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Infant Deaths, MDG Goal (4) and Population Policy Achievements in India: Role of Fathers

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Abstract:

Reducing infant deaths is the prime objective of the Government of India to meet commitment of MDG goal (4). This paper aims at analyzing levels of fatherhood and infant deaths in states with and without replacement levels of fertility. It also identifies the factors expediting the realization of MDG goal (4) and National Health Policy (2002) achievements through realization of fatherhood across North and South regions in India. Socio-economic and demographic differentials at various levels of fatherhood and its' relationship to infant deaths have been analyzed using NFHS-3(2005-06) data. Using Logistic regression, the socio-economic and demographic factors explaining various components of fatherhood in two different regions have been analyzed. The role of fathers has been found very critical in reducing infant deaths and assert that increasing the role of father in child care helps accelerate the attainment of MDG Goal (4) faster and also helps in achieving the goals of Population Policy.

Key words: MDG, Fathers, Involvement, Region, Infant Deaths, Child Care, Population Policy

1. Introduction

The individual countries have asserted their support through their National Health or Population Policies towards achieving the Millennium Development Goals by 2015. Discussions in the context of mother's contribution towards child rearing and caring, the work situations and conditions have changed considerably during the last decade, thus making the involvement of the father crucial in early child development. The father's role in the family and social expectation from him has changed considerably in the past three decades. Previously, he was expected to provide economic support, but the "new father" is expected to also provide "day-to-day" physical and emotional care to children and also act as an equal partner of the mother. Despite changing expectations, researches show that although the level of the paternal involvement has increased, fathers continue to devote significantly less attention than mothers towards rearing and caring of children.

There is still a lack of clear and consistent definition of fatherhood (not only the ability to bear children), and father's involvement in the care of child's health. This has become an obstacle in light of changing social expectations for fatherhood. Lamb and his colleagues (1987) have suggested a three part model of paternal involvement that focuses on interaction, accessibility and responsibility of the father, however, this paper focuses on accessibility of the father who may or may not be directly engaged in interaction but is still available (physically) and husband-wife communication for the care of children (*quoted in McBride and Rane, 1998*).

The other two categories of the model, i.e. interaction (fathers one-on-one interaction with children such as playing with them, feeding them and so forth) and responsibility (assuming responsibility of the welfare and care of the child) are not in the scope of the present study. Another aspect of fathering that is covered by this paper is that it situates fathering in the geographical context, where the cultural practices distinguish fathers in a variety of different ways beyond traditional biological father living with his own children. This is because cultural scripts guide "behavior and expectations" of fathers (Eggebeen and Knoester, 2001). Thus this paper tries to capture the emerging role of father to understand their "newfound role," which is in transition due to women's recent engagement in work force and empowerment. Further, the Government of India has shown its' commitment through the National Health Policy (2002) as one of its strategies to involve males for reducing infant and maternal deaths. In addition, following MDG goals: (3) promote gender equality and empower women; (4) reduce child mortality; and (5) improve maternal health are also committed to increase the role of males in reducing infant deaths. Therefore, in this paper exploration of the extent of inter-linkages between fatherhood and infant deaths is done, and this is discussed in the milieu of MDG goals and National Health Policy in India (2002).

2. Importance of the Study

Since men are still the dominant household decision-makers in the Indian context, it becomes vital to understand the extent to which fathers are involved in children's life and how does it contribute towards curbing infant deaths? The available literature on child's health has revealed that mothers in developing countries have long been the subject of studies; however, very little research has focused on fathers' involvement regarding child health needs. The Cairo Conference (1994) has brought in light the need to focus on men's involvement in health care of mother and child. Currently, a lot of research is being done in India on care seeking behavior of children considering only mother's perspective. Most of the studies have reported that one of the important barriers to seeking appropriate treatment for child is the lack of adequate support by child's father. They have either no time, or money, are not willing to adopt family planning methods that affect infants and children deaths or are seriously affected by cultural prejudices.

Thus it is important to get the complete representation of issues related to infants and children's health and fathers' involvement from the fathers' perspective. This study attempts to identify socio-economic, cultural and other factors that affect fathers' contribution to child's health care. The identification of such factors will not only help us understand the role of fathers in child health care but is also useful to design intervention strategies so that gradual and systematic changes can be brought about by the intervention strategies in father's behavior toward child health requirement.

3. A Glimpse through Changes in Health and Population Policies in India

In India, "Beyond Family Planning" measures were taken in the Seventh Five-Year plan (1985-90) to affect the course of fertility through age at marriage, female literacy, the status of women, old age security, and preference for sons. Moreover, reduction of infant mortality also became an important component of the health policy (Ramachandrudu and Kamamma, 1997). Subsequently, the Eighth Five-Year Plan (1992-97) coincided with the Cairo conference in 1994 which influenced the Governments to change its policy from the target approach to the child and women welfare approach. Another suggestion to incorporate decentralized planning at the grassroots level was made. The main instruments for such planning were the *Panchayat* institutions at the village level and those prepared by the *Nagarpalikas* at the town and the city level (Bhende and Kanitkar, 2002). Furthermore, an integrated Maternal and Child Health (MCH) and immunization programme was also initiated in 1992-93. The World Bank and the United Nations Children's Funds funded MCH and the Child Survival and Safe Motherhood Programme (CSSM). The CSSM programme aimed at strengthening the immunization services in the states where the services were poor. In the districts with high infant and maternal mortality rates, training was provided to traditional birth attendants to ensure the safe motherhood component. Also distribution of aseptic delivery kits and strengthening the first referral units for dealing with high risk and obstetric emergencies were also provided to pregnant women (Bhende and Kanitkar, 2002).

