

India 2014

Population and Development

*Selected Papers of
Bhopal Seminar 2014*

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Cover: Alekh

ISBN: 978-93-82411-08-6

Rs 1100

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INDIA 2014: POPULATION AND DEVELOPMENT

ISBN: 978-93-82411-08-6; pp:1-6

Introduction

Aalok Ranjan

This monograph presents a selection of research papers that were presented at the Bhopal Seminar 2014: Contemporary Issues in Population and Development in India which was organised by the 'Shyam' Institute during 22 through 24 January 2014. This monograph is the eighth in the series of annual monograph being published by the 'Shyam' Institute on the basis of the papers presented at the annual Bhopal Seminar on contemporary issues related to population and development in India.

The monograph includes 13 research papers on different dimensions of population and development in India and in its constituent states. These papers were selected from the papers presented at the Bhopal Seminar 2014 through a three-step selection process. At the first step of the selection process, the Chairperson and the Rapporteur of each technical session of the Seminar selected at the most two research papers from the papers presented during the technical session. The papers so selected were revised by the author(s) on the basis of the comments received during the presentation. Subsequently, all the papers were reviewed by an independent referee and edited thoroughly by the editors of the monograph. Only those papers have been included in the present monograph which have been approved by the independent referee. The papers cover a range of contemporary issues related to population and development in India. These include population transition in India as compared to China; population and development related challenges and issues in the Empowered Action Group (EAG) states including infertility treatment seeking behaviour; delivery and use of maternal and child health services; women's education and reproductive health in the context of Millennium Development Goals; inter-spouse communication; registration of births; and behavioural transition in young injecting drug users in the context of HIV/AIDS. The papers included in the monograph provide a good understanding of contemporary population and development issues in India.

The first paper of the monograph presents a comparative perspective of population transition in China and India during the period 1950 through 2010 using a decomposition approach. Around 1950, the population scenario in China and India was nearly the same. However, by the year 2010, the population scenario in the two most populous countries of the world has become radically different. China has reached a very advanced stage of population transition whereas India still remains somewhere in the middle of the transition. However, population transition in China has not been smooth and the impact of policy decisions taken in China to alter the course of population transition is readily visible. In India, there are little indications of the impact of policy level decisions on the population transition path of the country but, unlike China, population transition in India has been very smooth. The paper also discusses differences in the approach adopted by the two countries to accelerate the population transition process.

The second paper of the monograph discusses emerging population and development related issues in Empowered Action Group states of India - Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand. These states account for a significant proportion of India's population and therefore influence the socioeconomic and demographic situation of the country. The paper observes that the demographic situation in Odisha and Uttarakhand is different from other states and therefore reasons for relatively better demographic situation in Odisha and Uttarakhand need to be studied to adopt similar approaches in other states if feasible. The paper also emphasises the need of special programmes for increasing the age at marriage and improving maternal and child health care and facilities. The paper also advocates for evolving a sustainable model of development through the human development perspective.

The third paper of the monograph analyses the impact of secular attitudes of Indian youths on their participation in social and political activities. The paper observes that participation of youths in social and political activities varies by their background characteristics. Specifically, females are less active in social and political spheres of life compared to males. The paper stresses the need to recognise the importance of women's participation in social and political activities. The paper also observes that an important determining factor in promoting participation of youths in social and political activities is to effectively address economic issues related to youths.

The fourth paper of the monograph analyses the association of a host of social, cultural and economic factors with sexual violence. The paper observes that like many other countries, sexual violence is quite pervasive in India. Key determinants of sexual violence as revealed through the paper include age at marriage, working status of the partner, level of income, use of alcohol by the partner, inter-generational experience of sexual violence and domestic violence. Religion and social class also contribute to sexual violence albeit in a limited sense. The findings of the paper support the hypothesis that factors that increase the stress level of families such as low educational attainment and poverty also enhance the probability of women's abuse. As such advancement in education and employment could potentially lead to reduction in intimate partner violence.

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The fifth paper of the monograph analyses utilisation of maternal health care services in selected districts of Uttar Pradesh, the most populous state of India. The paper reveals that different background characteristics of women have significant impact on differential use of different maternal health care services in different districts of the state. The paper recommends that a district-based approach should be adopted to universalise the utilisation of antenatal, natal and postnatal maternal health care services in the state. However, education of women and high standard of living have been found to be important determining factors of maternal health care services utilisation in all the districts. Other factors do have impact on the use of maternal health care services but in specific districts only.

The sixth paper of the monograph focusses on infertility and infertility treatment seeking behaviour in the EAG states of India including Madhya Pradesh. The prevalence of infertility among ever-married women of reproductive age is found to be higher than the national average in 13 states which include four EAG states - Bihar, Chhattisgarh, Uttar Pradesh and Jharkhand. The paper reveals that the prevalence of infertility is relatively low in Rajasthan and Uttarakhand and observes that the problem of infertility is relative more among women from lower socioeconomic background which is also the reason for the lack of awareness about factors responsible for infertility and lack of infertility treatment. Infertility has also been found to be associated with RTI/STI and menstrual problems. As regards infertility treatment, the paper highlights the influence of family income and caste. The paper argues that a major challenge towards addressing the problem of infertility in the EAG states is to improve access to infertility treatment facilities at an affordable cost.

The seventh paper of the monograph is devoted to the analysis of the patterns and transition in urbanisation in Jharkhand and in its constituent districts. Jharkhand is one of the newly created states of India and has low levels of urbanisation. The paper suggests that the pace of urbanisation in the state is still slower than the national average despite the fact that the state is comparatively lowly urbanised state of the country. Within the state, there is considerable inequality in the pattern of urbanisation and most of the urbanisation in the state is confined to only a few districts. The paper also suggests that the urban population of the state is increasingly getting concentrated in big towns and cities of the state.

The eighth paper of the monograph explores how the concept of masculinity influences communication between husband and wife. The paper observes that a considerable proportion of women (25 per cent) have poor inter-spouse communication on reproductive health related issues. The paper also concludes that masculinity along with education of the woman are positive factors to contribute to inter-spouse communication on reproductive health related issues. Women whose husband has high support for equitable gender norms are also more likely to have high level of inter-spouse communication. The other factor that contributes to inter-spouse communication is the living condition of the family or the household. An important observation of the study is that Muslim women are less likely to communicate with their husband on issues related to reproductive health than their Hindu counterparts.

The ninth paper of the monograph reviews the performance of Janani Express scheme in the tribal areas of Odisha. The 'Janani Express' scheme is a referral transport scheme that was introduced in Odisha in 2009 to promote institutional deliveries and reduce maternal, infant and child mortality. The findings of the analysis, based on the performance of the scheme in three districts of Odisha with heavy concentration of Scheduled Tribes population suggest that the proportion of institutional deliveries out of total deliveries has increased substantially after the introduction of the scheme. The paper concludes that the scheme has served the purpose well, although there is scope of improvement in the performance of the scheme. The paper has also emphasised strong monitoring of the scheme to sustain the scheme and to maximise its benefits.

The tenth paper of the monograph analyses the extent of birth registration in Madhya Pradesh and explores issues related to the completeness of birth registration. The paper observes that lack of knowledge about birth registration and obtaining a birth certificate is the primary reason behind low level of birth registration in the state and the gap between the proportion of births registered and the proportion of children received the birth certificate. The paper also observes that the level of birth registration is not related to the registration of women under the Janani Suraksha Yojna because of the lack of coordination between the two departments involved in the implementation of the two schemes.

The eleventh paper of the monograph is devoted to the transition in the behaviour of young injecting drug users in the context of HIV/AIDS in three districts of India. The paper observes that there have been significant changes in the behaviour of young injecting drug users over time. The proportion of young injecting drug users who started using drugs at a very young age appears to have decreased over time. On the other hand, the proportion of young injecting drug users sharing needle/syringe with partners has decreased in some districts but increased in others, although the practice of cleaning the needle/syringe before use has decreased irrespectively of whether the needle/syringe was shared or not. The paper also reveals that the proportion of young injecting drug users who started injecting drugs within the first year of starting drug use has increased. Similarly, there has been an increase in the paid sex as well as use of condoms in most of the districts. As regards factors associated with the prevalence of HIV young injecting drug users, the paper observes that these factors are different in different districts. The study calls for state specific approach to tackle the problem of injecting drug use among the young generation.

The twelfth paper of the monograph is devoted to the role of the background characteristics of women to safeguard them from the negative perception of their husband about the sexual and reproductive rights of women. The paper suggests that education is the most effective shield for women to protect them from the negative perception of their husband about the sexual and reproductive rights of women and from the violence from their intimate partner. The paper concludes that women who are married at a very young age are more vulnerable to negative perception and behaviour of their husband or partner

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as regards bodily rights of women. The paper suggests that women's education can go a long way in promoting reproductive and sexual rights of women.

The last paper of the monograph analyses the state of agriculture and the level of social and economic development in district Bankura in West Bengal and development blocks within the district. The paper suggests an approach for accelerating the pace of social and economic development in the development blocks of the district which is based on increasing the agricultural productivity. The paper observes that blocks which have high agricultural productivity are also the blocks which have high per capita income, good house condition, high literacy and less vulnerability to natural and other shocks.

The papers included in the present monograph reflect the complexity and the diversity in the population and development perspective that prevails in India and in its constituent states. This complexity and diversity in population transition and the development scenario and their interrelationships are the result of the social, cultural, economic and environmental complexities and diversities that are so pervasive in India's demographic, social and economic landscape.

INDIA 2014: POPULATION AND DEVELOPMENT

ISBN: 978-93-82411-08-6; pp:7-30

Population Transition in China and India: 1950-2010

Aalok Ranjan

Introduction

India and China are the only two billion-plus countries in the World. They account for more than 37 per cent of the World population (United Nations, 2012). Around 1950, when India got freedom from the colonial rule (in 1947) and China became 'Red' (in 1949), the two countries had very similar population scenarios. Since then, the population transition path followed by China has been radically different from that followed by India. Latest estimates prepared by United Nations Population Division (United Nations, 2012) suggest that China's population has now reached the post transition stage with a total fertility rate of 1.63 and an expectation of life at birth of more than 74 years so that the average annual population growth rate of the country is estimated to be around 0.62 per cent per year during the period 2005-2010. By contrast, the total fertility rate in India is still well above the replacement level while the expectation of life at birth is less than 65 years resulting in an average annual population growth rate of more than 1.3 per cent during the period 2005-2010. Between 2005 and 2010, more than 78 million people were estimated to have been added to India's population compared to less than 42 million in China. According to the medium variant of latest population projections prepared by the United Nations, almost 18 per cent of the world population will be living in India by the year 2030 making it the most populous country of the world and its population will still be increasing (United Nations, 2012). China's population, on the other hand, is projected to start declining after 2030.

Development implications of population transition have also been different in the two countries. Between 1982 and 2000 - the gross domestic product per capita, adjusted for purchasing power parity, increased by more than four times in China (Wang and Mason, 2005) with demographic dividend alone accelerating China's economic growth by 2.3 per cent per year (Vermeer, 2006). In India, demographic dividend has remained

comparatively small because of the slow pace of population transition (Chaurasia and Gulati, 2008).

In this paper, we compare the path followed by China and India during the period 1950 through 2010 to identify distinctive features of population transition in the two countries. The analysis is based on the change in the rate of natural increase in the two countries in different five-year period beginning 1950. The rate of natural increase is the most commonly used indicator of measuring and monitoring population transition. The rate of natural increase is influenced by both levels of fertility and mortality as well as age and sex structure of the population. An analysis of the change in the rate of natural increase, therefore, requires decomposition of the change in the rate of natural increase into the change in different components of natural increase.

The paper is organised as follows. The next section of the paper develops the methodology while section three describes the data source. We have used latest estimates of key demographic variables prepared by the United Nations Population Division (United Nations, 2012). We have not used official estimates of key demographic indicators of the two countries as these estimates may be based on different set of assumptions and different methodology which may hamper comparability. Moreover, official estimates are not available for different quinquennials for the period under reference. Section four of the paper presents results of the analysis while section five summarises the policy and programme perspective of population transition in the two countries. Finally, the last section of the paper summarises findings of the analysis.

Methodology

Population transition refers to the change in the population stock (size, growth and structure) as the result of changes in factors that affect the stock (Schoen, 2002) and upon two factors: 1) the gap between the birth rate and the death rate which determines the rate of natural increase and 2) length of the period during which exceptional rate of natural increase prevails (Vallin, 2006). A synthetic index that characterises the pattern of population transition is the population multiplier, which is the number by which the population is multiplied when it moves from the pre-transition phase to the post-transition phase (Chesnais, 1979; 1986). The population multiplier can be calculated theoretically and empirically. The theoretical approach involves the approximation either through an analytical model (Keyfitz, 1977) or by numerical simulation (Frejka, 1973). Empirical approach involves examination of historical evidence complemented by long range population projections (Chesnais, 1990).

During the process of transition, population age structure changes significantly. In the pre-transitional stage, the population pyramid is triangular in shape with broad base and thin top. The dependency ratio is high at this stage due to high young dependency. As the transition progresses, the population pyramid progressively transforms into a rectangular shape and then to a trapezoidal shape and, in the extreme scenario, to an inverted triangle. In the post-transitional phase, dependency is again high due to high old dependency.

The rate of natural increase is commonly used to measure population transition. The change in population stock may also be influenced by in or out migration. As such, the observed rate of population growth, which takes into account net migration, is generally not the same as the rate of natural increase. However, compared to changes in birth and death rates, change resulting from the net migration pattern is generally small in both China and India. As such, the change in population stock resulting from net migration in the two countries has not been considered here.

Fundamentally, population transition is the elaboration of the basic differential equation

$$\partial P / \partial t = mP \quad (1)$$

where P is the population stock and m is the force of transition which may be an instantaneous rate or probability or risk of change with respect to the demographic behaviour of interest (Schoen, 2002). One special but a useful feature of population transition is that it is logically closed. The classical expression of this closure property is the well known balancing equation of population change:

$$P(t) = P(0) + B(0,t) - D(0,t) + I(0,t) - O(0,t) \quad (2)$$

where t stands for time, $B(0,t)$ is the total number of births; $D(0,t)$ is the total number of deaths; $I(0,t)$ is the total immigration and $O(0,t)$ is the total emigration during time t . If it is assumed that population is closed to migration or net migration is either zero or very near to zero, then

$$P(t) - P(0) = B(0,t) - D(0,t). \quad (3)$$

Dividing both the sides by $PY(0,t)$, person years lived during time t , we get

$$r = b - d. \quad (4)$$

Here r is the (crude) rate of natural increase, b is the (crude) birth rate and d is the (crude) death rate. In the absence of migration, r serves as a useful indicator of population transition. When $r=0$, population remains unchanged over time. Now

$$r = r_2 - r_1 = (b_2 - b_1) - (d_2 - d_1) = \nabla b - \nabla d. \quad (5)$$

Change in the birth rate may be induced by the change in fertility and the change in the age structure effects on the birth rate. If f denotes the birth rate net of age structure effects, then we can write

$$b = f * (b/f) = f * ab \quad (6)$$

The ratio $ab = b/f$ represents the age structure effects on the birth rate. Now

$$\begin{aligned} \nabla b = (b_2 - b_1) &= (f_2 * (b_2/f_2)) - (f_1 * (b_1/f_1)) \\ &= [(f_2 - f_1) * (ab_1 + ab_2) / 2] + [(ab_2 - ab_1) * (f_1 + f_2) / 2] \\ &= \alpha + \beta \end{aligned} \quad (7)$$

Equation (7) decomposes the change in b into two additive components - α , resulting from the change in birth rate net of age structure effects and β , resulting of the change in age structure effects on the birth rate.

