birth interval with respect to age at marriage, age at first birth, marital duration, contraceptive use, education, occupation, household size and current age.

Table 2: Variation in the Birth interval among Santal with respect to selected background characteristics

Factor	F	P value
Age at marriage	0.286	0.751
Current Age	0.6	0.416
Educational Status	1.6	0.05*
Working Status	6.3	0.016**
Contraceptive use	2.2	0.023**
Household size	1.9	0.05*
Marital duration	0.212	0.809
Age at 1 st birth	32.29	0.007***

***p<0.001
 **p<0.01
 *p<0.05

Table 3: Rank order correlation matrix between various components of First Birth Interval

Variables	Y	X1	X2	X3	X4	X5	X6	X7	X8
Birth Interval(Y)	1								
Age at marriage (X1)	0.053	1							
Current Age(X2)	0.046	-0.315**	1						
Marital Duration(X3)	0.027	-0.545**	-0.968**	1					
Contraceptive use(X4)	0.240**	0.218**	-0.371**	-0.386**	1				
Household Size(X5)	0.245*	0.203**	-0.340*	0.354**	0.142**	1			
Occupation(X6)	-0.123**	0.238**	0.263**	0.296**	0.113**	0.054	1		
Education(X7)	0.302*	-0.220**	0.093*	0.140**	-0.102**	0.069	0.028	1	
Age at 1 st Birth(X8)	0.298**	0.967**	-0.293*	-0.516**	0.219**	-0.187**	0.257**	0.210**	1

**p< 0.01 level of significance (2-tailed).
 *. P<0.05 level of significance (2-tailed).
 N=500

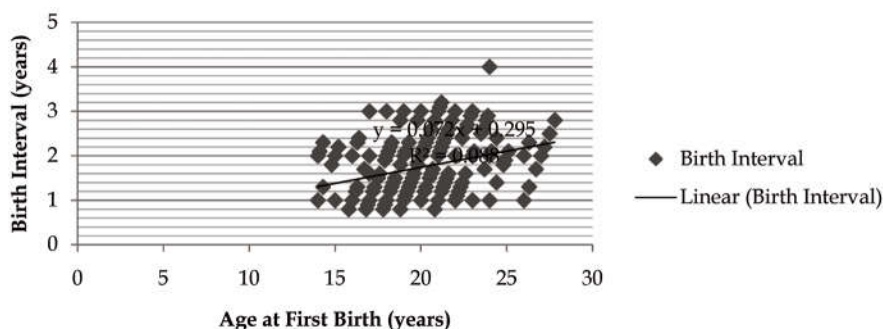


Fig. 4: Bivariate scattered plot diagram between birth interval and age at first birth

The F values are statistically non significant for first birth interval with respect to age at marriage, marital duration and current age, thereby suggesting no significant variations between and within groups. A statistical significant difference was found between

the working and non working women ($F=6.3$, $p<0.01$). The variables for different categories of age at first birth are statistical significant ($F=32.29$, $p<0.001$). Contraceptive use among women also played a significant role in spacing the first birth

interval. A statistical significant difference in the length of first birth interval was found between women who used any kind of contraceptive method and who did not use any kind of contraceptive method ($F=2.2, p<0.01$). The illiterate and literate groups of Santal women showed differences in the mean first birth interval ($F=1.6, p<0.05$). A statistically significant difference in mean first birth interval exists in the two categories of household size of women ($F=1.9, p<0.05$). The results of bivariate correlation between the dependent variable (birth interval) and independent variables for Santal women are presented in Table 3.

Birth Interval among women was seen to be positively correlated with age at first birth (significant at $p<0.01$), education (significant at $p<0.05$), contraceptive use (significant at $p<0.05$) and household size (significant at $p<0.05$) but negatively correlated with working status of women (significant

at $p<0.01$). A positive linear correlation was found between the age at first birth and birth interval indicating that the length of birth interval increases with an increase in age at first birth of women (Figure 4). The variable age at marriage was negatively correlated with household size, contraceptive use and marital duration. However, education among the ever married women was found to be positively correlated with current age, marital duration but negatively correlated with contraceptive use (significant at $p<0.01$). Similarly, Current age is positively correlated with household size (significant at $p<0.001$) and negatively correlated with old size, birth interval, education and marital duration (significant at $p<0.01$). Age at first birth is positively correlated with age at marriage and contraception (significant at $p<0.01$) and negatively correlated with current age, marital duration, birth interval and education (significant at $p<0.01$).