The National Population Policy (NPP) of 2000 announced by the Central Government of India (Tripathi and Nandan, 2006) was incorporated in the Ninth Five-Year Plan (1997-2002). This policy affirmed the government's commitment towards voluntary and informed choice and consent of citizens, while also providing reproductive health-care services (Tripathi and Nandan, 2006). The aim of this policy was to combat high birth rate and reduce infant mortality and maternal mortality rates in India and to address unmet need for contraception. To improve the social and demographic indicators merely through increased investment was difficult, so the Government realized that in addition to the investment in the health sector, significant change in the social attitudes and behavioral responses of the people were also crucial to create awareness among masses. In this process, the role of women became critical in order to achieve social mobilization and community participation. The process of empowering women was carried forward into the social and economic spheres. Special emphasis was placed on ensuring the control of social infrastructure, particularly in health and education, in the public domain and was vested in women and women's organizations (Planning Commission: 2006).

The National Population Policy also laid emphasis on the importance of effective development policies that focuses on the social well being of people, with a stronger emphasis on gender equality and equity in programmes, thereby strengthening the quality of family planning and health services (Tripathi and Nandan, 2006).

In the Tenth Five-Year Plan (2002-2007), there is a continued commitment to providing essential primary health-care, emergency and life saving services to the Indian masses. Furthermore, the services under the family welfare programme are provided free of cost, depending on the needs of the people served (Tripathi and Nandan, 2006). The National Rural Health Mission project (NRHM) is also developed. This Mission (2005-2012) seeks to provide services only to those states with weak health-care infrastructure. For this purpose states have signed a Memorandum of Understanding with the Government of India, indicating their commitment to increase contribution to Public Health Budget (preferably by 10 percent each year) (NRHM Document, 2006). The aim of this project is to provide infrastructure, availability and access to health-care facilities in the rural areas. Under NRHM schemes, Primary Health-care Centers and Community Health-care Centers are strengthened to provide improved referral services and are expected to operate 24 hours a day (Tripathi and Nandan, 2006). The goal is to reduce the maternal mortality and infant mortality rates in rural areas. A major shift in the approach is made by concentrating on revitalizing local health traditions and promoting healthy lifestyles (NRHM Document, 2006). Another aim of this project is to produce data for the Ministry of Health and Family Welfare for the effective use of resources. This will help to organize and manage the funds within the constraints of social, cultural, economic, epidemiological conditions. It is also recommended to make NRHM a bottom up approach to development (Banerji, 2005). After the experience of the period 2005-2012, the NRHM and NUHM was merged to make National Health Mission (2013-2017). Thus the above section demonstrates a constant effort of the Indian government to provide better health facilities to its citizens. Special attention is paid to people who are secluded from the mainstream urban life by National Rural Health Mission.

4. Policy Interventions and the Millennium Development Goals

In the late 20th century, there was a substantial reduction in infant and child mortality rates in low and middle-income countries. Despite this reduction, more than 10 million children are still dying each year, most from preventable causes and almost all in poor countries (Black et al. 2003). Most of these deaths are attributed to infant mortality, defined as the “children dying within the first year of life” (Bhende and Kanitkar, 2002). The World Summit for Children in 1990 was called to reduce child mortality below 70 deaths per 1000 live births by the year 2000. However, the targeted reduction was reached for only 5 of 55 countries (Black et al. 2003). A related development to improve the health scenario was the International Conference on Population and Development (ICPD) organized by the United Nations at Cairo in 1994, which is considered as a “watershed in the implementation of population and health programs.” The program of action adopted by ICPD recommended a set of qualitative and quantitative goals, one being infant, child and maternal mortality reduction (Srinivasan et al. 2007). In 2002, the Millennium Development Goals (MDGs) were adopted, with the fourth goal specifically focusing on reducing infant and under-five mortality by two-thirds by the year 2015 (Agarwal, 2005; WHO 2007). In India, there has been a considerable effort to reduce under-five mortality over the past three decades, but 2002 data indicated an under-five mortality rate of 90 per 1000 live births (WHO India, 2007). With this pace, India is projected to only achieve an under-five mortality of 64 per 1000 live births by 2015, which is well short of MDG goal of 41. This slow pace of reduction in the IMR is an impediment in the country’s development (WHO India, 2007). After the 1994 United Nations International Conference on Population and Development in Cairo, the major individual and organizational focus of this conference became reproductive health and rights. One concern was the inclusion of men in women’s reproductive health (Dudgeon & Inhorn, 2004). The role of men as a responsible father becomes crucial in decision-making regarding family size and composition. This is so because, with the increase in education and exposure to mass media, “traditional orientations, ways of thinking and lifestyles are recast and displayed by universalistic forms of learning and teaching, as well as by universalistic forms of knowledge and language” (Beck and Beck, 2002). Furthermore, most of the field investigations and interventions undertaken by various Non-Government Organizations tended to exclude men folk. Currently, there are a number of NGOs working with men and their findings have shown that there are limited improvements in the women and child health without men’s support and active involvement. This is so because in developing countries like India, the burden of taking care of the children is put on the mothers’ and fathers remained secluded from taking this responsibility. Thus issues such as the attitudes of fathers towards conception, how they feel about pregnancy, and what they think about their wives’ health need become critical areas of inquiry if we are to understand how men’s understanding of women’s reproductive health affects infant mortality. Thus there is a call for active men’s participation and involvement in child health and becoming responsible father with their contribution in family planning, in supporting contraceptive use to space children, helping their wives during antenatal, natal and post natal period and providing them proper nourishment when they are pregnant. Furthermore, husband’s involvement is required in arranging skilled care during delivery, avoiding delays in seeking medical care during any emergency, helping mothers once the baby is born and providing proper nutrition to both mother and the child for better recovery and growth. Also men’s contribution is crucial to encouraging breast feeding and ensuring immunization of both the mother and the child. All these features contribute towards responsible fathering behavior.