Similarly, if l denotes the death rate net of age structure effects, then the death rate, d , can be written as

$$d = l * (d/l) = ad. \quad (8)$$

The ratio $ad = d/l$ represents the age structure effects on the death rate. The change in the death rate can now be decomposed as

$$\begin{aligned}\nabla d &= (d_2 - d_1) = (l_2 * (d_2/l_2)) - (l_1 * (d_1/l_1)) \\ &= [(l_2 - l_1) * (ad_1 + ad_2)/2] + [(ad_2 - ad_1) * (l_1 + l_2)/2] \\ &= \mu + \nu\end{aligned}\tag{9}$$

Where μ reflects the change in d due to the change in the death rate net of age structure effects, ν is the change in d due to the change in the age structure effects on the death rate and ρ is the change in d due to simultaneous change in the death rate net of age structure effects and age structure effects on the death rate.

Substituting from (8) and (9) in (5), we get

$$\begin{aligned}\nabla r &= (\alpha + \beta) - (\mu + \nu) \\ &= (\alpha - \mu) + (\beta - \nu)\end{aligned}\tag{10}$$

Here $(\alpha - \mu)$ is the contribution of the difference between the change in the age independent birth rate and the change in the age independent death rate to the change in r . In other words, it is the contribution of the change in the intrinsic rate of growth, i , to the change in r . Similarly, $(\beta - \nu)$ is the contribution of the difference between the change in the age structure effects on the birth rate and the change in the age structure effects on the death rate to the change in r . Age structure effects on the birth rate are attributed to the proportion of females in the reproductive age group (aged 15-49 years) in the population and their distribution within the reproductive life span since fertility varies by age of the woman. Similarly, age structure effects on the death rate are attributed to the distribution of the population by age and sex since the risk of death varies by age and sex. Thus, the change in the rate of natural increase can be decomposed into the change accounted by the change in the rate of intrinsic growth and the change in the population age structure:

$$\nabla r = \nabla i + \nabla a\tag{11}$$

Where

$$i = (\alpha - \mu); \text{ and } a = (\beta - \nu).$$

Equation (11) addresses the controversial issue of which demographic indicator is more efficient in analysing population transition. It takes into account both changes in the intrinsic rate of growth determined by the change in the levels of fertility and mortality and changes in the age structure effects on birth and death rates resulting from changes in the levels of fertility and mortality. Equation (11) explains population transition in terms of transition in fertility and mortality and transition in the population age structure.

Application of equation (11) requires estimation of age independent birth rate f and age independent death rate l . Horiuchi (1991) has shown that the ratio of birth rate (CBR) to total fertility rate (TFR), is a measure of the age structure effects on the birth rate. The problem with the use of the ratio CBR/TFR is that unit of measurement of CBR is different from the unit of measurement of TFR. It may however be noticed that TFR is the un-weighted sum of age specific birth rates of women in the reproductive age group. Dividing TFR by 35, the length of reproductive life span gives the average birth rate of

women in the reproductive age group which is independent of the age structure of the population. Finally, multiplying the average birth rate per woman in the reproductive age group by the proportion of reproductive age women in the population gives the age independent birth rate. Thus, f is defined as

$$f = w * (TFR/35)$$

where w is the proportion of females in the reproductive age group. Notice that f is a scalar multiple of TFR. As such, the ratio (b/f) measures the age structure effects on the birth rate.

Also notice that the expectation of life at birth, e_0 is a measure of mortality that is independent of age and sex structure of the population. Hence, the life table death rate which is the reciprocal of e_0 can be taken as the measure of age independent death rate. Thus, l is defined as

$$l = 1/e_0.$$

Data Source

The analysis is based on estimates of total population, average annual number of births, average annual number of deaths, total fertility rate and expectation of life at birth for both sexes combined prepared by the United Nations Population Division for India and China for different five-year intervals of the period 1950 through 2010 as estimated in 2012 (United Nations, 2012). These estimates permit inter-country comparison as they are based on a uniform set of assumptions and estimation methodology. National level estimates of different demographic indicators have not been used in the present analysis for two counts. First, national level estimates of the two countries may be based on different set of assumptions and methodologies so that they may not be comparable. Second, national level estimates are not available for different five-year intervals of the period 1950 through 2010 so that comparing the demographic situation in the two countries as a particular point of time requires interpolation and extrapolation of estimated values of different demographic indicators. It has however been observed that estimates prepared by the United Nations Population Division are very close to the official estimates of different demographic indicators of the two countries.

Results

Key indicators of population growth in China and India are presented in table 1. China's population increased by almost 816 million or by more than 2.5 times between 1950 and 2010, whereas India's population increased by more than 829 million or by more than 3.2 times during this period. China's population is now reaching the post transition stage. The rate of natural increase in China decreased to 0.61 per cent per year during 2000-05 but increased marginally to 0.65 per cent per year during 2005-10. By contrast, India continues to get stuck in the middle of the transition path with a rate of natural increase of almost 1.4 per cent per year during the same period. The rate of

natural increase in China has however been slower than that in India except during the period 1950-55 and 1965-75 (Figure 1). The difference between the rate of natural increase of the two countries has been the largest during 1995-2000 when the rate of natural increase in India was very close to 1.75 per cent per year whereas that of China was only about 0.69 per cent per year.

The transition in both fertility and mortality has also been slower in India than in China. The total fertility rate in China decreased from more than 6 during 1950-55 to 1.55 during 2000-05 and then increased marginally to 1.63 during 2005-10 resulting in a decrease of almost 4.5 absolute points during the 55 years under reference. By comparison, total fertility rate in India decreased by only around 3.2 absolute points during this period - from around 5.9 during 1950-55 to very close to 2.7 during 2005-10. During 1950-55, China's total fertility rate was higher than that of India. However, by 2000-05, China's total fertility rate reached well below the replacement level but India's total fertility rate continues to be well above the replacement level. Similarly, China's expectation of life at birth improved by almost 30 years during the period under reference compared to an improvement of less than 29 years in India. During 1950-55, there was a gap of less than 8.4 years between the expectation of life at birth of the two countries. This gap has increased to more than 9.5 years during 2005-10.

However, transition in both fertility and mortality has been more consistent in India than that in China. Fertility transition in China has been confined to the period 1965-80 and again to the period 1985-2000. In the remaining period, total fertility rate in China has remained almost stagnant or even increased. This has not been the case in India where the decrease in the total fertility rate was slow during the period 1950-70 but gained momentum after 1970 and, since then, has followed a distinct linear trend. Similarly, most of the increase in the expectation of life at birth in China has been confined to the period 1960-75. By contrast, the increase in the expectation of life at birth in India has followed a linear trend which, albeit, slowed down after 1975-80.

In both the countries, age structure effects have tended to inflate the age independent birth rate throughout the period under reference. In China, these effects were marginal during the period 1950 through 1975 when inflation in the birth rate resulting from age structure effects was less than 5 per cent of the age independent birth rate. However, these were more than 10 per cent during the period 1975 through 2000 while peaking during period 1990-95 when they inflated the age independent birth rate by almost 22 per cent. Since 1995-2000, age structure effects on birth rate have decreased rapidly in China and have become very close to one during 2005-2010.

In India also, age structure effects on birth rate started decreasing after 1995-2000 but the decrease has been very slow so that during the period 2005-2010, these effects inflated the age independent birth rate by more than 13 per cent. Otherwise also, age structure effects in India have always been more than one and increased up to 1990-95. During the period 1985-95, these effects appear to have inflated the age independent birth rate by almost 16 per cent.

On the other hand, age structure effects on the death rate have a deflating effect on the prevailing level of the life table death rate. The transition in age structure effects on the death rate has however been different in the two countries. In China, these effects deflated death rate by less than 10 per cent during the period 1950 through 1965. However, the ratio (d/l) decreased very sharply during the period 1960-80 so that by 1975-80, these effects deflated death rate by almost 53 per cent from the prevailing level of the life table death rate. Since 1975-80, the ratio (d/l) has remained unchanged so that by 2005-10, age structure deflated the death rate by about 52 per cent of the prevailing level of life table death rate. In India, on the other hand, the ratio (d/l) decreased throughout the period under reference and by 2005-10, these effects also accounted for about 48 per cent deflation in the death rate.

Table 2 decomposes the change in the rate of natural increase, r , into the change in intrinsic rate of growth, i , and the change in age structure effects, a in the two countries. In India, when i decreases, a increases so that the decrease in r is slower than the decrease in i , but when i increases, a also increases so that increase in r is faster than the increase in i . In China, a similar pattern prevailed during 1960-95. However, after 1995, decrease in l has been associated with the decrease in a also so that the decrease in r has been faster than the decrease in i . Similar situation prevailed in China during the period 1955-65 also.

The decrease in the rate of natural increase r is determined by the decrease in b and d . If decrease in b is faster than the decrease in d , r decreases but if the decrease in b is slower than the decrease in d , r increases. If b and d decrease by the same amount, there is no change in r . The decrease in b , in turn, depends upon the decrease in age independent birth rate, f , and the age structure effects on the birth rate, ab . Similarly, decrease in d depends upon the decrease in l , the life table death rate and the decrease in ad , the age structure effects on death rate.

The decomposition of the change in b in the two countries suggests that before 1995, changes in the age structure effects on the birth rate had been, in general, opposite to the change in the age independent birth rate. Exceptions to this general pattern is the period 1980-90 in China and the period 1965-75 in India. However, after 1995, changes in the age structure effects on the birth rate have been in the same direction as the change in the age independent birth rate. More specifically, in both the countries, changes in the age structure effects on the birth rate have tended to accelerate the decrease in the birth rate compared to the decrease in the age independent birth rate f .

As regards transition in the death rate, both change in the life table death rate, l , and change in the age structure effects on the death rate have contributed to the decrease in the death rate in India. However, the same has not been the case in China. During 1955-65, the change in the age structure effects on the death rate contributed to slowdown the increase in the death rate compared to the increase in the life table death rate. On the other hand, during the period 1975-90 and after 1995, the age structure effects on the death rate had depressed the decrease in the death rate compared to the decrease in the life table death rate.

Table 3 presents population transition in the two countries in terms of the change in the net addition to the population in different five-year periods. Unlike the transition in the rate of natural increase, the transition in the net addition to the population is also influenced by the size of the population. Because of the erratic transition in the rate of natural increase in China, the transition in the net addition to the population has also been erratic. The increase in r during 1960-1970 in China implies that the net addition to the country's population increased by more than 53 million during this period. Similarly, a rapid decrease in r between 1970 and 1980 implies that the net addition to the population was curtailed by more than 32 million during this period. After 1990, net addition to the population of China has been decreasing in every quinquennials. The decrease was quite substantial in the beginning but slowed down significantly in recent years because of near stagnation or even marginal increase in intrinsic rate of population growth.

In India, despite a decrease in r after 1975-80, net addition to the population continued to increase till 1990-95 when more than 87 million people were added to country's population. Since 1990, net addition to the population has also started decreasing but the magnitude of the decrease remains small. Between 1990-95 and 2005-10, net addition to the population of the country decreased by just around 5 million because of the large size effect.

Implications of the divergent population transition path followed by China and India are obvious. China has entered the post-transition phase while India continues to be somewhere in the middle of the population transition path. Although, the rate of natural increase in India has started decreasing and results of the 2011 population census suggest that the net decadal addition to the population in the country has decreased for the first time (Chaurasia, 2011a), yet she has failed to achieve the target of replacement fertility by 2010 and there is little possibility that the country will achieve the goal of zero population growth by the year 2045 as enshrined in the National Population Policy (Government of India, 2000).

Discussion

Population transition, essentially, emanates from the process of social and economic development. The experience of the European countries suggests that as social and economic development advances, death rate starts decreasing which is followed, usually after a certain time lag, by the decrease in the birth rate. As the result, the rate of natural increase first increases and then decreases. The time lag between the beginning of the decrease in the death rate and beginning of the decrease in the birth rate determines the increase in the size of the population stock. This 'normal' process of transition can be accelerated through specific policies and programmes directed towards reducing the birth rate, as social and economic progress automatically induces a decrease in the death rate. The effectiveness of birth rate reduction policies, therefore, determines the 'speed' of population transition. When the pace of induced transition is faster than the 'normal' pace of transition, population transition contributes to accelerating social and economic

development through what is termed as the demographic dividend. Otherwise, it hampers social and economic progress. Although, it is difficult to ascertain the 'normal' pace of transition, yet accelerating the pace of population transition, in this framework, is deemed essential for social and economic progress.

In line with the above argument, both China and India had made specific efforts to accelerate population transition right since 1950. China's achievements have been miraculous; she has actually over-shot expectations. In India, population transition has been relatively slow. One feature that distinguishes China from India is the sensitiveness of population transition to population and development policies. In China, population transition has been very highly sensitive to population policies adopted. In India, population transition path has hardly been influenced by these policies as is evident from slow but smooth transition in the rate of natural increase. This is so when commitment to reducing fertility and curtailing population growth has explicitly been highlighted throughout the development discourse of the country.

There are some common features and important differences in population stabilisation policies and efforts of the two countries. Main reason for China's exemplary success lies in the commitment of her national leaders to health care and birth planning; their authority over all tiers of government through cadre-based communist party and lack of any significant opposition. China has been able to astutely link birth planning to the revolutionary restructuring of the Chinese society and social and economic institutions. China is also blessed with a unique social and cultural homogeneity as more than 90 per cent of its population belongs to only one, Han, community. By contrast, the baffling cultural, social and political diversity in India has always been a major population and development challenge. India does not have the political system that has a dominating influence on the executive arm of the government in population related matters. Moreover, democratic franchising in India results in significant shifts in political power structures at national and state levels introducing a unique type of political inconsistency. In such a political environment, the task of translating population and development policies into programmes benefiting people is left at the discretion of the bureaucracy. People's involvement has always been notional by design in population transition efforts in India.

China achieved an advanced level of development when its population was in the pre-transition stage so that the threshold of development necessary for population transition was in place when population transition started. India, on the other hand, still continues to grapple with key development challenges. Development policies and programmes in India have not been able to create the environment that is conducive for hastening population transition.