Table 4: Predictor variables for Dependent variable (Birth Interval) in Binomial Logistic Regression Analysis for women in the age group (15-49) years

Predictor Variables	B	S.E.	Wald	Exp(B)	95% C.I. for EXP(B)	
					Lower	Upper
Age at 1 st Birth	1.759	.293	36.138	5.80***	3.272	10.300
Education	.284	.249	1.307	2.32**	1.816	5.164
Working Status	.646	.323	4.011	2.90**	1.014	3.593
Household size	.055	.229	.058	1.87*	.675	2.654
Marital duration	-.058	.207	.077	.944	.629	1.417
Contraceptive use	.133	.269	.244	1.4*	.674	1.937
Current Age	.170	.141	1.445	1.18	.898	1.564
Age at first marriage	-.404	.152	7.089	.668	.496	.899

N=500

*** $p<0.001$

** $p<0.01$

* $p<0.05$

Table 4 shows the results for binomial logistic regression analysis with one dependent variable (first birth interval) and eight independent variables among ever married Santal women. Findings of the analysis showed that literate women were two times more likely to space their birth than illiterate women ($OR=2.3, CI=1.81-5.16$). Women working were twice more likely to space their birth when compared to women who did not work ($OR=1.9**, CI=1.01-3.59$). The age at 1st birth, if below 18 years, contributed significantly to small birth interval compared to women giving birth after 18 years ($OR=5.8, CI=3.27-10.30$) as women giving birth after an age of 18 years were six times more likely to have a birth interval of more than 12 months than women who gave birth before 18 years of age. Women with large household size were at significantly higher risk of small birth interval than woman with small household size ($O.R.=1.8*, CI=0.4-1.6$). Women using any kind of contraceptive method were having a birth interval of

more than a year that is 12 months when compared to women who did not use contraceptive method. The analysis revealed that variables like women's education, women's occupation and contraceptive use ($OR=1.4*, CI=0.6-1.9$) were found to be the best predictor for determining the first birth interval among ever married women. The independent variables like age at marriage, marital duration and current age of women had no significant effect in determining the first birth interval.

Conclusion

The first birth interval showed a decreasing trend with an increasing age (women belonging to youngest age group had a long first birth interval). The mean age at marriage and mean age at first birth was found to be higher for the women in the age

groups 25 through 29 years. A positive linear correlation was also seen between first birth interval and age at first birth. The mean first birth interval was higher for women with small household size. No significant variation was found between the groups of marital duration, age at marriage and current age with respect to first birth interval. The mean difference between the groups of age at first birth, household size, education, working status and contraceptive use showed statistically significant difference with respect to the first birth interval. The binary logistic regression model in the present study highlighted that out of eight independent variables only five independent variables have been observed to have their significant impact on determining the length of first birth interval. They are women's working status, women's education, age at first birth and contraceptive use. The independent variables like age at marriage, marital duration and current age of women had no significant effect in determining the first birth interval. It is assumed that women with more education are more likely to use contraception to prolong their birth intervals and may have access to information as in turn; they are more likely to be engaged in their occupations that are not readily compatible with bearing children.

References

1. Andorka R. Determinants of fertility in advanced societies. London: Methuen. 1978.
2. Bankole A. "Desired fertility and fertility behaviour among the Yoruba of Nigeria: A study of couple references and subsequent fertility". Population Studies. 1995; 95(2): 317-328.
3. Bumpass L, Rindfuss R, Janosik R. Age and Marital Status at first birth and the pace of Subsequent Fertility, Demography. 1978; 15(1): 75-86.
4. Fox GL. The Child Bearing decision: Fertility Attitudes & Behaviour, Sage Publication, New Delhi. 2000.
5. Hill R. "Hypothesis from family theory on trail in action program" in Donald J Bogue (ed.) Mass Communication and Motivation for Birth control. Chicago: University of Chicago, Community and family study centre. 1967.
6. Hirschman C, Ronald R. "Social, Cultural, and Economic Determinants of Age at Birth of First Child in Peninsular Malaysia." Population Studies. 1980; 34(3): 507-518.
7. Hobcraft J, Mc Donald J. 1984. Birth Intervals, WFS, Comparative Studies, No. 28. Voorburg, Netherlands: International Statistical Institute.
8. Jejeebhoy S J. Women's Education, Autonomy, and Reproductive Behaviour: Experience From Developing Countries. Ox-ford: Clarendon Press. 1995.
9. Kinsley D, Blake J." Social structure and fertility" Economic Development and cultural change. 1956; 4(3).
10. Leridon H. Studies of Fertility & Fecundity: A comparative Approaches from Demography & Epidemiology". C.R. Biologies, 2007; 330; 339-346.
11. Lorimer F. Culture and Human Fertility, Paris, UNESCO. 1964.
12. Mahadevan K, Sumangala M.. Social development cultural change and fertility decline: a study of fertility change in Kerala. Sage publications, New Delhi. 1987.
13. Nag M. Socio- cultural patterns, family cycle and fertility, In: The population debate: dimensions and perspectives. Papers of world conference 3, Bucharest, Volume 2, United Nations, New York. 1974.
14. Nair SN."Determinants of Birth Intervals in Kerala: An Application of Cox hazard Model" Genus. 1996; 52(3-4): 45-67.
15. Rodriguez Z, Hobcraft J. Illustrative Analysis: Life Table Analysis of Birth interval in Colombia. WFS Scientific Reports Series, 16, Voorburg, Netherlands:International Statistical Institute. 1980.
16. Srinivasan K. Birth Interval Analysis in Fertility Surveys. WFS, Scientific Reports, No.7, London: World Fertility Survey. 1980.