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## **Does Pregnancy Intention Impact Breastfeeding Duration in India: An Insight from NFHS-3**

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### **Abstract**

When a pregnancy comes sooner than desired or comes at a time when the mother had wished for no more children, the complexities associated with birth of that child are more likely to be perceived as complications. National Family Health Survey data (2005-2006) has been used to study the extent of association between pregnancy intentions and duration of breastfeeding. Pregnancy intention has been classified as pregnancies that are intended and unintended (mistimed or unwanted). A considerable percent (22 percent) of pregnancies in India are unintended. Hence, it becomes important to examine the impact of unintendedness on breastfeeding practises. However, it has been seen from the analyses that children born out of unintended pregnancies are more likely to have prolonged breastfeeding duration as compared to children born out of intended pregnancies. The KM curves prove this fact. Hence, pregnancy intention is not an important factor determining duration of breastfeeding in India.

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### **Introduction**

Safe and reliable family planning methods and related reproductive health services for all by 2015 are primary goals of the ICPD's Programme of Action. Fertility has declined in many countries worldwide as family planning programmes have met the needs of couples and individuals for contraceptives to reduce fertility. In the developing world as a whole, the total fertility rate (TFR) or the average number of births per woman, has fallen from 5.7 births per woman in 1970 to 3.5 by 2000, excluding China (UNs, 2000). Still, one-third of births (32 percent) in the developing world are ill timed or unwanted, as documented in the Demographic and Health Surveys estimates for 51 developing countries (cited in IGWG and WHO, 2005). Unintended pregnancies can have serious health, social, and economic consequences. Such pregnancies may be unwanted (a baby is not wanted at any time) or mistimed, yet wanted (a baby is wanted eventually). Intended pregnancies are those conceived when desired (Kaufmann et al., 1997).

The impending birth of any child takes place within a complex of social relations, the dynamics of which carry implications for the child itself, the family affected by the pregnancy, and the community and society within which the pregnancy and birth take place. When a pregnancy comes sooner than desired or comes at a time when the mother had wished for no more children, the complexities associated with the birth of that child are more likely to be perceived as complications (Johnson et al., 2004). Prior research has documented a relationship between unintended pregnancy and negative consequences for infants and children. Across the different constructions of the pregnancy intention measure, children from unintended pregnancies have poorer outcomes. They are more likely to have less than

excellent health, undesirable activity levels and below median scores on a development assessment. Researchers and policy makers need to continue their concern about the effects of unintended pregnancies and need widely available measures to understand determinants, consequences and prevention strategies (Crissey, 2005). However, over the last several decades, researchers and policy makers have devoted considerable attention to women's pregnancy intentions (Pulley et al, 2002).

A woman's pregnancy intentions have been shown to be associated with numerous health-related behaviours and birth outcomes. For women whose pregnancies were not planned, therefore, breast-feeding is particularly important. First, breast milk may provide protection from morbidity for which unplanned infants are at risk. Second, the act of breast feeding may stimulate mother infant bonding and subsequently help the mother and infant overcome the difficulties associated with parenting among women with unplanned pregnancies (Dye et al., 1997). Moreover, breastfeeding is an important factor in reducing child morbidity and mortality (Jones et al., 2003). Prolonged breastfeeding provides important health benefits to children, especially those living in underprivileged populations (Shapiro-Mendoza et al., 2007). However, an unwanted or mistimed pregnancy may jeopardize initiation or duration of lactation if the stress of the pregnancy engenders conscious or unconscious negative feelings towards the newborn, thus inhibiting mother-infant bonding or reducing the mother's milk supply (Ueda et al., 1994).

The planning status of a pregnancy may affect a woman's prenatal behaviours and the health of her newborn. However, whether this effect is independent or is attributable to socioeconomic and demographic factors has not been explored using nationally representative data (Kost et al., 1998). Hence, the broad objective of the paper is to study the extent of association between pregnancy intentions and duration of breastfeeding in India.

### **Data source and methodology**

National Family Health Survey-3 (NFHS-3) conducted in the year 2005-2006 has been used for the analysis. The NFHS-3 interviewed men of the age group 15-54 and women (never married as well as ever married women) of the age group 15-49. It included questions on several emerging issues such as perinatal mortality, male involvement in maternal health care, adolescent reproductive health, higher risk sexual behaviour, family life education, safe injections and knowledge about tuberculosis. In addition, NFHS-3 carried out blood testing for HIV to provide for the first time in India, population-based data on HIV prevalence. NFHS-3 collected information from a nationally representative sample of 109041 households, 124385 women of the age group 15-49 and 74369 men of the age group 15-54. The NFHS-3 sample covers 99 percent of India's population living in 29 states (IIPS and MI, 2007a).