Although, both the countries have followed the 'target' approach for furthering population transition, yet, the framework for implementing the approach has been different. In China, targets are set in terms of the maximum permissible rate of natural increase in each province after taking into consideration such factors as level of social and

economic development, past performance and ethnicity. Provincial governments translate these targets into birth quota for each county. This process is repeated down to the production team level where community birth-planning takes place. In India, targets were set in terms of minimum number of new acceptors of different family planning methods to be recruited in a year to achieve projected decline in the birth rate at the national level. These targets were then distributed right up to the sub-health centre level. The responsibility of achieving these targets rested with grass roots level health workers. As a result of the criticism to the target-based approach, India abolished the system of setting annual targets for recruitment of new acceptors of different methods of family planning and introduced the community needs assessment approach for family planning service delivery in 1996. The new approach, however, failed miserably as fertility of married women in the country and in its many states stagnated and even increased during 1996-2003 (Chaurasia, 2011b). In recent years, targets for family planning have again been introduced under the official family planning through back door and in different form.

Conclusions

India lags behind China by at least 30-35 years in population transition, although the two countries were nearly at the same stage of transition around 1950. During 2005-10, China had a birth rate of around 13, a death rate of 6.5, a total fertility rate of less than 1.6 and an expectation of life at birth of 74 years. India is expected to achieve a birth rate of 13 not before 2040-45 and an expectation of life at birth of 74 years not before the period 2055-60. Moreover, there is no possibility that India would be able to achieve the death rate that China achieved during the period 2000-05. The lowest death rate that India is projected to achieve is around 7.9 during 2010-15, after which the death rate will increase to almost 10 during the period 2045-50 as a result of population ageing. Similarly, the lowest total fertility rate that India is likely to achieve is 1.83 in 2065-70.

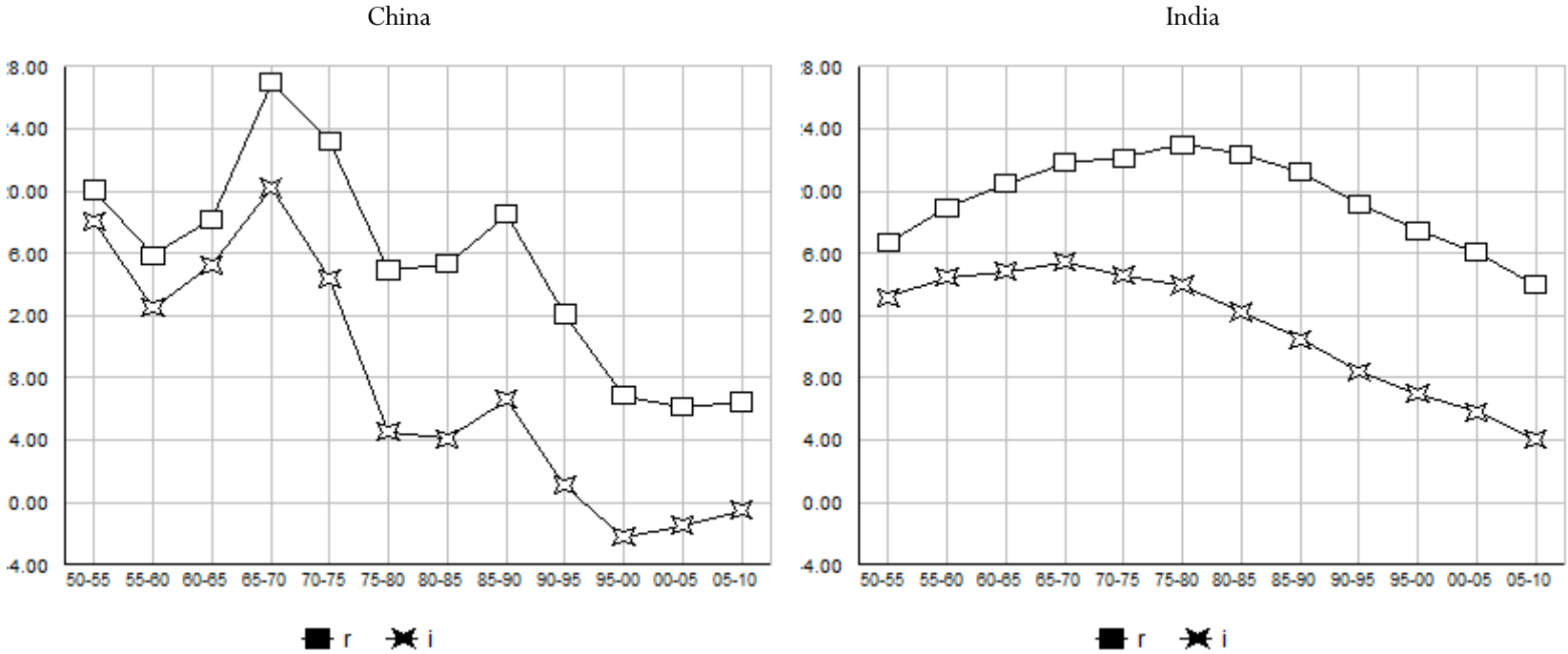
Implications of the slow population transition in India are obvious. India's population is projected to increase to more than 1620 million by the year 2050. India alone will account for more than 414 million of around 2637 million or almost 16 per cent of the projected increase in the world population between 2010 and 2050. By way of comparison, China's population is projected to increase by around 25 million during this period. India's population is most likely to increase up to the year 2063 when it will peak to around 1645 million.

China achieved signal successes in population transition through strong political commitment and tailoring birth control efforts to local circumstances through: 1) party driven mass mobilisation; 2) near universal availability of health and family welfare services; and 3) sharing the responsibility of health and family planning between national and local governments. India attempted to hasten population transition through bureaucratic channels. India still lacks the political commitment and bureaucratic capacity necessary to institutionalise a model of population and development that incorporates India's cultural, social and political diversity.

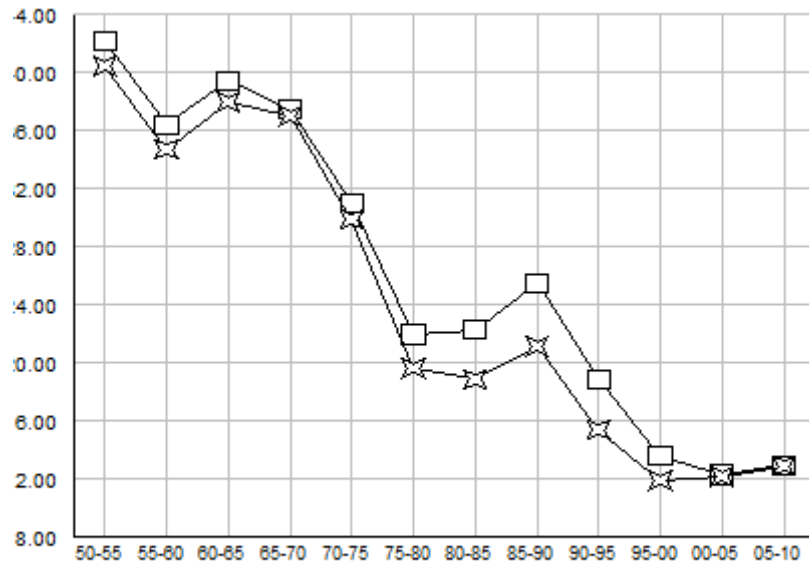
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Figure 1
 Population transition in China and India: 1950-2010

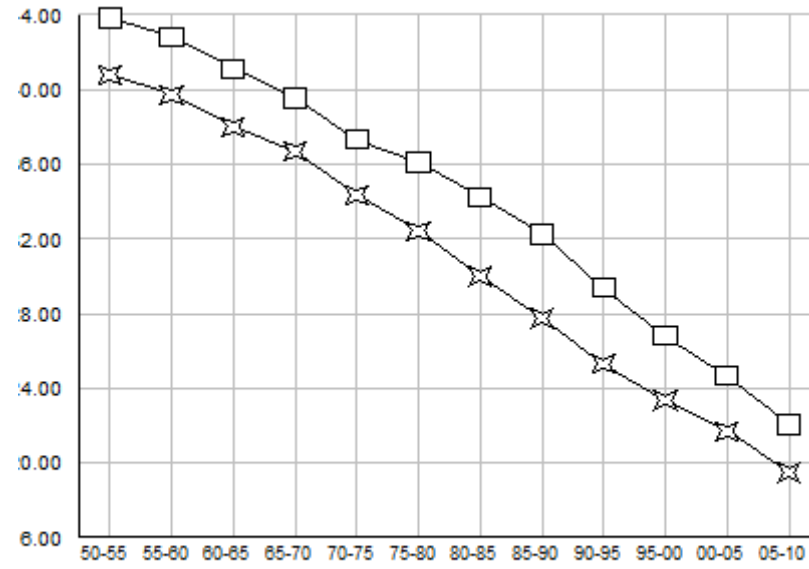


China



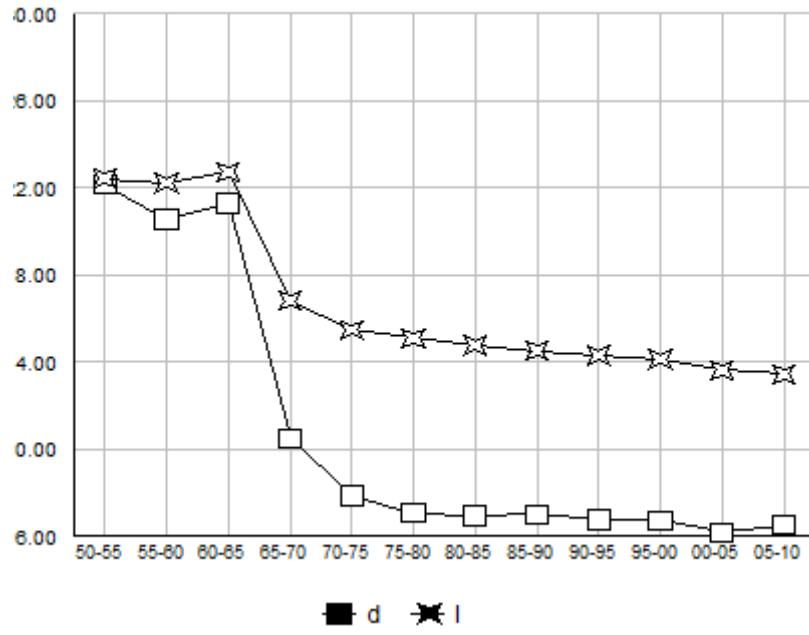
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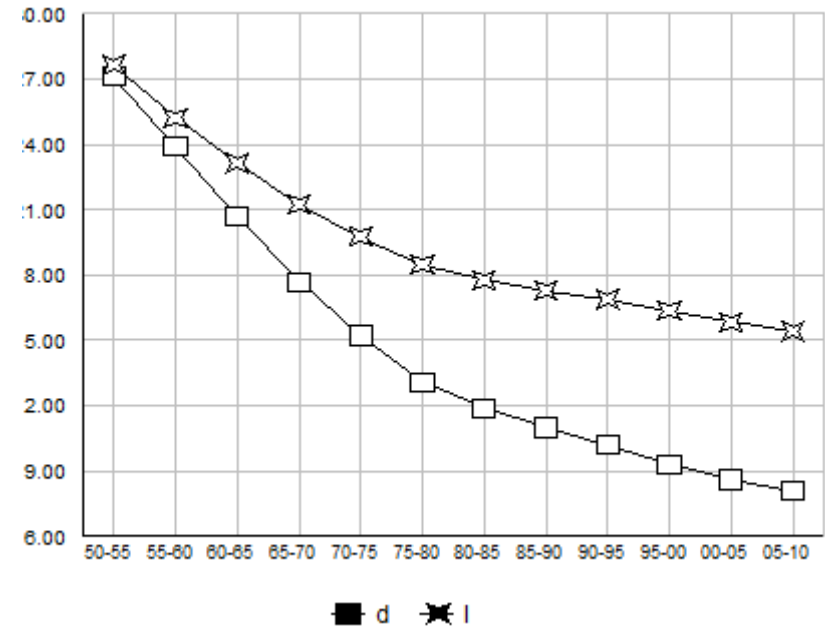
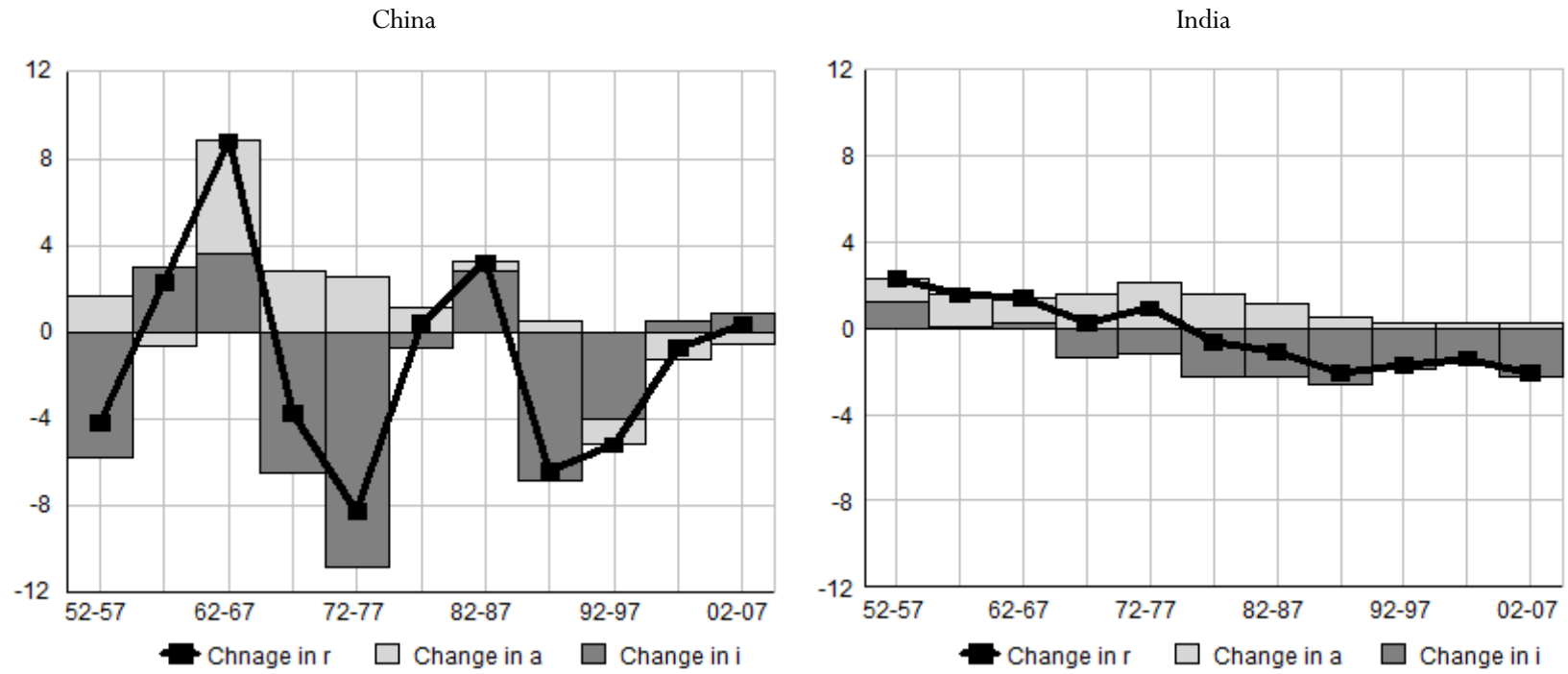
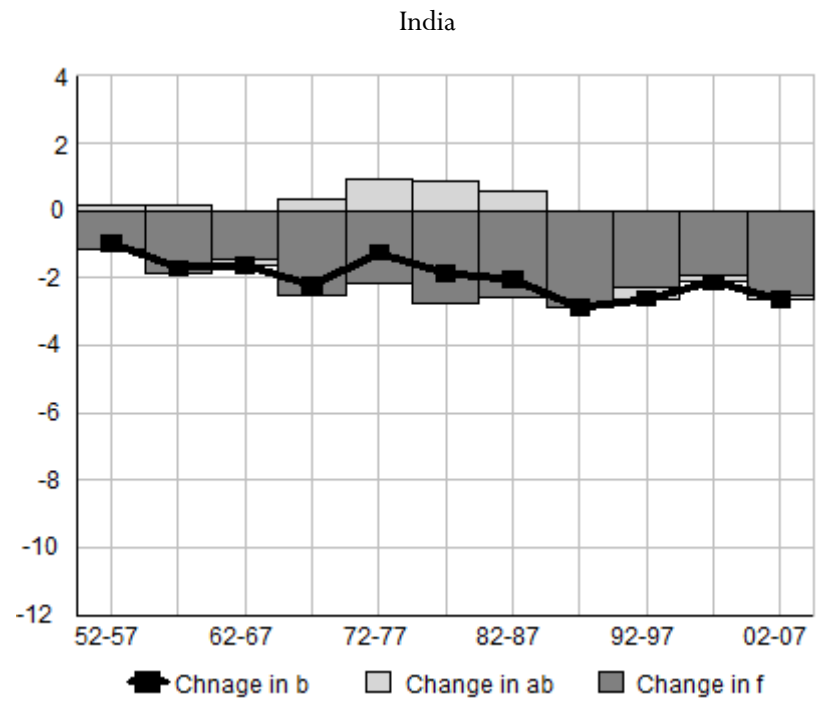
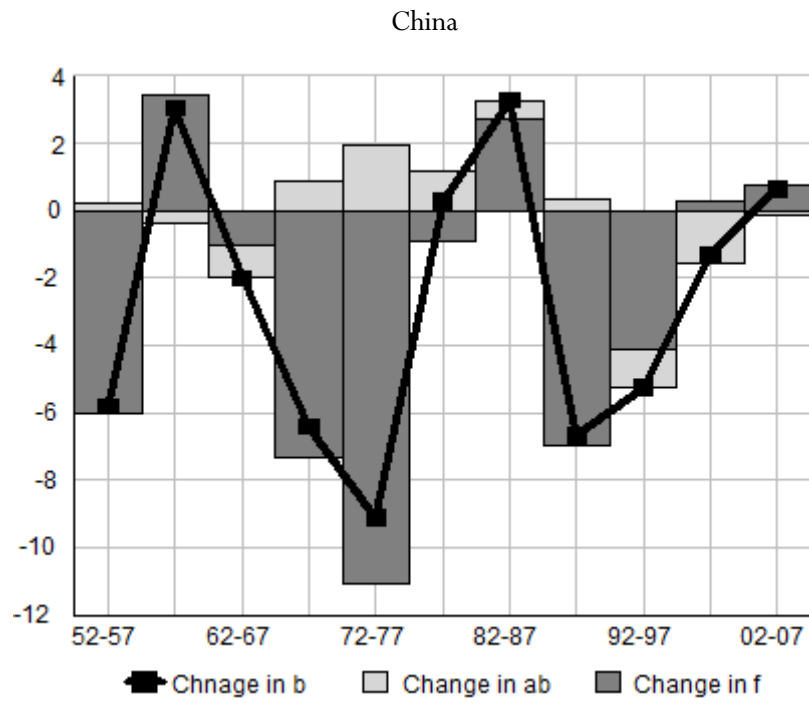