A study about Puerto-Rican infants showed that father’s parenting behavior varied by demographic characteristics of both the father and the mother such as their age, education and nativity status. The economic status of the fathers greatly affects the child health and father’s involvement in childcare (Landale and Oropesa, 2001). In this article, the behavior of non-resident fathers was compared with the resident fathers. The result of the study demonstrated the importance of employment in fathers’ contribution towards Puerto Rican children as they were able to maintain stable marriages compared to their counterparts. Men who did not have jobs were less likely to live with their offspring, and shared a weak relationship with their children by fewer visitations and less direct involvement when they lived apart than men who had jobs (Landale and Oropesa, 2001: 964). Similar results are obtained from the study from a developed country, the United States. The article on “Child Gender and Father Involvement in Fragile Families” by Lunderberg et al. (2007) goes beyond the financial support of the father and discusses the role of gender of the child and fathers involvement with their children. Findings suggested that fathers were perceived to be more productive at raising sons than daughters and invested relatively more in sons (Lunderberg et al., 2007).

Fertility and Family Planning survey in Kinshasa, Zaire by Magnani et al. (1995) reveal that fathers’ age, employment, religion, childhood residence and level of education are highly correlated with the pattern of fathering. A study in Istanbul compared three different programs and investigated ways on how to include men in antenatal education. This study demonstrated that in a clinic-based program, the positive effects of including men were mainly in the post partum family planning, however, the results of community-based programs had positive effects on men related to infant health, infant feeding and spousal communication and support. A study by Glass (1998) on working couples revealed that working mothers trust their husbands to take care of children while they are at work. This is because of the financial constraints to afford external care for children and also mothers are less afraid that employment weakened the bonds between mothers and their children and were, perhaps, less guarded about sharing the emotional bonds of parenting (Glass, 1998:832). Furthermore, an emphasis on the male responsibility in family planning is gaining credibility as a means of encouraging men to fulfill their responsibilities as fathers. An initial step towards encouraging men to consider the consequences of intercourse without contraception is to enforce child support payments and such efforts are most effective when combined with educational campaigns that change men’s attitude to encourage joint decision-making among couples (Engle, 1994; quoted by Joshi et al. 2003). Hence, the paper sets to explore (1) To assess the contribution of fatherhood in North and South regions without and with replacement level of fertility, (2) To assess the effect of socio-economic factors on realization of fatherhood and the identification of factors expediting the realization of MDG goal no. (4) to reduce infant deaths, (3) To compare the status of infant deaths in North and South regions with different levels of father involvement and (4) To discuss role of the National Population Policy in India to reduce infant deaths with special reference to role of father

5. Data Source and Methods

The secondary data from the third National Family Health Survey conducted in 2005-06 in India is analyzed to understand the relationship of fathering and its contribution to reducing infant deaths in India. Only currently married males between the age group of 15-49 years have been chosen from two regions namely, the North and South Regions as classified in the NFHS-3 document. Normalized weights have been used to make the samples comparable from the North and the South regions. The criterion to choose the states within the two specified regions is the Total Fertility Rate (TFR). In the North region, states like Delhi, Haryana, Rajasthan and Uttaranchal have TFR of more than 2. While in the South region, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu depict TFR ranging from 1.70 to 1.89. This contrast between the two regions and within the states is considered for the present paper and an attempt is made to do a comparative analysis of realization of fatherhood with reference to men’s involvement with children, a physical availability to mother and children and husband-wife communication for care of children (referred to as fatherhood) across two regions.

S. No.	North Region	South Region
1	Delhi	Andhra Pradesh
2	Haryana	Karnataka
3	Rajasthan	Kerala
4	Uttaranchal	Tamil Nadu

The binary logistic regression method is adopted to analyze the Individual level data of the selected variables to estimate the net effect of components of fatherhood and infant deaths.

Following explanatory variables have been chosen to understand the realization of fatherhood across two regions:

- **Age of the respondent:** This is classified into three age groups of less than 24 years, 25-39 years of age and more than 40 years, using the middle age group (25-39 years) as a reference category.
- **Respondent’s education level:** this variable is classified as illiterate, primary, secondary and higher education, keeping illiterate as the reference category.