In order to determine the pregnancy intention, the variable considered is the time women wanted pregnancy. The specific question asked in the survey regarding this variable is "At the time you were pregnant with (NAME), did you want to become pregnant then, did you want to wait until later or did you want no (more) children at all?" (IIPS and MI, 2007b). This question is asked for children born in the last five years preceding the survey (after January 2001). In the paper, intended pregnancy include wanted pregnancy and unintended comprises of both mistimed and unwanted pregnancies (Kaufmann et al., 1997; Brown and Eisenberg, 1995). The unit of analysis are last-born, surviving children younger than 36 months from

singleton births. For the ease of writing, at places women have been referred which implies pregnancy intentions of children born to women. In NFHS-3, the question pertaining to duration of breastfeeding is: “For how many months did you breastfeed (NAME)?” (IIPS and MI, 2007b).

A number of explanatory variables have been used to study the factors determining pregnancy intentions and duration of breastfeeding in India such as, age of the women, age at first marriage, age at first birth, total children ever born, place of residence, religion, caste, marital status, education, standard of living and women’s current working status. Four categories of religion have been made i.e. Hindu, Muslim, Christian and Others. The last category includes Sikh, Buddhist/ Neo Buddhist, Jain, Jew, Zoroastrian/ Parsi and no religion. Caste has four categories: scheduled caste, scheduled tribe, other backward castes and others (those who do not belong to other three categories). The regions have been formed according to the classification done in NFHS-3(IIPS and MI, 2007a).

1. The northern region consists of Delhi Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan and Uttaranchal.
2. The Central region consist Madhya Pradesh, Chhattisgarh and Uttar Pradesh.
3. The Eastern region comprises Bihar, Jharkhand, Orissa and West Bengal.
4. The Northeast comprises all the eight north eastern states.
5. The west includes Goa, Gujarat and Maharashtra.
6. South comprises of Andhra Pradesh, Karnataka, Tamil Nadu and Kerala.

### ***Cox proportional hazard analysis***

Cox regression, which implements the *proportional hazards model* or *duration model*, is designed for analysis of time until an event or time between events. One or more predictor variables, called covariates, are used to predict a status (event) variable. The net contribution of pregnancy intention on termination of breastfeeding has been assessed by using Cox proportional hazard model. The technique of proportion hazard model is similiar to regression analysis and also useful to analysis the process of survival in which termination of event (e.g. breastfeeding) may occur at any time. It also models the influence of a set of variables on the hazard of termination. The hazard function at time t (termination of breastfeeding), denoted by  $\lambda(t,z)$ , is expressed as

$$\lambda(t,z) = \lambda_0(t) * \exp \sum X_i \beta_i$$

where,  $X_i$  are explanatory variables,  $\beta_i$  are regression coefficients and  $\lambda_0(t)$  is a baseline hazard. It is assumed that the explanatory variables influence the hazard by the same degree at each time point (hence the term proportional hazards) (Sivakami, 2003).

In short, Kaplan-Meier (KM) and cox proportional hazards regression methods of survival analysis have been employed to examine the distribution of breastfeeding discontinuation by pregnancy intention (Shapiro-Mendoza et al., 2007).

## Results

The Table 1 depicts that unintended pregnancy is around 22 percent in India. It is highest in the central region (29 percent) followed by eastern region (23.57 percent). It can be seen that these are the states where total fertility rate is also high (IIPS and MI, 2007a). However, unintended pregnancy is lower than the national average in western region (14.31 percent), northern region (16.64 percent), south (17.57 percent) and north east (19.38 percent).

**Table 1:** Percent of last-born surviving child younger than 36 months from singleton births by regions according to pregnancy intention, India, NFHS-3, 2005-2006

Regions	Pregnancy intention	
	Intended	Unintended
	(n=25936)	(n=7252)
North	83.36	16.64
Central	71.05	28.95
East	76.43	23.57
North east	80.62	19.38
West	85.69	14.31
South	82.43	17.57
<b>India</b>	<b>78.15</b>	<b>21.85</b>

Unintended pregnancy increases with age of women (Table 2). It increases from 17 to 38 percent from age 15-24 to above 34 years. Age at first marriage and age at first birth show similar result. In both the cases, unintended pregnancy has negative relation whereas intended pregnancy has positive relation. A steep upward gradient can be seen with total children ever born. If total children ever born is less than 2 then unintended pregnancy is around 14 percent and it increases to 42 percent if total children ever born is above 4.