Figure 2
Decomposition of the change in the rate of natural increase in China and India





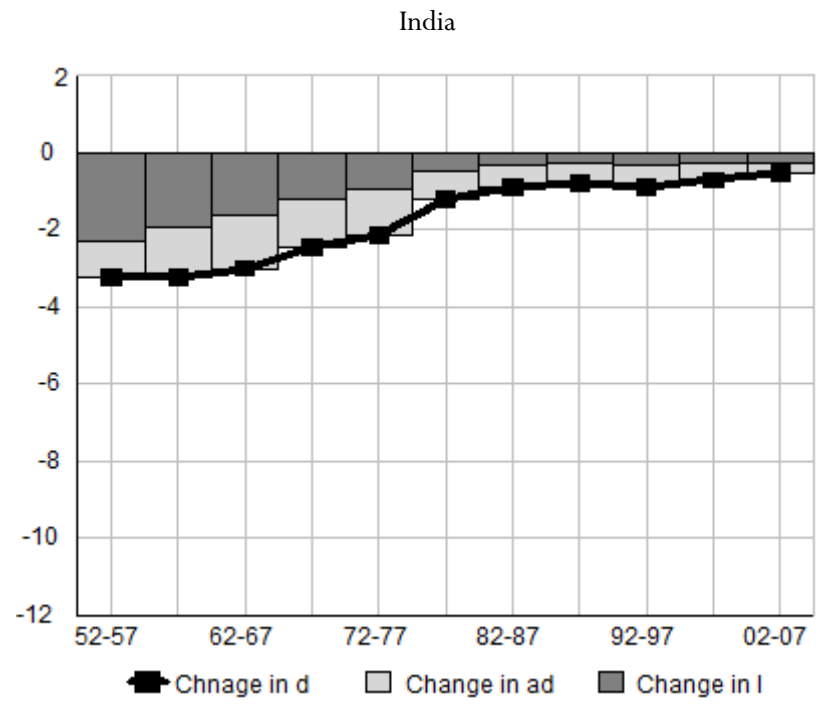
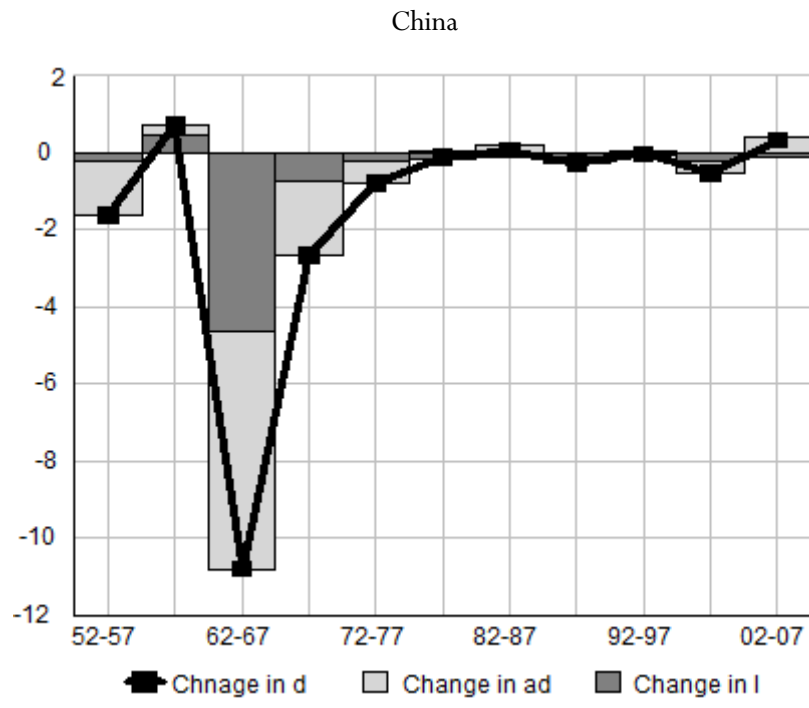


Table 1
Population scenario in China and India: 1950-2010

Year	Population (million)	CBR (0/00)	CDR (0/00)	TFR	E(0) (Year)	Females 15-49 (%)	Age independent birth rate (0/00)	Age independent death rate (0/00)	Age structure effects on birth rate (0/00)	Age structure effects on death rate (0/00)
China										
1950	543.776					23.86				
1955	600.995	42.247	22.173	6.107	44.583	22.54	40.478	22.43	1.0437	0.9885
1960	650.680	36.449	20.560	5.476	44.998	21.84	34.722	22.223	1.0497	0.9252
1965	711.547	39.481	21.297	6.112	43.967	21.65	37.997	22.744	1.0391	0.9364
1970	814.378	37.476	10.500	5.937	59.421	21.89	37.02	16.829	1.0123	0.6239
1975	913.570	31.068	7.858	4.765	64.577	21.95	29.895	15.485	1.0392	0.5074
1980	984.016	21.970	7.060	3.014	66.287	23.57	19.64	15.086	1.1186	0.468
1985	1062.299	22.268	6.948	2.692	67.712	25.38	18.868	14.768	1.1802	0.4704
1990	1165.429	25.538	7.011	2.866	68.918	26.18	21.146	14.51	1.2077	0.4832
1995	1237.531	18.870	6.763	2.050	69.955	26.39	15.406	14.295	1.2249	0.4731
2000	1280.429	13.615	6.727	1.560	70.860	27.05	11.913	14.112	1.1429	0.4767
2005	1318.177	12.326	6.188	1.550	73.411	27.84	12.158	13.622	1.0138	0.4543
2010	1359.821	12.976	6.512	1.630	74.443	27.63	12.918	13.433	1.0045	0.4848

Year	Population (million)	CBR (0/00)	CDR (0/00)	TFR	E(0) (Year)	Females 15-49 (%)	Age independent birth rate (0/00)	Age independent death rate (0/00)	Age structure effects on birth rate (0/00)	Age structure effects on death rate (0/00)
India										
1950	376.325					24.36				
1955	408.974	43.829	27.132	5.903	36.187	23.97	40.777	27.634	1.0748	0.9818
1960	449.595	42.848	23.904	5.896	39.625	23.16	39.713	25.237	1.0789	0.9472
1965	497.952	41.142	20.672	5.822	43.210	22.51	38.006	23.143	1.0825	0.8933
1970	555.200	39.533	17.677	5.687	47.056	22.59	36.692	21.251	1.0774	0.8318
1975	622.232	37.326	15.217	5.264	50.565	23.00	34.351	19.777	1.0866	0.7694
1980	698.966	36.097	13.092	4.889	54.153	23.31	32.408	18.466	1.1138	0.7089
1985	781.737	34.244	11.888	4.469	56.261	23.58	29.991	17.774	1.1418	0.6688
1990	868.891	32.230	11.006	4.091	57.831	23.80	27.739	17.292	1.1619	0.6365
1995	955.804	29.377	10.206	3.666	59.253	24.38	25.282	16.877	1.162	0.6047
2000	1042.262	26.774	9.308	3.299	61.153	25.06	23.335	16.352	1.1474	0.5692
2005	1127.144	24.649	8.604	2.998	63.096	25.47	21.663	15.849	1.1378	0.5429
2010	1205.625	22.041	8.073	2.658	64.926	25.71	19.451	15.402	1.1331	0.5241

Source: United Nations (2012)

Table 2
Decomposition of the change in the natural population growth rate (per 1000) in China and India

Period	r	i	r	Contribution of		b	Contribution of		d	Contribution of	
				i	a		f	ab		l	ad
China											
1950-55	20.074	18.048									
1955-60	15.889	12.499	-4.185	-5.827	1.643	-5.798	-6.025	0.228	-1.613	-0.198	-1.415
1960-65	18.184	15.252	2.295	2.935	-0.640	3.032	3.420	-0.388	0.737	0.485	0.252
1965-70	26.977	20.191	8.793	3.613	5.180	-2.005	-1.002	-1.003	-10.798	-4.615	-6.183
1970-75	23.21	14.410	-3.766	-6.548	2.782	-6.408	-7.308	0.900	-2.642	-0.760	-1.882
1975-80	14.91	4.554	-8.301	-10.870	2.570	-9.099	-11.065	1.966	-0.798	-0.195	-0.603
1980-85	15.32	4.099	0.411	-0.738	1.149	0.298	-0.887	1.186	-0.112	-0.149	0.037
1985-90	18.527	6.636	3.207	2.843	0.363	3.270	2.720	0.550	0.063	-0.123	0.186
1990-95	12.108	1.111	-6.419	-6.879	0.460	-6.668	-6.982	0.314	-0.248	-0.103	-0.145
1995-00	6.888	-2.199	-5.220	-4.048	-1.171	-5.255	-4.135	-1.120	-0.036	-0.087	0.051
2000-05	6.137	-1.464	-0.751	0.492	-1.243	-1.289	0.264	-1.553	-0.539	-0.228	-0.311
2005-10	6.464	-0.515	0.327	0.856	-0.529	0.650	0.767	-0.117	0.324	-0.089	0.412
<i>1950-2010</i>			<i>-13.609</i>	<i>-24.172</i>	<i>10.563</i>	<i>-29.270</i>	<i>-30.233</i>	<i>0.963</i>	<i>-15.661</i>	<i>-6.061</i>	<i>-9.600</i>

Period	r	i	r	Contribution of		b	Contribution of		d	Contribution of	
				i	a		f	ab		l	ad
India											
1950-55	16.696	13.143									
1955-60	18.944	14.476	2.247	1.166	1.081	-0.981	-1.146	0.165	-3.228	-2.313	-0.916
1960-65	20.47	14.863	1.526	0.082	1.444	-1.705	-1.845	0.139	-3.232	-1.927	-1.305
1965-70	21.856	15.441	1.386	0.212	1.174	-1.610	-1.419	-0.190	-2.996	-1.631	-1.364
1970-75	22.109	14.574	0.253	-1.353	1.606	-2.207	-2.533	0.327	-2.460	-1.181	-1.279
1975-80	23.005	13.942	0.896	-1.169	2.065	-1.229	-2.138	0.908	-2.125	-0.969	-1.156
1980-85	22.356	12.217	-0.649	-2.249	1.600	-1.853	-2.726	0.873	-1.204	-0.477	-0.727
1985-90	21.224	10.447	-1.132	-2.279	1.147	-2.013	-2.594	0.581	-0.881	-0.315	-0.567
1990-95	19.171	8.405	-2.053	-2.598	0.545	-2.853	-2.855	0.002	-0.800	-0.258	-0.542
1995-00	17.466	6.982	-1.706	-1.940	0.235	-2.603	-2.248	-0.355	-0.898	-0.308	-0.590
2000-05	16.045	5.814	-1.421	-1.630	0.209	-2.125	-1.910	-0.215	-0.704	-0.280	-0.424
2005-10	13.969	4.049	-2.076	-2.273	0.197	-2.608	-2.511	-0.097	-0.532	-0.238	-0.293
<i>1950-2010</i>			<i>-2.728</i>	<i>-14.030</i>	<i>11.302</i>	<i>-21.787</i>	<i>-23.925</i>	<i>2.138</i>	<i>-19.059</i>	<i>-9.895</i>	<i>-9.164</i>