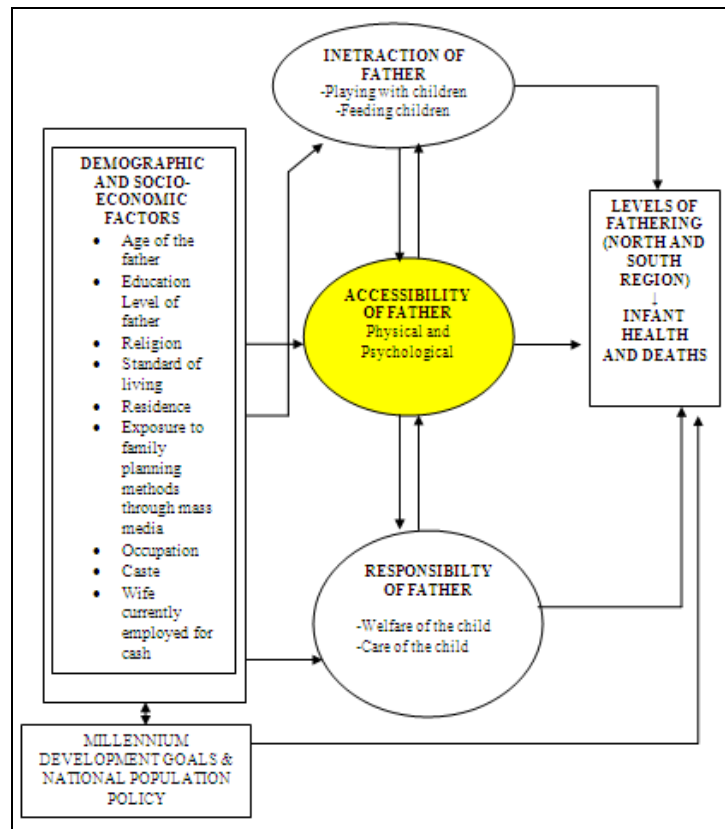


Figure 1: Conceptual Framework for the Analysis of Fatherhood and Infant Deaths

- **Religion:** is organized into Hindus and Other (include Muslims, Christians and other religious groups). Hindus is chosen to be the reference category.
- **Wealth Index:** this variable is graded as poor, middle and rich, keeping poor as the reference category.
- **Exposure to family planning through mass media:** This variable is computed using variables such as 'heard of family planning on radio, television or read in newspaper in the last month'. Here the response of not being exposed to mass media is kept as a reference category.
- **Respondent's Occupation:** is categorized into not working, non-manual and manual based on the type of activities they are involved in. not working is kept as a reference category.
- **Caste:** is categorized as Others, Scheduled Castes, Scheduled Tribes and Other Backward Castes, using Others as a reference category.
- **Wife currently employed for cash:** is organized as not employed, and employed, keeping not employed as a reference category. The dependent variables chosen to carry out binary logistic regression are:-
- **Respondent present during check up of the youngest child:** this is a dichotomous variable in which not present is used as a reference category.
- **Place of birth of the youngest child:** this is categorized as institutional (hospital, health facility) and non-institutional (any other place), keeping non-institutional as a reference category.
- **The current use of contraceptives by methods:** is a dichotomous variable with responses such as use of any methods (such as folkloric, traditional or modern) and no method is chosen as a reference category here.
- **Knowledge about the pregnancy complications:** respondents having information on pregnancy complication such as prolonged labor is a dichotomous variable while a respondent with no information is kept as a reference category.
- **Told about sources of care for complications:** here not told is used as a reference category.

All these above listed dependent variables are used to compute the fatherhood variable. These variables are chosen as they reflect on the involvement of father in the birth of the youngest child.

The first two variables only depicts the recent involvement of the respondent regarding the youngest child's health, however, the rest three variables show the involvement of male as a responsible partner who is informed about the contraceptive use and the complications during pregnancy. Thus, all these variables are used to compute an index to get the low, medium and high levels of fatherhood. This would help to analyze different levels of fatherhood with reference to various socio-economic and demographic factors across North and South regions and also infant deaths.

Infant deaths: This dependent variable is computed through the 'children ever died' and 'age of the youngest child below one year'. This variable only captures the death status of the youngest child and shows the recent status of the infant deaths across two regions chosen for the paper.

The conceptual framework as shown in Figure 1 gives a visual layout of the dependent and the independent variables and their effect on fatherhood and infant deaths in two different regions. The present paper only laid emphasis on the accessibility of father through his physical and psychological presence in the case of the youngest child and his involvement as a responsible partner as the fathers' involvement in child care has a larger inferential result of the current impact of the Population Policy implementation.