**Table 2:** Percent of last-born surviving child younger than 36 months from singleton births by demographic characteristics according to pregnancy intention, India, NFHS-3, 2005-2006

Demographic Characteristics	Pregnancy intention	
	Intended	Unintended
	(n=25936)	(n=7252)
<b>Age (years)</b>		
15-24	82.91	17.09
24-34	76.41	23.59
Above 34	61.95	38.05
<b>Age at first marriage (years)</b>		
Less than 20	77.26	22.74
Above 20	83.61	16.39
<b>Age at first birth (years)</b>		
Less than 20	76.01	23.99
Above 20	82.73	17.27
<b>Total children ever born</b>		
Less than 2	86.05	13.95
2-4	73.76	26.24
Above 4	58.01	41.99

The Table 3 reveals the percent births by socio-economic characteristics according to pregnancy intention in India. The place of residence does not show much variation. Unintended pregnancy is 20.56 percent and 22.31 percent in urban and rural areas respectively. It is highest among Muslims (27 percent). When caste is considered, it does not

show notable difference except the fact that unintended pregnancy is lowest among scheduled tribe (18.66 percent). Lower percent of children born to women with higher education (14 percent) are unintended as compared to women who are illiterate and having primary or secondary level of education. Marital status too does not reveal considerable difference. However, high percentage of children born to unmarried women is unintended (36 percent). Unintended pregnancy has indirect relation with standard of living whereas intended pregnancy show direct relation. Higher percentage of not working women have unintended pregnancy (22 percent) than working women (21 percent).

**Table 3:** Percent of last-born surviving child younger than 36 months from singleton births by socio-economic characteristics according to pregnancy intention, India, NFHS-3, 2005-2006

Socio-economic Characteristics	Pregnancy intention	
	Intended (n=25936)	Unintended (n=7252)
<b>Place of residence</b>		
Urban	79.44	20.56
Rural	77.69	22.31
<b>Religion</b>		
Hindu	78.98	21.02
Muslim	73.31	26.69
Christian	77.86	22.14
Others	84.65	15.35
<b>Caste</b>		
Scheduled caste	77.15	22.85
Scheduled tribe	81.34	18.66
Other backward castes	78.54	21.46
Others	77.69	22.31
<b>Education</b>		
Illiterate	76.84	23.16
Primary	77.52	22.48
Secondary	78.92	21.08
Higher	85.66	14.34
<b>Marital status</b>		
Unmarried	63.64	36.36
Currently married	78.15	21.85
Widowed	78.66	21.34
Divorced	78.57	21.43
Not living together	79.88	20.12
<b>Standard of living</b>		
Low	75.71	24.29
Medium	76.48	23.52
High	80.59	19.41
<b>Working status</b>		
Not working	77.78	22.22
Working	79.15	20.85

### *Breastfeeding patterns*

The impact of pregnancy intentions on breastfeeding pattern has been studied by considering children still breastfeeding at the time of the interview as censored observations. Figure 1

compares the probability that children will continue to breastfeed at given times from births to 36 months of age by pregnancy intention using KM survival curves for India. It can be seen that children who are unintended have a higher probability of continued breastfeeding relative to children who are intended. However, the difference is not notable in the initial months. The elongated line of breastfeeding of unintended pregnancy at the later months is quite considerable.

**Figure 1:** Kaplan-Meier survival curves showing the probability that children will continue to breastfeed at given times from births to 36 months of age by pregnancy intention, India, NFHS-3, 2005-2006

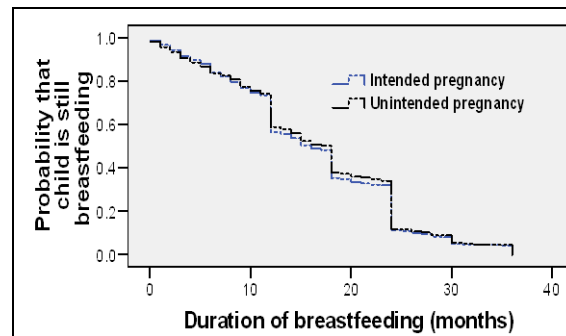


Table 4a reveals Hazards ratios (HR) for breastfeeding termination among mothers of last-born children younger than 36 months by pregnancy intention in India. Children born to mothers at older ages are less likely to have terminated breastfeeding compared to children born to mothers at younger ages irrespective of pregnancy intentions. However, it can be seen that children born to mothers with age at marriage above 20 years are 12 and 7 percent more likely to have terminated breastfeeding among children born out of intended and unintended pregnancies respectively as compared to children born to women with age at first marriage below 20 years. Similarly, age at first birth of mothers of children with intended or unintended pregnancy have positive relation with short breastfeeding period. Women having higher total children ever born are more likely to have shorter breastfeeding duration. The bivariate results also depict this fact that unintended pregnancies increases with increase in total children ever born.