Source: Author's calculations

Table 3

Decomposition of the change in the net addition to the population in China and India: 1950-2010

Period		Net addition (million)	Change in net addition (million)	Contribution of						
Start	End			Change in size (million)	<i>i</i> (million)	<i>a</i> (million)	<i>f</i> (million)	<i>ab</i> (million)	<i>l</i> (million)	<i>ad</i> (million)
China										
1950	1955	57.385								
1955	1960	49.693	-7.692	4.834	-18.035	0.681	-18.035	0.681	-0.592	-4.235
1960	1965	61.925	12.232	4.736	11.172	-1.268	11.172	-1.268	1.584	0.823
1965	1970	102.844	40.919	9.185	-3.616	-3.619	-3.616	-3.619	-16.654	-22.314
1970	1975	100.306	-2.538	12.779	-29.722	3.661	-29.722	3.661	-3.091	-7.652
1975	1980	70.874	-29.432	8.232	-50.208	8.923	-50.208	8.923	-0.884	-2.737
1980	1985	78.542	7.668	5.639	-4.383	5.858	-4.383	5.858	-0.736	0.181
1985	1990	103.366	24.824	7.659	14.561	2.943	14.561	2.943	-0.660	0.998
1990	1995	72.926	-30.440	6.800	-40.503	1.824	-40.503	1.824	-0.597	-0.843
1995	2000	43.504	-29.422	2.782	-25.512	-6.911	-25.512	-6.911	-0.535	0.315
2000	2005	40.046	-3.458	1.361	1.694	-9.973	1.694	-9.973	-1.466	-1.994
2005	2010	43.529	3.482	1.316	5.086	-0.774	5.086	-0.774	-0.588	2.733
1950	2010		-13.856	65.324	-115.248	36.068	-139.466	1.344	-24.218	-34.724

Period		Net addition (million)	Change in net addition (million)	Contribution of						
Start	End			Change in size (million)	<i>i</i> (million)	<i>a</i> (million)	<i>f</i> (million)	<i>ab</i> (million)	<i>l</i> (million)	<i>ad</i> (million)
India										
1950	1955	32.755								
1955	1960	40.626	7.871	3.257	-2.353	0.339	-2.353	0.339	-4.748	-1.880
1960	1965	48.443	7.817	4.375	-4.161	0.314	-4.161	0.314	-4.346	-2.943
1965	1970	57.494	9.051	5.587	-3.546	-0.476	-3.546	-0.476	-4.076	-3.409
1970	1975	64.914	7.420	6.715	-7.051	0.909	-7.051	0.909	-3.286	-3.561
1975	1980	75.603	10.689	7.903	-6.651	2.826	-6.651	2.826	-3.013	-3.598
1980	1985	82.288	6.685	8.946	-9.495	3.041	-9.495	3.041	-1.660	-2.534
1985	1990	87.109	4.821	9.227	-10.098	2.261	-10.098	2.261	-1.226	-2.205
1990	1995	87.041	-0.069	8.805	-12.341	0.010	-12.341	0.010	-1.113	-2.345
1995	2000	86.900	-0.141	7.974	-10.696	-1.690	-10.696	-1.690	-1.464	-2.807
2000	2005	86.805	-0.095	7.283	-9.918	-1.117	-9.918	-1.117	-1.454	-2.203
2005	2010	81.459	-5.346	6.325	-14.115	-0.543	-14.115	-0.543	-1.340	-1.648
1950	2010		48.704	76.396	-62.697	35.006	-90.425	5.873	-27.728	-29.133

Source: Author's calculations

Population and Development in Empowered Action Group (EAG) States of India with Reference to Madhya Pradesh Emerging Issues and Challenges

HC Srivastava

Introduction

India has acknowledged the importance of population and development since past couple of decades. India's population has crossed one billion mark at the end of the last century and as per the 2011 population census, it stands at 1.22 billion (Government of India, 2011). According to United Nations medium variant population projections, India will become the most populous country of the world by 2045, surpassing China. It is expected that India's population is likely to be stabilized during the second half of the current century. With the decline in fertility and mortality over the past several decades, India has progressed on the path of demographic transition, although the pace of transition varies by states. More than half of the states in India achieved the replacement fertility by 2008 but it still remains high in most of the Empowered Action Group (EAG) states - Bihar, Madhya Pradesh, Odisha, Rajasthan and Uttar Pradesh, together with newly constituted states Jharkhand, Chhattisgarh and Uttarakhand. These states had a combined TFR of 4.2 around 2000. It will take about 26 years for this region to reach the replacement fertility under the current rate of fertility decline. Without accelerating fertility decline in these states, India cannot expect to achieve replacement fertility in the near future. These states constitute nearly 46 per cent of India's population. Population stabilisation in India, therefore, will depend heavily on fertility decline in these states.

Studies carried out in different parts of the world have shown that there are linkages between population transition and social and economic development. It is now well known that social and economic progress in any region is linked with the demographic characteristics of the population. As such there is a need to understand population and development linkages in EAG states of India which lag behind other states of the country in terms of both demographic transition and social and economic development. The present paper is an attempt in this direction.

Selected Demographic and Socio-economic Characteristics of EAG States

Selected demographic characteristics of India's population and population of EAG states based on 2011 population census are presented in table 1. Uttar Pradesh accounts for more than 16 per cent of the population of the country whereas Uttarakhand accounts for less than one per cent. Madhya Pradesh accounts for 6 per cent population of the country.

The decadal population growth in India during 1991-2001 was 21.54 per cent. In EAG states it varied from 28.62 per cent in Bihar followed by 28.41 per cent in Rajasthan to 16.25 per cent in Odisha. During the period 2001-2011 also, the decadal population growth was the highest in Bihar (25.07 per cent) and the lowest in Odisha (13.97 per cent). Odisha is the only EAG state where decadal population growth has been less than the national average. The decadal population growth in Madhya Pradesh was 20.3 per cent during 2001-11 according to the 2011 population census. Decadal population growth in Madhya Pradesh has always been higher than the national average. Compared to 1991-2001, decadal population growth in Madhya Pradesh decreased by around 4 percentage points during 2001-2011. Compared to Madhya Pradesh, decrease in decadal population growth has been faster in Rajasthan whereas in India, decadal population growth decreased by 3.9 percentage points.

Population density. Among the EAG states, population density is the highest in Bihar (1102 persons per sq Km) but the lowest in Chhattisgarh and Uttarakhand (189 persons per Sq km). In Madhya Pradesh, population density is estimated to be 236 persons per sq km.

Sex composition. Sex composition of India's population and population of EAG states is presented in table 2 for the years 2001 and 2011. Population sex ratio in India increased from 933 to 940 females per 1000 males between 2001 and 2011. Among the EAG states, population sex ratio increased in all states except Bihar where it decreased from 919 females per 1000 males in 2001 to 916 females per 1000 males in 2011. In 2011, population sex ratio varied between 991 females per 1000 males in Chhattisgarh to 916 females per 1000 males in Bihar. In Madhya Pradesh, there were 930 females per 1000 males in 2011.

The trend in the sex ratio of the population aged 7 years and above has been the same as the trend in the population sex ratio. However, the child sex ratio, sex ratio of the population aged 0-6 years, has decreased in the country and in all EAG states between 2001 and 2011. It is a matter of concern. The prevailing socio-cultural bias for son preference has to be changed by highlighting the importance of daughters in the context of small family norm.

Population composition. The socio-economic profile of EAG states is presented in table 3. Around 48 per cent of the Scheduled Castes (SC) population of the country lives in EAG states. The corresponding proportion of Scheduled Tribes (ST), Other Backward

Classes (OBC) and Muslims is respectively 52 per cent, 53 per cent and 44 per cent. Population composition plays a significant role in influencing human development indicators in EAG states. Within EAG states, population composition varies widely. The proportion of Scheduled Castes population varies from 21 per cent in Uttar Pradesh to around 12 per cent in Jharkhand whereas the proportion of Scheduled Tribes population varies from 31 per cent in Chhattisgarh to less than 1 per cent in Uttar Pradesh. Uttar Pradesh and Bihar account for one almost one third of Other Backward Classes and Muslims of the country. The incidence of poverty is also high in EAG states. Except Rajasthan, the proportion of population below the poverty line in all EAG states is higher than the national average.

Vital statistics. Recent estimates of selected demographic indicators of EAG states are presented in table 4. Poor demographic situation in EAG states as compared to the national average is very much obvious from the table. In all EAG states, except Odisha and Uttarakhand, the crude birth rate is higher than the national average. Similarly, in all EAG states, except Jharkhand and Uttarakhand, the infant mortality rate is higher than the national average. As regards crude death rate, it is lower than the national average in four states - Bihar, Jharkhand, Rajasthan and Uttarakhand. Moreover, the rural-urban differentials in all the three demographic indicators are quite sharp in all EAG states. For example, in Madhya Pradesh, there is a very wide gap in the infant mortality rate in rural and urban areas.

Age at marriage and mean number of children ever born. In India, around 23.4 per cent males and 22.1 per cent females are estimated to have got married before reaching the legal minimum age at marriage - 21 years for males and 18 years for females (Table 5). These proportions vary widely across EAG states. The proportion of men married before reaching the legal minimum age at marriage varies from 48 per cent in Rajasthan to 9 per cent in Uttarakhand. On the other hand, the proportion of females married before reaching the legal minimum age at marriage varies from 44 per cent in Bihar to 5 per cent in Uttarakhand. Similarly, the mean number of children ever born to women aged 15-49 years is higher than the national average in all EAG states except Odisha.

Literacy. The effective literacy rate in India was estimated to be 74 per cent at the 2011 population census - 82 per cent for males and 65 per cent for females. Between 2001 and 2011, total number of literates in the country increased by almost 39 per cent (Table 6). Among the EAG states, literacy rate varied from almost 80 per cent in Uttarakhand to around 64 per cent in Bihar at the 2011 population census. The male literacy rate varied from 88 per cent in Uttarakhand to 73 per cent in Bihar whereas the female literacy rate varied from around 71 per cent in Uttarakhand to 53 per cent in Rajasthan. In Madhya Pradesh literacy rate was 71 per cent at the 2011 population census - 81 per cent for males and 60 per cent for females. Uttarakhand is the only state among the EAG states where the effective literacy rate was found to be higher than the national average at the 2011 population census. All other EAG states have effective literacy rate which is lower than the national average.

Maternal and child health. In India, around 54 per cent children of 12-23 months of age are full immunised (Table 7). This proportion in EAG states varies from 63 per cent in Uttarakhand to 30 per cent in Uttar Pradesh. In Madhya Pradesh, only 36 per cent children aged 12-23 months have been found to be fully immunised. The proportion of children aged 12-23 months who have not received any vaccination is around 5 per cent. In EAG states, this proportion is 12 per cent in Rajasthan but less than 2 per cent in Bihar. Similarly, the proportion of children who received at least one dose of Vitamin A ranges from almost 75 per cent in Odisha to only 33 per cent in Uttar Pradesh.

Availability of health facilities. Around 46 per cent of the villages in India have some type of government health facility (Table 8). In EAG states, this proportion varies from 66 per cent in Odisha to nearly 29 per cent in Madhya Pradesh. The proportion of villages having government health facility has been found to be lower than the national average in all EAG states except Odisha and Rajasthan. Similarly, more than 60 per cent villages in India have an ASHA worker whereas in EAG states, this proportion varies from more than 90 per cent in Chhattisgarh to 54 per cent in Jharkhand. In Madhya Pradesh, more than 74 per cent villages have an ASHA worker. In India, more than three-fourth of the women aged 15-49 years have received any antenatal care service. In EAG states, this proportion varies from 84 per cent in Odisha to 55 per cent in Uttarakhand. In India, institutional deliveries account for 47 per cent of all deliveries. This proportion varies from 47 per cent in Madhya Pradesh to 18 per cent in Chhattisgarh. There is no EAG state where the proportion of institutional deliveries to total deliveries is found to be higher than the national average.

Household amenities. More than 70 per cent of the households in India have electricity (Table 9). Among EAG states, this proportion varies from 83 per cent in Uttarakhand to only 22 per cent in Bihar. In India, more than 49 per cent households have toilet facility. In all EAG states except Uttarakhand, this proportion is very low. In Uttarakhand, more than 55 per cent households have a toilet facility. In India, nearly 88 per cent households were found to be having improved source of drinking water. In EAG states, this proportion varies from 96 per cent in Bihar to 57 in Jharkhand. Finally, 33 per cent houses in India are pucca houses whereas this proportion in EAG states varies from 56 per cent in Uttarakhand to 11 per cent in Chhattisgarh. In Madhya Pradesh 18.5 per cent houses are pucca houses.

Human development. Human development outcomes are functions of economic growth, social policies and poverty reduction strategies. Investments in health and education enhances human functionings which, in turn, promote economic growth and reduce poverty. The human development index (HDI) is the most widely used to measure human development. All EAG states have HDI below the national average (Table 10) and there has been little change in the ranking of these states over time. It is only in case of Jharkhand that the ranking has improved. Rank of Chhattisgarh and Rajasthan has decreased while there has been no change in the rank of Madhya Pradesh, Odisha and Rajasthan. All EAG states rank very low in HDI in the country.

Emerging Issues

EAG states account for a significant proportion of India's population. As such, socio-economic and demographic characteristics of these states play significant role in deciding the socio-economic and demographic situation of the country. It is therefore necessary to accord special attention to these states for their multidimensional development. Achieving population stabilization in India, for example, depends significantly upon achieving population stabilisation in EAG states.

Among EAG states, the demographic situation in Odisha and Uttarakhand is different from other states. As such, factors behind comparatively better demographic situation in Odisha and Uttarakhand may be studied and, if feasible, approach adopted in the two states may be replicated in other EAG states also.

There is a need to change the attitude and behaviour of the people as far as existing practices of marriage are concerned. It is therefore recommended that special programme may be launched for increasing the age at marriage in EAG states. Increase in education among people, especially females may yield good results in this regard. There is also a pressing need to improve existing maternal and child health care and facilities in these states. Connectivity of isolated and remotely located areas by roads should also be given top priority.

In the economic sector, area based employment opportunities may be created for solving the unemployment problem in these states. This may be possible by pursuing sustainable model of development. Some of the strategies that may be adopted in this regard include strengthening infrastructure facilities, particularly in the rural areas, availability of electricity, drinking water, transport and communication, well equipped health facilities, etc. Last but not the least, the focus of development should be human development and not the economic growth.