6. Analysis and Findings

The results of the analysis of socio-economic and demographic variables on realization of fatherhood across two regions and their relationship to infant deaths are discussed in this section. Also, this section describes the current status of the achievement of the MDG goal (4) through the impact of the programmes and population policy implementation

Table 1 gives the gross effect of various socio-economic variables on levels of fatherhood across North and South regions. The analysis of age of father on fatherhood depict that the fathers below 24 years of age and those who are above 40 years show low fathering behavior in the North region, however, in the South Region, men of middle age and those above 40 years show high levels of fatherhood. Men show high levels of fatherhood in both North and South regions for urban residence. This condition holds true for higher educational level for both the regions as well. Fathers belonging to rich economic background, having exposure to mass media, engaged in non-manual occupation, belonging to other castes and whose wives are currently employed for cash show high levels of fatherhood behavior in North and South regions. However, in the South the percentage of fathers with high levels of fatherhood is high compared to those in the North region. Thus, the results present a stark contrast between fathering behavior across regions depicting that there is a strong cultural connection to it. Fathers and mothers in the states of South region seem to be more knowledgeable and concerned about their children compared to the states in the North region. One of the reasons to explain this contrasting behavior could be the number of children that parents have to take care of. Since the North region is still far away from experiencing replacement level fertility, the differences in fathering behavior are very much obvious. The results showing recent involvement of fathers, especially in the case of their youngest child suggest that North and the South differences are very clear with slight changes in the effect of explanatory variables in both the regions.

Background Characteristics	Fatherhood (North) %				Fatherhood (South) %			
	Low Level	Medium Level	High Level	Total %	Low Level	Medium Level	High Level	Total %
Age of the Respondent	40.00	21.00	38.40	100	25.00	21.90	53.00	100
25-39 years	37.20	20.80	42.00	100	23.90	21.70	54.40	100
Less than 24 years	53.10	25.70	21.20	100	40.10	27.40	32.50	100
More than 40 years	53.30	13.30	33.30	100	21.40	18.90	59.80	100
Place of Residence	40.60	20.90	38.50	100	25.00	21.90	53.00	100
Rural	49.40	24.00	26.70	100	28.90	22.10	49.10	100
Urban	31.40	17.70	50.90	100	20.10	21.70	58.20	100
Respondent's Educational level	40.60	20.90	38.50	100	25.00	21.90	53.10	100
Illiterate	59.00	25.40	15.60	100	34.90	22.80	42.30	100
Primary	61.40	17.80	20.80	100	31.10	22.80	46.10	100
Secondary	38.90	23.40	37.70	100	21.70	22.20	56.10	100
Higher	16.20	12.20	71.60	100	16.30	18.40	65.30	100
Religion	40.60	20.90	38.60	100	25.10	21.90	53.10	100
Hindu	40.20	21.10	38.70	100	25.80	22.10	52.10	100
Other	42.60	19.70	37.70	100	21.10	20.80	58.10	100
Wealth Index	40.60	20.90	38.50	100	25.00	21.90	53.00	100
Poor	63.10	22.00	14.90	100	35.00	24.40	40.70	100
Middle	60.30	22.40	17.30	100	26.80	24.50	48.80	100
Rich	28.00	20.20	51.80	100	18.90	19.20	61.80	100
Exposure to Mass Media	40.50	21.00	38.60	100	25.00	21.90	53.00	100
No	64.90	22.90	12.20	100	36.80	24.50	38.70	100
Yes	35.60	20.60	43.80	100	22.50	21.40	56.10	100
Respondent's Occupation	40.70	21.00	38.30	100	25.10	21.90	53.00	100
Not working	50.00	0.00	50.00	100	35.30	17.60	47.10	100
Non Manual	25.60	17.80	56.60	100	19.40	17.80	62.80	100
Manual	50.40	23.50	26.10	100	27.20	23.50	49.20	100
Caste	40.80	20.90	38.40	100	25.10	22.10	52.90	100
Others	33.20	18.90	47.90	100	19.90	20.30	59.80	100
SC	46.50	22.10	31.40	100	28.30	21.10	50.60	100
ST	60.50	14.00	25.60	100	33.10	25.40	41.50	100
OBC	44.50	24.50	30.90	100	24.70	22.60	52.70	100
Wife Currently Employed for Cash	40.60	20.90	38.50	100	25.10	21.80	53.10	100
No	41.30	21.40	37.30	100	24.80	22.20	53.00	100
Yes	32.40	16.20	51.50	100	26.40	20.00	53.60	100

Table 1: Socioeconomic and Demographic differentials of realization of levels of fatherhood in two regions
N=15153 (North= 3126; South= 12025); Source: computed from NFHS-3 (2005-06) (Total may not add upto 100 due to rounding off)

In table 2, different components of fatherhood have been analyzed using the binary logistic regression model to understand the impact of socio-economic and demographic variables. It is observed that only 'exposure to mass media' and 'wife currently employed for cash' are significant in the North region, however, in the South region, father's of more than 40 years of age, living in urban residence, having higher levels of education and belonging to Scheduled Tribes are more likely to be present during the check up of their youngest child. For the place of birth of the youngest child in the North region, males in the urban areas, with higher education and from rich economic background are more likely to go for institutional delivery. While in the South, people who are exposed to mass media along with the above factors are more likely to go for the institutional delivery. It shows that the developmental variables in the South region are more effective in bringing out the net effect positively to reduce infant deaths as compared to the Northern region.