**Table 4a:** Hazards ratios (HR) for breastfeeding termination among mothers of last-born children younger than 36 months, by pregnancy intention, India, NFHS-3, 2005-2006

Characteristics	Pregnancy intention	
	Intended	Unintended
<b>Age (years)</b>		
15-24 <sup>®</sup>		
24-34	0.76***	0.74***
Above 34	0.70***	0.66***
<b>Age at first marriage (years)</b>		
Less than 20 <sup>®</sup>		
Above 20	1.12***	1.07
<b>Age at first birth (years)</b>		
Less than 20 <sup>®</sup>		
Above 20	1.11***	1.09
<b>Total children ever born</b>		
Less than 2 <sup>®</sup>		
2-4	1.05	1.05
Above 4	1.18***	1.18

<sup>®</sup>= Reference category. Significance level \*\*\*p<0.01 \*\*p<0.05

It can further be seen that children born out of intended and unintended pregnancies in rural areas are 15 and 17 percent respectively less likely to face terminated breastfeeding (Table 4b). Not much variation in direction is notable between intended and unintended pregnancy for breastfeeding duration for other explanatory variables. However, the magnitude by which the variations occur does differ to some extent.

Children born in high standard of living are more likely to have shorter breastfeeding duration as compared to those in low standard of living (Table 4b). Moreover, intended and unintended children in high standard of living are 15 and 11 percent respectively more likely to have shorter breastfeeding duration as compared to low standard of living. Children born to working women are less likely to have terminated breastfeeding as compared to children born to non-working women. Regions too show certain variations. Children born in central, east and north eastern regions are less likely to have terminated breastfeeding as compared to those in the northern regions whereas those born in west and south are more likely to have terminated breastfeeding.

**Table 4b:** Hazards ratios (HR) for breastfeeding termination among mothers of last-born children younger than 36 months, by pregnancy intention, India, NFHS-3, 2005-2006 (Conti...)

Characteristics	Pregnancy intention		Characteristics	Pregnancy intention	
	Intended	Unintended		Intended	Unintended
<b>Place of residence</b>			<b>Standard of living</b>		
Urban®			Low®		
Rural	0.85***	0.83***	Medium	1.06	1.03
<b>Religion</b>			High	1.15***	1.11
Hindu®			<b>Working status</b>		
Muslim	1.05	0.99	Not working®		
Christian	1.24***	1.22	Working	0.91***	0.89**
Others	0.96	1.42**	<b>Regions</b>		
<b>Caste</b>			North®		
Scheduled caste®			Central	0.91**	0.90
Scheduled tribe	1.11	1.19	East	0.77***	0.84
Other backward castes	1.04	1.06	North east	0.81***	0.85
Others	1.01	1.04	West	1.06	1.06
<b>Education</b>			South	1.02	1.11
Illiterate®					
Primary	0.97	0.93			
Secondary	1.06	0.92			
Higher	1.20***	1.21			
<b>Marital status</b>					
Currently married®					
Others	1.06	0.94			

®= Reference category. Significance level \*\*\*p<0.01 \*\*p<0.05

**Note:** Others (in marital status) include never married, widowed, divorced and separated.

## Conclusions

Unintended pregnancies affect the well being of women, children, and families. In fact, some health experts believe that unintended pregnancies carried to term are more likely to involve complications (cited in IGWG and WHO, 2005). The result, however, reveal that births out of unintended pregnancies is breastfed for a longer duration as compared to intended pregnancy. Hence it can be concluded that in India, pregnancy intentions do not have notable influence on duration of breastfeeding. This study is in accordance to the study done in Bolivia and Paraguay (Shapiro-Mendoza et al., 2007). On the contrary, studies done by Korenman et al. (2000) and Dye et al. (1997) suggest that shorter duration of breastfeeding is associated with unintended pregnancy.

Breast-feeding has been shown to have numerous health benefits for both women and their infants. Despite the documented benefits of breast-feeding, rates of breast-feeding continue to be low among certain population subgroups. Effective breast-feeding promotion strategies need to account for special interventions designed to address the needs of these selected subpopulations. Understanding the consequences of unintendedness will facilitate evaluations of preventive programs and remedial interventions, as well as facilitate assessments of the effects of ineffective contraceptive use and limited access to abortion services (Bayder, 1995).



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