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Table 1
Selected demographic characteristics of India's population and population of EAG states: 1991-2011

India/States	Proportion of India's population (Per cent)	Decadal population growth (Per cent)		Change in decadal population growth	Population density (sq km)
		1991-2001	2001-2011		
India	100.00	21.54	17.64	-3.90	382
Bihar	8.58	28.62	25.07	-3.55	1102
Chhattisgarh	2.11	18.27	22.59	4.32	189
Jharkhand	2.72	23.36	22.34	-1.02	414
Madhya Pradesh	6.00	24.26	20.30	-3.96	236
Odisha	3.47	16.25	13.97	-2.28	269
Rajasthan	5.67	28.41	21.44	-6.97	201
Uttar Pradesh	16.49	25.85	20.09	-5.76	828
Uttarakhand	0.84	20.41	19.17	-1.24	189

Source: Census of India 1991, 2001, 2011

Table 2
Sex ratio of India's population and population of EAG states, 2001-11

India/states	Sex Ratio (females per 1000 males)					
	Total population		Population (0-6) years		Population aged 7 years and above	
	2001	2011	2001	2011	2001	2011
India	933	940	927	914	934	944
Bihar	919	916	942	933	914	912
Chhattisgarh	989	991	975	964	992	995
Jharkhand	941	947	965	943	943	948
Madhya Pradesh	919	930	932	912	916	933
Odisha	972	978	953	934	976	985
Rajasthan	921	926	909	883	923	935
Uttar Pradesh	898	908	916	899	894	910
Uttarakhand	962	963	908	886	973	975

Source: Same as mentioned below Table 1

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Table 3
Socio- economic and demographic profile of India and EAG states

State	Population composition (Per cent)				Growth rate of per capita NSDP at 1999-2000 prices (1999-2008) (Per cent)	Poverty incidence (2004-05) (Per cent)
	SC	ST	OBC	Muslims		
India	100.0	100.0	100.0	100.0	5.6	28.3
Bihar	11.7	1.2	16.6	13.4	4.5	41.4
Chhattisgarh	1.6	10.0	2.3	0.2	6.6	40.9
Jharkhand	3.8	9.6	3.0	3.4	4.8	40.3
Madhya Pradesh	3.9	11.1	4.3	2.4	1.6	38.3
Odisha	3.4	9.7	3.1	0.6	6.9	46.4
Rajasthan	5.6	8.7	6.5	3.5	4.5	22.1
Uttarakhand	0.9	0.2	0.4	1.2	7.0	39.6
Uttar Pradesh	17.0	1.2	16.3	19.2	2.6	32.8
Sub-Total	47.9	51.7	52.5	43.9		

Source: National Sample Survey Organisation

Table 4
Vital statistics of India and EAG states, 2013

India/States	Crude Birth Rate			Crude Death Rate			Infant Mortality Rate		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
India	21.6	23.1	17.4	7.4	8.4	5.1	42	46	28
Bihar	27.7	28.4	21.6	6.6	6.7	5.5	43	44	34
Chhattisgarh	24.5	26.0	18.0	7.9	8.3	5.9	47	48	39
Jharkhand	24.7	26.1	18.7	6.8	7.1	5.1	38	39	29
Madhya Pradesh	26.6	28.5	19.8	8.1	8.6	6.1	56	60	37
Odisha	19.9	20.8	14.6	8.5	8.9	6.4	53	55	39
Rajasthan	25.9	27.0	22.1	6.6	6.9	5.7	49	54	31
Uttar Pradesh	27.4	28.4	23.5	7.7	8.1	6.0	53	56	39
Uttarakhand	18.5	19.1	15.9	6.1	6.5	4.8	34	36	23

Source: Sample Registration System

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Table 5
Proportion of females and males married before legal minimum age at marriage and mean number of children ever born to women aged 15-49 years in India and EAG states

India/EAG States	Proportion of females and males married before minimum legal age at marriage (Per cent)		Mean number of children ever born to the women aged (15-49) years
	Males <21 years	Females <18 years	
	India	23.4	
Bihar	42.8	45.9	3.44
Chhattisgarh	29.1	21.3	2.9
Jharkhand	32.3	35.9	2.94
Madhya Pradesh	40.5	29.0	3.11
Odisha	13.4	19.1	2.64
Rajasthan	48.0	39.9	2.98
Uttar Pradesh	43.3	32.9	3.6
Uttarakhand	9.1	5.7	2.78

Source: District level Household and Facility Survey, 2007-08.

Table 6
Literacy rates by sex in India and EAG states 2011

India/EAG states	Literacy Rate(Percent)			Increase in the number of literates between 2001-2011 (Per cent)
	Persons	Males	Females	
India	74.04	82.14	65.46	38.82
Bihar	63.82	73.39	53.33	74.83
Chhattisgarh	71.04	81.45	60.59	39.61
Jharkhand	67.63	78.45	56.21	59.24
Madhya Pradesh	70.63	80.53	60.02	38.73
Odisha	73.45	82.40	64.36	36.68
Rajasthan	67.06	80.51	52.66	40.68
Uttar Pradesh	69.72	79.24	59.26	56.4
Uttarakhand	79.63	88.33	70.70	37.05

Source: Census, 2011

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Table 7

Immunisation status of children aged (12-23 Months) in India and states

India/EAG states	Proportion (per cent) of children aged 12-23 months		
	Fully immunised*	Not immunised	Received at least one dose of Vitamin-A
India	53.5	4.6	56.8
Bihar	41.4	1.6	51.8
Chhattisgarh	59.3	2.3	68.5
Jharkhand	54.0	9.1	63.7
Madhya Pradesh	36.0	9.6	41.1
Odisha	62.3	2.1	74.7
Rajasthan	48.7	12.1	52.5
Uttar Pradesh	30.2	3.4	33.3
Uttarakhand	62.9	7.1	69.9

* Children who received one dose of BCG, three doses of DPT and OPV and one dose of measles vaccine.

Source: Indian Facility Survey, 2005

Table 8

Villages with any government health facility, ASHA, JSY beneficiary and women who received ANC and had institutional delivery

India/states	Villages with			Women (15-49) who received any ANC (Per cent)	Women who had institutional delivery (Per cent)
	Government health facility	ASHA	JSY Beneficiary		
India	46.2	60.1	73.7	75.1	46.9
Bihar	36	79.9	73.6	59.1	27.5
Chhattisgarh	32.1	91.1	79.6	79.6	18.0
Jharkhand	30.0	54.1	52.2	55.8	17.7
Madhya Pradesh	28.9	74.3	91.3	61.7	46.9
Odisha	66.3	54.6	51.9	84.0	44.1
Rajasthan	48.9	73.3	95.7	56.6	45.4
Uttar Pradesh	39.7	86.3	63.6	64.2	24.5
Uttarakhand	29.5	75.4	62.4	55.3	30

Source: District Level Household and Facility Survey, 2007-08

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Table 9
Housing amenities in India and EAG states

India/States	Households with			
	Electricity (Per cent)	Improved source of drinking water (Per cent)	Access to toilet facility	Pucca house
India	70.3	84.4	49.3	32.7
Bihar	21.7	92.5	17.0	14.8
Chhattisgarh	71.2	82.0	17.9	10.5
Jharkhand	32.5	51.5	14.5	13.5
Madhya Pradesh	75.6	80.8	22.9	18.5
Odisha	38.8	76.7	16.9	15.8
Rajasthan	61.7	81.8	25.1	37.7
Uttar Pradesh	37.9	94.8	26.4	22.8
Uttarakhand	83.4	87.7	53.2	55.7

Source: District Level Household and Facility Survey, 2007-08

Table 10
Ranking of states according to Human Development Index

India/States	HDI	HDI	Rank	Rank
	1999-2000	2007-08	1999-2000	2007-8
India	0.387	0.467		
Bihar	0.292	0.367	19	21
Chhattisgarh	0.278	0.358	21	23
Jharkhand	0.268	0.376	23	19
Madhya Pradesh	0.285	0.375	20	20
Odisha	0.275	0.362	22	22
Rajasthan	0.387	0.434	14	17
Uttar Pradesh	0.316	0.380	18	18

Source: India Human Development Report, 2011

Secular Attitudes and Participation in Social and Political activities A study of Indian Youth

Manisha Pal

Introduction

“Youth” is best understood as a period of transition from the dependence of childhood to independence of adulthood. It is a more fluid category than a fixed age-group. United Nations defines “Youth” as people who fall in the age group of 15-24 years. “Youth”, today, comprise more than a quarter of the world’s population. Over 3 billion of the world’s population is under 25 years of age. This population is the future of world (Wolfensohn, 2003). Youth as a group is always considered as the greatest wealth and strength of any country. Moreover, their involvement in mainstream activities determines the growth and development of the nation. Throughout the world, hundreds of thousands of young people are spearheading positive social change - leading community initiatives and re-shaping political processes (USAID, 2009).

India, the second most populous country after China, has the largest youth population in the world. According to the 2011 population census, 34 per cent of India’s population is in the age group 10-24 years which means that every third person in India is a youth. This youthfulness of Indian population is certainly advantageous since a large proportion of population is not dependent and can contribute to nation’s development.

However, a very large youth population in India confers a number of challenges that need to be addressed carefully. In a nutshell, illiteracy, poverty, unemployment and other social and health problems debar large sections of youth to participate in the mainstream development processes (International Labor Organization, 2004; Government of India, 2011). The growing large number of unemployed youth is one of the most daunting problems being faced by both developed and developing countries (International Labor Organization, 2004; 2005). Moreover, vast gender difference in literacy and participation in social and political activities foster major challenges in India. Only about two third of

females aged 7 years and above in India are literate as compared to more than 80 per cent males in the same age group (Government of India, 2011). In addition, women's participation in social and political activities remains lower than expected. Further, rural-urban difference in participation in social and political activities remains the foremost challenge for the country (Chandrasekhar, Ghosh and Roychowdhury, 2006; Government of India, 2009).

Need of the study

Young age is the most energetic period of human life. In this age, most of the difficult tasks can be accomplished. Besides, youths are the major contributors to the growth and development of the nation. Studying youths, therefore, is always important as it adds more to the stream of knowledge and helps in policy formulation. In India, there has been number of studies on youth. However, the secular attitude among youths are the least explored dimension of youths' behaviour. Moreover, rural-urban differentials in youth participation in social and political activities has not been fully understood in different social and cultural contexts.

The present study is an attempt to shed light on secular attitudes of youths in India. It intends to explore youth participation in social and political activities by their different social and demographic characteristics which has larger implications at the policy level.

Objectives

Specifically, the present study analyses the perception of Indian youths in terms of secular attitudes by examining their participation in political and social activities in India. The study also attempts to analyse how background characteristics of youths affect their participation in social and political activities.

Data Source

The study is based on the survey of youths in India which was conducted in six states of the country - Andhra Pradesh, Bihar, Jharkhand, Maharashtra, Rajasthan and Tamil Nadu. The survey covered 174,037 households and 50,848 youths in the six states. The survey focussed on married and unmarried young women and unmarried young men aged 15-24 years and married men aged 15-29 years in both urban and rural areas and covered all districts in the selected states. Its main objective was to find out the key transition experienced by youth pertaining to education, work force participation, sexual activity, marriage, health and civic participation. The survey provided state level evidence on the magnitude and patterns of young people's attitudes and experiences. (International Institute for Population Sciences and Population Council, 2010). In the present paper, data related to youths aged 15-24 years has been used for the analysis of their participation in social activities and secular attitudes. Moreover, data related to youths aged 20 years and above have been used for the analysis of political participation.

Outcome variables. Three outcome variables have been used in the analysis: 1) secular attitude which has been measured in terms of mixing freely with people of different castes and religion, eating with a person or persons of different religion and caste, and talking to someone who is married in different caste, etc.; 2) social activity which has been measured in terms of youth participation in NGO activities and government sponsored and community-led programmes like cleaning the area, celebration of festivals and national days and health promotion programmes; and 3) political activity which is measured in terms of voting in the last election.

Predictor variables. The variables included in this analysis are: gender, age, religion, caste, educational attainment, economic status, marital status and exposure to media which included radio, newspaper, television and accessing internet.

Statistical analysis

Bivariate analysis is carried out to understand the secular attitude, participation in social and political activities and perception of youths. Further, multivariate analysis in the form of binary logistic regression has been carried out to understand adjusted effects of different demographic and socio-economic characteristics on the outcome variables. Results are presented in the form of odds ratios (OR) with 95 per cent confidence intervals. The odds ratio explains the probability that a youth of an exposed group will be secular or participate in social or political activities relative to the probability of participation of a youth of an unexposed group. The study employs weights to restore the representativeness of the sample. The analyses has been carried out with the help of IBM SPSS 20.0 and Stata10 statistical packages.

The model is usually put into a more compact form as follows:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 x_1 + \dots + \beta_m x_m$$

where β_0, \dots, β_m are regression coefficients indicating the relative effect of a particular explanatory variable on the outcome variable.

Results

Comparing youth across sexes, it is observed that males have higher political participation than females. At the national level, more than 70 per cent of males as compared to 60 per cent of females have participated in the last general elections in India. Age and participation in political activities have been found to be positively correlated. Older youths have higher participation than younger ones irrespective of residence. Youths from affluent households participate more in political activities than poor youths. However, the pattern is not the same in rural and urban areas. Exposure to media and participation in voting is positively correlated. Youths who are exposed to any type of

media are more likely to take part in political activities than youths who are not exposed to media. There is a positive association between education and participation in political activities. Youth with higher education have higher participation in the voting as compared to youths with no education irrespective of the place of residence (Table 1).

Participation of youths in social activities is presented in table 2. Urban youths participate more in social activities than their rural counterparts. However, participation in community-led activities is more among rural youths than their urban counterparts. Participation is more among males than among females irrespective of the place of residence. Muslims youths participate more in social activities than youths from other religions. The only exception is urban Muslims youths who have slightly lower participation in community-led programmes than Hindu youths or youths of other religions. Youths from poor households are more active in social activities than youths from affluent households irrespective of the place of residence. Media exposure and participation in social activities is found to be positively associated. Participation in social activities is more among illiterates than educated youths. However, in rural areas, participation in community-led activity is more among youths with at least higher secondary education. Overall, urban youths participate more in programmes than rural youths but participation of rural youths is higher in community-led activities.

It may be seen from table 3 that more males (56 per cent) have secular attitudes than females (42 per cent) and urban youths are comparatively more secular than rural youths. Age and secular attitude is positively associated. Youths aged 20-24 years are more secular than youths aged 15-19 years. Youths from affluent households are more secular than poor youths. Unmarried youths (58 per cent) are more secular than their rural counterparts (51 per cent). Media exposure and education are directly related to secular attitudes of youths in both rural and urban areas.

More than four-fifth (84 per cent) of males consider economic problems while one-fourth (26 per cent) of females perceive social problems as the major hurdle for the youth in India. Similarly, more than three-fourth (79 per cent) of youths aged 20-24 years consider economic issues as the major problem of the country. At the same time, 25 per cent youths aged 15-24 years feel that social issues are the most disturbing factors for the youth. More than 80 per cent of tribal youths recognise economic problems as the major issue faced by the youth. More than one-fourth (27 per cent) of rich youths consider social issues as the major hurdle whereas 81 per cent of youths from poor households feel that economic problems are the major worry. Economic problems have also been identified as major worry by majority of youths who are illiterate and not exposed to media. However, urban youths attributed health needs as an important problem for the country (Tables 4, 5 and 6).