Background Characteristics	North (Father present during check up of the youngest child)		South (Father present during check up of the youngest child)		North (Institutional Birth of Youngest Child)		South (Institutional Birth of Youngest Child)	
	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.
Age of Men								
25-39 years (RC)								
Less than 24 years	0.652	0.066	0.564	0.000**	1.301	0.179	1.218	0.209
More than 40 years	1.05	0.881	1.206	0.262	0.896	0.686	1.08	0.621
Place of Residence								
Rural (RC)								
Urban	1.143	0.498	1.342	0.005*	2.114	0.000**	1.844	0.000**
Men's Educational level								
Illiterate (RC)								
Primary	0.598	0.085	0.93	0.601	1.596	0.068	1.927	0.000**
Secondary	1.267	0.373	1.65	0.000**	1.843	0.006*	2.107	0.000**
Higher	1.997	0.076	3.22	0.000**	6.926	0.000**	3.57	0.000**
Religion								
Hindu (RC)								
Other	0.793	0.342	1.051	0.722	1.067	0.751	1.168	0.329
Wealth Index								
Poor (RC)								
Middle	0.726	0.237	1.179	0.182	1.254	0.331	1.7	0.000**
Rich	0.883	0.66	1.079	0.581	2.464	0.000**	3.623	0.000**
Exposure to Mass Media								
No (RC)								
Yes	2.389	0.000**	1.232	0.086	1.077	0.717	1.345	0.008*
Men's Occupation								
Not working (RC)								
Non Manual	3.717	0.109	0.932	0.926	0.613	0.486	0.43	0.451
Manual	2.671	0.234	0.914	0.904	0.441	0.239	0.371	0.375
Caste								
Others (RC)								
SC	0.69	0.117	0.965	0.824	0.746	0.135	0.963	0.828
ST	0.876	0.738	1.985	0.01	1.28	0.468	0.292	0.000**
OBC	0.941	0.777	1.122	0.401	0.961	0.819	0.973	0.857
Wife Currently Employed for Cash								
No (RC)								
Yes	2.936	0.004*	1.008	0.946	1.347	0.275	0.822	0.073

Table 2: Binary Logistic Regression Results for Various Indicators of Father's Involvement in Child Care (* $p < 0.05$; ** $p < 0.01$); RC- Reference Category, Source: computed from NFHS-3 (2005-06)

In table 3, the information on husband's caring behaviour as responsible partners, knowledge about pregnancy complication and sources of care for pregnancy complications depict that the use of contraceptive method, father of age of more than 40 years, from

middle and rich economic status, and where the wife is currently employed for cash are more likely to use some kind of contraceptive method in both North and South regions. The analysis shows that males from Scheduled Castes and Other Backward Castes are less likely to have knowledge of the pregnancy complications (especially, prolonged labor) in the South. However, information regarding the sources of care for complications variable shows that in the North, males who are from rich background and exposed to mass media are more likely to have information compared to the South, where higher education also contributes toward information regarding complications. The analysis of the logistic regression shows that as the acquired characteristics like urban residence, father’s education, being rich on wealth index, currently working husband and wife increases, the husband wife communication about contraception, husband’s knowledge of pregnancy complication has positively increased to to reduce infant deaths both in North and South India. However, these predictors are statistically more significant for Sothern region than for Northern region.

Background Characteristics	North (Use of any Contraceptive Method)		South (Use of any Contraceptive Method)		North (Husband knows about pregnancy complications)		South(Husband knows about pregnancy complications)		North (Husband told about sources of care for pregnancy complications)		South(Husband told about sources of care for pregnancy complications)	
	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.
Age of Men												
25-39 years (RC)												
Less than 24 years	0.292	0.000**	0.133	0.000**	1.009	0.971	0.885	0.347	0.864	0.471	0.904	0.436
More than 40 years	1.632	0.000**	1.639	0.000**	1.273	0.482	0.741	0.017	1.155	0.576	0.877	0.289
Place of Residence												
Rural (RC)												
Urban	0.827	0.039*	0.918	0.052	1.306	0.138	0.888	0.146	1.009	0.957	1.048	0.579
Men's Educational level												
Illiterate (RC)												
Primary	1.156	0.287	0.934	0.245	1.207	0.625	1.052	0.678	1.014	0.958	0.937	0.582
Secondary	1.439	0.003*	0.84	0.002*	1.876	0.048	1.194	0.112	1.23	0.352	1.173	0.152
Higher	1.515	0.010*	0.701	0.000**	2.672	0.009	1.24	0.18	1.509	0.16	1.5	0.016
Religion												
Hindu (RC)												
Other	0.904	0.405	0.885	0.036*	1.083	0.74	1	0.996	0.871	0.505	1.113	0.345
Wealth Index												
Poor (RC)												
Middle	1.311	0.031	1.275	0.000**	3.216	0.003*	1.099	0.357	0.988	0.958	1.21	0.062
Rich	2.181	0.000**	1.437	0.000**	5.118	0.000**	1.323	0.013*	1.796	0.011	1.184	0.139

Exposure to Mass Media												
No (RC)												
Yes	1.411	0.002*	0.954	0.371	2.406	0.008*	1.73	0.000**	1.983	0.002*	1.968	0.000**
Men's Occupation												
Not working (RC)												
Non Manual	2.037	0.024	1.274	0.207	0.685	0.589	1.4	0.505	1.031	0.963	1.284	0.63
Manual	1.92	0.037	1.221	0.292	0.553	0.399	1.229	0.683	0.668	0.53	1.242	0.676
Caste												
Others (RC)												
SC	1.03	0.785	0.957	0.508	1.133	0.577	0.734	0.016	1.147	0.472	0.805	0.105
ST	1.377	0.092	0.887	0.238	0.834	0.728	1.045	0.814	1.676	0.112	1.042	0.832
OBC	1.096	0.341	0.926	0.155	0.898	0.596	0.655	0	0.983	0.921	0.808	0.063
Wife Currently Employed for Cash												
No (RC)												
Yes	1.675	0.000**	1.518	0.000**	0.908	0.754	0.825	0.041*	1.501	0.102	0.993	0.938

Table 3: Binary Logistic Regression Results for Various Indicators of Levels of Father's Involvement (* $p < 0.05$; ** $p < 0.01$); RC- Reference Category, Source: computed from NFHS-3 (2005-06)

In table 4, while looking at the status of infant deaths with realization of levels of fatherhood in North and South regions, it is observed that 6.9 percent of infant deaths occur for low levels of fatherhood in the North region, whereas in the South, it is 7.3 percent for low levels of fatherhood for the age group of more than 40 years. Also, the situation is nearly similar in the North and the South regions where nearly 6 percent and 5 percent of infant deaths occur in the rural areas. Education plays an important role in determining infant deaths in both the regions, where most of the deaths occur in illiterate and primary education groups and depicts low levels of fatherhood in both the regions. Infant deaths are higher amongst the poor class and at low levels of fatherhood. The groups where fathers are not exposed to mass media, belonging to Scheduled Castes and Scheduled Tribes also experience high levels of infant deaths.

Background Characteristics	Infant deaths in % controlled for fatherhood (North)			Infant deaths in % controlled for fatherhood (South)		
	Low Level	Medium Level	High Level	Low Level	Medium Level	High Level
Age of the Respondent						
25-39 years	4	4.7	1.2	3.8	1.7	1.8
Less than 24 years	3.4	3.4	0	3	4.3	2.4
More than 40 years	6.9	0	0	7.3	3.8	1.2
Place of Residence						
Rural	5.6	4.1	1.9	4.9	3.3	2.1
Urban	2.6	4.3	0.5	2	0.4	1.5
Respondent's Educational level						
Illiterate	7.4	3.2	0	5.8	1.8	1.9
Primary	5.1	11.1	4.8	6.4	3.2	2.4
Secondary	3.1	4.1	0.6	2.2	2.1	1.6
Higher	4.2	0	0.9	1.6	1.4	2
Religion						
Hindu	4.2	4.3	1.2	3.8	2	1.8
Other	6.1	4.2	0	4.2	2.1	1.9
Wealth Index						
Poor	9.5	3.2	0	5.5	2.8	3.1
Middle	3.3	5.7	3.7	2.4	2.6	0.8
Rich	2.9	3	0.8	3.4	1.1	1.8
Exposure to Mass Media						
No	6.3	10	0	5.9	4.8	3.4
Yes	3.9	2.9	1	3.1	1.4	1.6
Respondent's Occupation						
Not working	0	N.A.	33.3	0	0	14.3
Non Manual	3.8	1.8	0	1.3	1.4	1.7
Manual	4.8	5.4	1.6	4.6	2.5	1.7
Caste						
Others	2.6	3	0	2.3	1.1	2.7
SC	6.5	7.9	0	3.1	4.1	1.7
ST	8.3	16.7	9.1	7.3	0	3.7
OBC	4.2	1.8	3	4.2	2.1	1.3
Wife Currently Employed for Cash						
No	4.2	3.9	1.1	4.5	2.5	2.2
Yes	9.1	9.1	0	1.4	0.9	0.3
Total	4.5	4.2	1	3.8	2.2	1.8

Table 4: Status of Infant Deaths with realization of Levels of Fatherhood
Source: computed from NFHS-3 (2005-06)

It is very striking to note that realization of high level of fatherhood in the Northern regions brings lower number of infant deaths as compared to Southern region.

In table 5 results on the regional differences in infant deaths in North and South regions show that in both North and the South regions, there is less likelihood of infants dying in the age group of above 40 years. The situation is true for infants belonging to middle and higher classes where there are fewer occurrences of infant deaths in both the regions. However, caste plays an important role in determining infant deaths, fathers belonging to Scheduled Castes and Scheduled Tribes experience more infant deaths compared to those belonging to other castes in the North region. Furthermore, infant deaths are lesser where fathers are working in the North region and where wives are employed for cash in the South region.