As regards political participation, two third (66 per cent) of the youths surveyed voted in the last general elections. Moreover, political activities is higher among those who have participated in community-led programs (Table 7). Similarly, participation in political activities is found to be higher among youths with secular attitudes.

Adjusted effects of socio-economic and demographic characteristics on political participation of youth are presented in table 8. The table suggests that females are less likely than males to take part in voting. On the other hand, youths aged 20-24 years are more likely to participate in voting than youths aged 15-19 years. This is mainly because the eligibility for voting in general elections in India is 18 years. Similarly, youths from rich wealth quintiles household groups are more likely to participate in voting than poor youths.

Table 9 suggests that females are less likely to have secular attitudes than males whereas older youths are more likely to have secular attitude than younger youths. Among castes, youths belonging to Other Backward Classes (OBC) and other castes are less likely to have secular attitudes as compared to Scheduled Castes (SC) youths while Muslim youths and youths from other religions are more likely to have secular attitudes than Hindu youths.

More than 70 per cent of youths in the six states have perceived economic problems as the major hurdle in their life. Economic problems generally perpetuate unemployment, poverty, lack of amenities or infrastructure such as water, toilet, road or electricity and corruption. Besides, nearly one fifth of youths have argued that social problems are also a major hurdle in their life. These problems include security for girls, finding a good spouse, dowry, crime, law and order, lack of quality education, counselling services, vocational or technical education, recreational or sports facilities and family life education. However, this pattern is not observed in Tamil Nadu where nearly 15 per cent youths have identified social problems while 4 per cent have identified health concerns as major problems in their life.

Discussion

Youths play a very important role for the present and the future development of the country. The country needs to tap the potential of youths who can add vigour and lend enthusiasm to cultivate social and political leaders for dynamic working of democratic processes and welfare of the society. Youth, as a social agent, can bring far reaching changes in the society but the challenge is their full participation. Participatory trends in India are influenced by such factors as caste, class, gender, income, and locality (Syal, 2012). The present study indicates relatively higher participation of male youths in social and political activities than females youths. This is probably because of the patriarchal mind set of our society. On the other hand, relatively less participation of urban youths in political process may be because of a number of reasons including out of station, no interest in election, not voted due to lack of identity proof, etc. Kumar (2012) has also observed that electoral participation is lower amongst urban young women as compared urban young men. Kumar has also observed that irrespective of the economic class, electoral participation is much higher amongst rural youths compared to urban youths. Youths from higher castes participate less in the political activities than the youth from lower castes. However, Syal (2012) has observed that, although the social base has

expanded substantially, interest in politics and participation in election-related activities is still limited to the higher castes, rich and urban voters.

Education and media exposure is directly related to political participation. An increase in inter-generational education levels can positively influence individual's political interest and political participation. It is also argued that by increasing access to educational opportunities, India may foster well educated and well informed citizens who will be able to make wise political choices (Syal, 2012).

For majority of the youths, economic problems appear to be main hurdles. This finding is well established in a number of studies. A report prepared by the Government of India says that youth face number of problems in their way to growth and development (Government of India, 2012). Youth unemployment is a pressing issue that has repercussions in demographic, social, economic, health, and environmental spheres (Arshad and Bhat, 2012). There is growing momentum on youth participation within the development community. Governments around the world are increasingly supporting youth ministries, youth policies and youth programmes. There is however still a long way to go to realise full potential of youths.

Conclusions

This study has found important differentials in youth participation in social and political activities by their background characteristics. Specifically, females are less active in social and political spheres of life compared to males. This is not a welcome aspect. Participation of women is highly regarded in all developed countries and their contribution to the society and the economy is enormous. However, in India, the patriarchal mind set of the society along with a range of economic, health and social issues often discourage women to participate. There is a need to recognise the importance of women's participation in social and political activities. Moreover, economic issues related to youths need to be addressed effectively.

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Table 1
Participation of youth in political activities in India, 2006-07

Characteristics	Rural	Urban	Total
Gender			
Male	74.1	64.7	71.0
Female	63.5	52.4	60.0
Age			
20	48.5	38.4	45.4
21	59.3	49.5	56.2
22	71.0	56.9	66.4
23	78.8	68.3	75.4
24	80.4	70.3	77.0
Caste			
Scheduled Castes (SC)	68.6	52.2	61.5
Scheduled Tribes (ST)	67.2	56.0	63.9
Other Backward Classes (OBC)	68.1	46.8	65.2
Others	65.5	59.9	63.8
Religion			
Hindu	66.6	56.8	63.7
Muslims	67.9	55.0	61.6
Others	66.9	54.2	61.8
Economic status			
Poor	69.5	56.3	62.8
Middle	63.4	56.8	62.8
Rich	68.6	56.2	65.7
Marital Status			
Married Male	77.5	74.5	76.9
Unmarried Male	71.3	48.9	67.4
Married Female	65.1	54.3	62.3
Unmarried Female	53.8	61.8	51.2
Media Exposure			
No Exposure	68.4	56.4	63.7
Exposure to all	68.7	61.2	63.5
Exposure to at least one	65.0	47.6	62.7
Educational level			
Illiterate	64.9	53.3	63.6
Primary (1-5)	66.8	58.6	64.4
Secondary (6-8)	67.8	54.5	63.6
Higher secondary (9-12)	66.8	53.6	61.9
Above higher Secondary (above 12)	71.6	60.9	65.1

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Table 2
Participation in social activities among youth in India, 2006-07

Characteristics	Rural		Urban		Total	
	PRG	CLA	PRG	CLA	PRG	CLA
Gender						
Male	88.5	75.0	93.3	70.2	90.0	73.6
Female	78.2	56.5	78.1	49.3	78.1	54.5
Age group						
15-19	81.0	64.9	82.5	59.8	81.4	63.5
20-24	81.5	59.2	83.5	52.5	82.4	57.0
Caste						
SC	80.8	64.7	79.1	54.8	80.4	62.0
ST	85.1	63.4	85.8	58.8	85.2	62.8
OBC	81.9	61.5	83.3	56.3	82.3	60.1
Others	79.1	60.5	84.4	55.8	81.3	58.6
Religion						
Hindu	81.1	62.3	82.5	56.3	81.5	60.6
Muslims	86.9	67.6	86.9	54.5	86.9	61.8
Others	77.9	55.0	80.4	56.6	78.8	55.6
Economic status						
Poor	86.5	66.5	84.8	56.7	86.4	65.7
Middle	78.1	59.2	82.0	54.0	79.0	58.1
Rich	76.8	58.8	83.0	56.4	79.8	57.6
Marital Status						
Married Male	90.5	69.8	94.9	67.7	91.3	69.4
Unmarried Male	87.9	76.7	93.1	76.6	89.6	74.6
Married Female	82.9	54.8	82.8	44.8	82.8	52.6
Unmarried Female	71.1	58.9	74.9	52.4	72.6	56.2
Media Exposure						
No Exposure	89.7	66.1	89.1	54.5	89.6	64.8
Exposure to all	76.0	64.0	81.9	56.9	78.1	61.2
Exposure to at least one	75.0	66.9	82.8	60.0	80.2	62.3
Educational level						
Illiterate	90.1	64.2	91.0	54.3	90.2	63.2
Primary	85.4	57.4	85.7	49.7	85.4	55.8
Secondary	81.0	61.4	85.4	56.3	82.1	60.1
Higher secondary	75.1	63.1	81.6	57.0	77.5	60.8
Above higher secondary	70.7	64.7	80.1	56.9	76.4	59.9

Table 3
Perception on secular attitudes among youth in India, 2006-07

Characteristics	Rural	Urban	Total
Gender			
Male	54.7	57.5	55.7
Female	40.1	46.2	42.2
Age group			
15-19	44.2	50.0	46.1
20-24	46.4	50.1	47.1
Caste			
SC	47.9	57.8	51.1
ST	49.7	53.7	50.3
OBC	40.4	45.0	41.9
Others	50.7	50.6	50.6
Religion			
Hindu	45.0	48.7	46.2
Muslims	40.0	54.8	47.9
Others	53.9	54.4	54.1
Economic status			
Poor	42.0	53.6	43.2
Middle	48.8	52.0	48.1
Rich	47.5	49.2	48.4
Marital Status			
Married Male	49.0	57.2	50.8
Unmarried Male	56.3	57.5	41.0
Married Female	38.5	47.9	56.8
Unmarried Female	42.2	45.1	43.5
Media Exposure			
No Exposure	46.0	50.7	46.7
Exposure to all	49.8	50.7	50.1
Exposure to at least one	52.7	46.2	48.2
Educational level			
Illiterate	32.4	46.8	34.3
Primary	42.2	52.1	44.7
Secondary	45.1	52.9	47.4
Higher secondary	51.5	50.7	51.2
Above higher secondary	49.3	46.1	47.3

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Table 4
Perception of youth regarding the leading problems of youth

Characteristics	Economic problems	Social problems	Health problems
Gender			
Male	83.9	14.3	1.8
Female	71.3	26.3	2.4
Age group			
15-19	72.7	25.2	2.1
20-24	78.5	19.3	2.2
Caste			
SC	79.5	18.1	2.4
ST	81.9	16.0	2.1
OBC	75.7	22.1	2.2
Others	68.4	29.6	2.0
Religion			
Hindu	75.4	22.4	2.2
Muslims	75.9	22.4	1.7
Others	75.4	21.6	2.9
Economic status			
Poor	81.2	17.2	1.6
Middle	77.5	20.3	2.2
Rich	70.1	27.3	2.6
Marital Status			
Married Male	89.5	9.1	1.4
Unmarried Male	82.5	15.6	1.9
Married Female	76.7	21.1	2.2
Unmarried Female	64.9	32.5	2.6
Media Exposure			
No Exposure	81.6	16.8	1.6
Exposure to all	72.6	25.2	2.2
Exposure to at least one	67.4	29.6	3.0
Educational level			
Illiterate	83.4	15.1	1.6
Primary	78.4	18.4	2.3
Secondary	76.3	21.6	2.1
Higher secondary	71.6	26.0	2.4
Above higher secondary	68.9	28.5	2.6

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Table 5
Perception of youth regarding the leading problems of youth in rural India, 2006-07

Characteristics	Economic problems	Social problems	Health problems
Gender			
Male	84.5	14.1	1.4
Female	72.9	25.0	2.1
Age group			
15-19	73.9	24.3	1.8
20-24	79.9	18.2	2.0
Caste			
SC	80.7	17.4	1.9
ST	82.7	15.2	2.1
OBC	76.7	21.4	1.8
Others	68.5	29.6	1.9
Religion			
Hindu	76.8	21.3	1.9
Muslims	74.7	24.3	1.2
Others	77.3	20.4	2.3
Economic status			
Poor	80.8	17.6	1.6
Middle	77.1	21.1	1.8
Rich	70.7	27.0	2.3
Marital Status			
Married Male	89.9	9.0	1.1
Unmarried Male	82.9	15.6	1.5
Married Female	77.2	20.8	2.0
Unmarried Female	66.5	31.3	2.2
Media Exposure			
No Exposure	82.1	16.5	1.5
Exposure to all	73.1	25.0	1.9
Exposure to at least one	72.9	24.1	3.0
Educational level			
Illiterate	83.5	15.1	1.5
Primary	77.9	20.2	1.9
Secondary	75.5	22.6	1.9
Higher secondary	72.5	25.4	2.1
Above higher secondary	73.7	24.5	1.8

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Table 6

Characteristics	Economic problems	Social problems	Health problems
Gender			
Male	82.5	14.9	2.6
Female	67.3	29.6	3.1
Age group			
15-19	69.4	27.6	3.0
20-24	75.4	21.8	2.9
Caste			
SC	76.2	20.1	3.7
ST	76.4	21.1	2.5
OBC	72.9	23.9	3.2
Others	68.5	29.7	2.1
Religion			
Hindu	71.5	25.5	2.9
Muslims	77.4	20.3	2.4
Others	72.3	23.6	4.1
Economic status			
Poor	85.3	13.1	1.7
Middle	79.2	17.2	3.7
Rich	69.5	27.6	2.9
Marital Status			
Married Male	88.0	9.5	2.5
Unmarried Male	81.8	15.6	2.6
Married Female	74.8	22.3	2.9
Unmarried Female	62.2	34.6	3.3
Media Exposure			
No Exposure	77.1	20.1	2.1
Exposure to all	71.7	25.6	2.7
Exposure to at least one	64.6	32.4	3.0
Educational level			
Illiterate	82.5	15.1	2.4
Primary	80.2	16.1	3.8
Secondary	78.6	18.6	2.8
Higher secondary	70.2	27.0	2.8
Above higher secondary	65.7	31.2	3.1

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Table 7

Youth who voted and participation in community-led programmes

Voted in the last election	Participated in community led programs	
	Yes	No
Voted	57.7	42.3
Not voted	60.5	39.5
Total	59.3	40.3

Table 8

Youth participation in political activities by their secular attitude in India, 2006-07

Secular attitudes	Voted in last election	
	Voted	Not Voted
Secular	43.1	56.9
Moderate-secular	42.3	57.7
Non-Secular	34.0	66.0
Total	42.9	57.1

SECULAR ATTITUDES AND YOUTH PARTICIPATION

Table 9
Adjusted effects of socio-economic and demographic covariates on political participation among youths in India, 2006-07

Characteristics	Odds Ratio	95% CI
Gender		
Male®		
Female	0.554***	0.511-0.600
Age		
15-19®		
20-24	14.055***	12.831-15.397
Caste		
SC®		
ST	1.075	0.889-1.300
OBC	1.123**	1.006-1.254
Others	0.950	0.839-1.076
Religion		
Hindu®		
Muslims	1.073	0.918-1.253
Others	0.937	0.806-1.089
Education Level		
Illiterate®		
Primary (1-5)	1.081	0.892-1.310
Secondary(6-8)	1.093*	0.985-1.212
Higher secondary and above	na	na
Economic status		
Poor®		
Middle	1.062	0.924-1.220
Rich	1.030	0.911-1.164
Media exposure		
No exposure®		
All exposure	0.787*	0.606-1.021
Exposure to at least one	0.798*	0.629-1.013
Pseudo R ²	0.237	

Note: ***p<0.01, **p<0.05 and *p<0.10

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Table 10
Adjusted effects of socio-economic and demographic covariates on secular attitudes
among youths in India, 2006-07

Characteristics	Odds ratio	95% CI
Gender		
Male [®]		
Female	0.065***	0.608-0.695
Age		
15-19 [®]		
20-24	1.108**	1.0382-1.182
Caste		
SCs [®]		
STs	0.879	0.741-1.043
OBC	0.624***	0.571-0.682
Others	0.828***	0.747-0.917
Religion		
Hindu [®]		
Muslims	1.124**	0.997-1.267
Others	1.204***	1.062-1.365
Education Level		
Illiterate [®]		
Primary (1-5)	0.778***	0.660-0.917
Secondary(6-8)	0.858***	0.788-0.936
Higher secondary and above	na	na
Economic status		
Poor [®]		
Middle	1.061	0.906-1.139
Rich	0.947	0.856-1.047
Media exposure		
No exposure [®]		
All exposure	0.886	0.701-1.120
Exposure to at least one	1.012	0.815-1.256
Pseudo R ²	0.017	