Background Characteristics	Infant Deaths controlled for Fatherhood (North)		Infant Deaths Controlled for Fatherhood (South)	
	Odds Ratio: Exp (B)	Sig.	Odds Ratio: Exp (B)	Sig.
Age of the Respondent				
25-39 years (RC)				
Less than 24 years	0.969	0.939	0.994	0.987
More than 40 years	0.184	0.001*	0.179	0.000**
Place of Residence				
Rural (RC)				
Urban	1.080	0.852	0.634	0.115
Respondent's Educational level				
Illiterate (RC)				
Primary	1.201	0.697	1.427	0.269
Secondary	1.089	0.843	0.951	0.880
Higher	0.833	0.827	1.156	0.787
Religion				
Hindu (RC)				
Other	2.329	0.058	1.398	0.314
Wealth Index				
Poor (RC)				
Middle	0.754	0.476	0.491	0.025*
Rich	0.322	0.023*	0.701	0.275
Exposure to Mass Media				
No (RC)				
Yes	0.669	0.286	0.454	0.003*
Respondent's Occupation				
Not working (RC)				
Non Manual	0.193	0.042*	0.346	0.241
Manual	0.209	0.036*	0.372	0.263
Caste				
Others (RC)				
SC	2.650	0.038*	1.481	0.335
ST	4.335	0.011*	1.201	0.740
OBC	1.526	0.350	1.114	0.766
Wife Currently Employed for Cash				
No (RC)				
Yes	0.609	0.399	0.158	0.000**

Table 5: Regional differences in Infant deaths with Realization of Levels of Fatherhood: Results of the Logistic Regression (* $p < 0.05$; ** $p < 0.01$), RC- Reference Category
Source: computed from NFHS-3 (2005-06)

The table below describes the current status of infant mortality over the period 1990 to 2012 with reference to the MDG Goal (4) target which shows that India is far behind the fulfillment of the target of infant mortality rate. As stated by Mavalankar et. al. (2008) and Chatterjee and Paily (2011), India would not be able achieve MDG Goal target (4) in respect of Infant Mortality Rate but father's involvement in maternal and child health and care is a very helpful strategy for reducing infant deaths and help attain the MDG Goal faster which will also help simultaneously achieve the National Population Policy.

Year	Infant Mortality Rate	Source
2015	26.7	MDG Goal Target
2012	42	SRS, 2012
2005	57	NFHS-3, (2005-06)
1990	80	SRS, 1990

Table 6: Current Status and Trend in Infant Mortality Rate, MDG Target and the Role of Fathers
SRS: Sample Registration System, Office of the Registrar General and Census Commissioner
NFHS-3: National Family Health Survey (2005-06)

7. Discussion

The above analysis of levels of fatherhood and infant deaths depict that men's contribution can affect the health status of children. However, the discussion of policy factors affecting the realization of fatherhood with reference to MDGs suggest that though the National Population and health Policies direct themselves to achieving MDG goals, the results of the recent National Family Health Survey (2005-06) reveal that they are far behind achieving MDG goals unless National Population Policy goals are achieved. The present position of the policy goals is not comparable to the international standards and this will create a situation where MDG goals will not be achieved further. Though the levels of fatherhood depend upon achieving the related goals of MDG and gender, they have multiple indicators including infant and child deaths that pose a hindrance in fulfilling the goal of reducing infant mortality in India. Therefore, unless programs and policies for achieving fatherhood are strengthened and operationalized, the MDG goals will continue to appearing a distant dream. Hence in case of India, achieving National Health and Population Policy goals would suffice achieving the MDG goals through focusing on fathers' contribution as well. There is also a persistent need to connect policies at various levels to premarital and casual relationships that also affect the status of infant deaths and reflect on the role of father in terms of parent-child communication. It has been observed that family factors play a crucial role against unsafe premarital sex that includes children living with parents, fathers present in the household, appropriate monitoring and supervision, etc. (Alexander et al., 2007). Thus in the context of changing patterns of sexuality in India, where it has been observed in the past decade that young people are involving in casual relationships without showing any responsible behavior towards the health outcome. The result of this is felt when there is an emotional upheaval, or any complication that may result due to involvement in casual relationships. The outcome in terms of biological complications spread of HIV or contracting the virus because of negligent behavior, social boycott and non-acceptance of the child outside the wedlock are the issues that need to be focused when it comes to men's engagement as a responsible father.

8. Conclusion and Policy Implication

The findings suggest that there is a differential level of realization of fatherhood across the states without and with replacement levels of fertility. The states which have already achieved replacement level of fertility are showing higher levels of realization of fatherhood and lower percentage of infant deaths. However, fathers in both North and South regions have shown different degrees of being responsible partner. Also, there is an urgent need for the policy action for Scheduled tribe and scheduled caste population who want to bear children. On one hand, caste, work status and exposure to mass media are affecting the realization of fatherhood in the North; however, education and urban residence have been effective in realizing the fatherhood in the South. It is inferred that states which have already reached replacement levels of fertility would be able to realize MDG goals for infant deaths sooner than rest of the states. This difference is brought out due to different levels of realization of fatherhood and infant deaths. Nonetheless, urbanization and educational level of the fathers have a significant impact on the realization of the MDG goals. Since the infant deaths are more in the Northern region compared to the states in the Southern region (that already have reached near replacement level of fertility through attainment of urbanization and educational spread), the findings suggest that greater attitudinal re-orientation regarding caste system, envisioning and recasting of gender roles towards participation in work force and spread and access to the right communication channels for improving family relations will be the key parameters for curbing infant deaths that would help in realization of MDG goals and related Population policy indicators alongwith policy asserted more with the role of fathers in mothers' and child care involvement.

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