Note: ***p<0.01, **p<0.05 and *p<0.10

Determinants of Sexual Violence against Women in India

Mukesh Ravi Raushan

Rajesh Raushan

Background

Violence against women, either sexual or other, is a worldwide problem that affects their ability to work and relationship with others and the physical and mental health. The International Conference on Population and Development (ICPD) 1994 has led to a paradigm shift in the global understanding of reproductive and sexual health. It is estimated that up to one-third of adolescent girls reported forced sex during their first sexual intercourse (WHO, 2002). High rates of forced sex and other forms of sexual violence by the intimate partner have been reported worldwide (Benson, Fox et al, 2003, WHO, 2005, Walters, Chen et al, 2013). The Centers for Disease Control and Prevention defines intimate partner violence (IPV) as “threats or intentional use of physical violence, sexual violence, or both with the potential to cause injury, disability or death; or psychological/emotional abuse, coercive tactics, or both when there has been prior physical violence, sexual violence, or both perpetrated by a current or former spouse or non-marital partner, for example, dating, boyfriend, or girlfriend” (Saltzman et al, 2002). Nearly 1 out of every 10 women in the United States (approximately 11.1 million) has been forced to have sex by intimate partner in her lifetime. A study based on sexual orientation reports that 6.6 per cent women reported completed forced penetration by an intimate partner; 2.5 per cent reported attempted forced penetration; 3.4 per cent reported alcohol facilitated forced sex; and 7.8 per cent reported other forced sexual activities by an intimate partner in their lifetime (Black et al, 2011). Women who experienced sexual violence are significantly more likely to report STI symptoms as compared to women reporting no experience of sexual violence (Patel and Andrew, 2001; Erulkar, 2004; Koenig et al, 2004; Gomez, Speizer and Beuvais, 2009). In addition to immediate physical injuries (Romkens, 1997; Grisso et al, 1999; Kyriacou et al, 1999),

women experiencing intimate partner abuse are more likely to have reproductive health problems including chronic pelvic pain (Schei, Bakketeig, 1989; Eby et al, 1995) infertility (Eby et al, 1995) and adverse pregnancy outcomes (Cokkinides et al, 1999). Sexual violence affects health of not only the victims but also their children. The prevalence of low birth weight is estimated to be nearly four times higher in victims of sexual violence than in non-victims. Women experiencing forced intercourse in abusive relationships are 2.7 times more likely to seek an abortion.

Globally, the proportion of ever-partnered women who had ever experienced sexual violence by an intimate partner in their lifetime, ranges from 6 per cent in Japan to almost 60 per cent in Ethiopia. The prevalence of sexual violence is considerably lower than the prevalence of physical violence in most settings but it is higher in Bangladesh, Ethiopia, and urban Thailand (WHO, 2005). The high rate of forced sex is particularly alarming in the light of the diseases which are spread due to sexual contact and the difficulty that many women have in protecting themselves from being infected (Fawzi et al, 2005; Williams et al, 2008; Gomez, Speizer and Beauvais, 2009; Kanchanachitra et al, 2009; Sandfort et al, 2013). Women who experienced sexual violence by their intimate partner are surprisingly less likely to adopt contraception as a protective measure for reproductive tract infections and unintended pregnancy (Decker et al, 2011).

Intimate partner sexual violence in India has not been studied as extensively as in other countries. The over-arching regional pattern in India is more patriarchal and traditional in northern states such as Uttar Pradesh and Punjab, and more egalitarian and educated states in southern states such as Kerala and Tamil Nadu (Mayer, 2006). The patriarchal norms are so embedded in the Indian culture that around 88 per cent women “accept it quietly” if beaten by their husband (Rao, 1997). Moreover, most of the domestic violence is ignored, deemed as husband’s right or accepted as an inevitable part of married life. Moreover, domestic violence against women is socially tolerated in India provided that the cause is considered “legitimate” right to have sex with or without wife’s willingness. A substantial proportion of husbands (37 per cent) reported having committed one or more episodes of physical or sexual violence against their wife. In particular, 12 per cent reported only physical violence; 17 per cent reported only sexual violence; and 9 per cent reported both physical and sexual violence (Stephenson, Koenig and Ahmed, 2006).

Framework and Need for the Study

Studies suggest that women’s experience of violence within the household is associated with a complex array of individual, household, dyadic and societal factors. Studies also suggest that children who either experience violence themselves or witness violence between their parents are more likely to perpetuate violence when they grow up (Ellsberg et al, 1999; Martin et al, 2002; Vung and Krantz, 2009). The classic attachment theory (Bowlby, 1969) proposes that children form cognitive-affective understanding of relationships based on their experience with others and that this understanding becomes a model for forging future relationships. Thus, males and females who have been exposed

to family violence either as victims or as witnesses are equally at risk of violent relationship because they gravitate towards: (a) partners and situations in which the victim-victimizer model could be applied; and (b) victim and victimizer behaviours would both be available to the individual (Wekerle and Wolfe, 1999). The intimate partner violence appears more common among couples that are economically distressed but whether economic distress triggers intimate partner violence is not certain (Benson et al, 2003), although Magdol et al (1998) have extended the effect of the various forms of economic deprivation in relational abuse. Studies on physical violence in the Indian context extensively explain the determinants but sexual violence still needs more research. This study tries to reconnoitre the association of a host of social, cultural and economic factors with sexual violence. In particular, the study aims to (1) understand the level of non-consensual forced sex by intimate partner experienced by women; and (2) explore whether highly educated women in urban settings were better off than their rural and lowly educated counterparts to safeguard them from sexual violence. The study also attempts to investigate underlying risk factors of forced sex by the intimate partner.

Data and Methodology

The study is based on the data available through National Family Health Survey, 2005-06 (NFHS-3) (International Institute for Population Sciences and Macro International, 2007). During the survey, information on sexual and reproductive health was also collected in addition to demographic outcomes and 69433 ever married women responded the questions related to sexual violence. The analysis is limited to these women.

Sexual violence refers to a continuum of non-consensual sexual experiences that ranges from threats and intimidation to unwanted touching and forced sex (Jejeebhoy, Sarah, 2003). This study adopts a broad definition of sexual violence recommended by the World Health Organization: “any sexual act, attempt to a sexual act directed against a person’s sexuality using coercion, by any person in any setting”. The intimate partner violence is a product of its social context which includes demographic, economic, social or cultural underpinnings, separately or in combination.

The dependent variable for the study is sexual violence which is a binary variable, measured from questions about whether the respondent was forced for sex when not wanted, and whether the respondent ever had sex because of threats or physical force during the one year prior to the survey. Explanatory variables, on the other hand, are classified into five categories: 1) personal characteristics; 2) well-being indicators; 3) cultural indicators; 4) violence related indicators; and 5) gender preference indicators. Personal characteristics include age at marriage and education of the respondent and her partner. Well-being indicators include work status of the partner, place of residence, wealth status, and sanitation facilities. Cultural factors include social class, religion, and alcohol consumption by the partner. Violence is captured through inter-generational and domestic violence. Desire for child of a particular sex is taken as the indicator of sex preference.

Five different models have been fitted to examine the degree of causation between sexual violence and explanatory variables. Model 1 assessed association of education and age at marriage with forced sex. Model 2 examined the effect of well-being after controlling for personal characteristics while model 3 includes cultural factors also. Model 4 considers inter-generational violence experience and domestic violence along with the variables in model 3. Finally, model 5 accounts for the preference for the sex of child. Backward step-wise regression approach was adopted to ensure that the sample size remains the same in all models. It was hypothesised that education and age at marriage of women played great role in the sexual violence and its coping strategy. If the education and age at marriage of the women is increased then the coping strategy for forced sex can be improved. Furthermore, the association of forced sex with partner's alcoholic history and educational attainment was also tested. It is found that the educational attainment was greatly associated with the social class and belongingness. The Chi-square test was performed to investigate whether the association was significant or not.

In order to capture physical violence, an index was calculated using such violence traits as humiliation, threatening, insulted, pushing, slapping, punching, kicking, strangling, knifing, twisting. These traits were converted into binary variable: 'yes'=1 and 'no'=0. These scores were then converted into overall physical violence score by adding them with a score of ten denoting the most severe physical violence and zero denoting the absence of physical violence.

Model specification test was performed to see whether the model was appropriate or not by estimating maximum log likelihood and Akaike's Information Criterion (Peng and So, 2002). To understand the variance accounted by each model McFadden's R^2 and McKelvey and Zavoina's R^2 test was applied (Freese, Long, 2006; Long, 1997). Estimates provide the range of the variance of dependent variable accounted for by each model and therefore to overcome this problem test of sensitivity was estimated in binary logistic regression analysis. All the estimates were done at 90 per cent confidence interval using STATA 10.

Results

Table 1 presents reported prevalence of sexual violence or forced sex in India and in its constituent states. Around 10 per cent of the currently married women surveyed during NFHS-3 reported some type of sexual violence by their intimate partner. By comparison, the prevalence was more than 20 per cent in West Bengal and just around 1 per cent in Mizoram. Prevalence of sexual violence has also been found to be very high in Rajasthan, Bihar, Tripura and Assam. On the other hand prevalence has been found to be very low in Maharashtra, Himachal Pradesh, and Meghalaya.

Table 2 presents the distribution of women who have experienced forced sex by their personal characteristics and by other explanatory factors. Prevalence of sexual violence is found to be high in women married at young ages compared to women married at older ages. The prevalence of sexual violence decreases with the increase in the education of

women and their intimate partner. Similarly, in all well-being indicators, clear difference in the prevalence of sexual violence is evident from the table. As regards religion and social class, the prevalence of sexual violence has been found to be very high in Muslims. Among Hindus, the prevalence is higher in Scheduled Castes and Scheduled Tribes compared to other backward classes and other classes. Moreover, the prevalence of sexual violence appears to inversely related to income and living conditions of the household but directly related to the use of alcohol by the intimate partner and experience of inter-generational violence, domestic violence and preference for the child of a particular sex. Similarly, prevalence of violence has been found to be higher in rural as compared to urban areas. These findings are consistent with a number of earlier studies which suggest that a high probability of sexual violence by the intimate partner in case of alcohol consumption and linkages of sexual violence with other form of violence experienced by women.

Results of logistic regression analysis are presented in table 3. Model 1 confirms that increase in the education of woman reduces the risk of sexual violence. Women with at least secondary education are less likely to face sexual violence than women with less than secondary education (OR=0.71, $p<0.001$). The same is the case with the education of the partner (OR=0.81, $p<0.001$). Similarly, increase in the age at marriage reduces the risk of sexual violence. Women who married after attaining 18 years of age have significantly less risk of sexual violence than women who married before attaining 18 years of age (OR=0.67, $p<0.001$).

Model 2 suggests that when well-being indicators are taken into consideration, the effect of education of women or their partner becomes insignificant but the effect of the age at marriage of the women remains significant. The likelihood of sexual violence is less in women who have a working partner as compared to a non-working partner (OR=0.63, $p<0.01$). Similarly, the risk of sexual violence decreases with the increase in the income of the household. Women belonging to richest households have significantly less risk of sexual violence than women belonging to poorest households (OR=0.33, $p<0.0001$). Furthermore, rural woman are at greater risk of sexual violence than their urban counterpart (OR=0.76, $p<0.0001$).

When cultural indicators are introduced in the model, the effect of residence no longer remains statistically significant (Model 3). Muslim women have higher risk (OR=1.39, $p<0.0001$) but women of other religions have lesser risk (OR: 0.47, $p<0.0001$) of forced sex than Hindu women. Among Hindus, Scheduled Tribes women have higher risk of forced sex than Scheduled Castes women but the difference with respect to other social classes is statistically insignificant. On the other hand, the risk of forced sex is found to be statistically significantly higher in women whose husband was alcoholic than women whose husband was not alcoholic (OR: 2.21, $p<0.0001$).

Model 4 includes variables related to inter-generational violence. Women who had experienced beating of their mother by their father was at statistically significantly higher risk of forced sex than women who had not experienced such beating (OR=1.46,

$p < 0.0001$). Similarly, risk of force sex increases considerably with the extent of domestic violence. Women who experienced high domestic violence are at very high risk of forced sex than women who have experienced no domestic violence ($OR = 13.87$, $p < 0.0001$).

Finally model 5 also includes variable related to the sex preference of the child. The risk of sexual violence when the preference is for a boy and when the preference is for a girls has however not been found to be statistically significant. This model suggests that the risk of sexual violence varies statistically significantly by age at marriage, work status of the partner, level of income, use of alcohol by the partner, experience of inter-generational violence and the degree of domestic violence. On the other hand the risk of sexual violence in Muslim women is not statistically significantly different from that in Hindu women but women of other religions definitely have lower risk of sexual violence than Hindu women. Similarly, women belonging to upper social class have higher risk of sexual violence than women belonging to Scheduled Castes but the difference in the risk faced by Scheduled Castes women and the risk faced by Scheduled Tribes women and women belonging to other backward classes has not been found to be statistically significant.

Discussion

This study is directed towards the analysis of the determinants of sexual violence in India. The extent of sexual abuse found in this study is in line with findings of a number of previous studies (Rao, 1997; Stephenson, Koenig, Ahmed, 2006) suggesting that sexual abuse in India is as common as in many other countries, including Canada, Kenya, Korea Mexico, Antigua and the United States (Ellsberg et al, 1999; Erulkar, 2004; Gomez, Speizer, Beuvais, 2009; Van der Straten, et al, 1995). Key determinants of sexual violence as revealed through this study include age at marriage, working status of the partner, level of income, use of alcohol by the partner, inter-generational experience of sexual violence and domestic violence. On the other hand, in terms of religion and social class, specific population groups appear to have higher prevalence of sexual violence than other groups.

However, caution is urged in interpreting the findings of the present analysis as they are based solely on women's views and perceptions of sexual violence. These views and perceptions may often overestimate the true extent of sex related behaviour of their partner (Schafer, Caetano, Clark, 1998). It is therefore suggested that future investigations should also include partner perspective also.

The findings of the present study however support the hypothesis that factors that enhance the stress level of families also enhance the probability of women's abuse. Similar observations have also been made in other studies. For example, Gage (2005) has observed that extremely low levels of income, low educational attainment and partner's non-working status were predictive of wife abuse. In any case, findings of the present research may inform both policy makers and practitioners concerned with health and social issues in India. It is clear that family stressors, especially low educational attainment and poverty are strong risk factors for sexual violence and broad social changes aimed at advancement

in education and employment opportunities for women could potentially lead to improvements in many aspects of family life, including prevention or reduction of intimate partner violence and increase in family harmony.

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Table 1
Proportionate distribution of forced sex by intimate partner in India, 2005-06

State	Proportion reporting forced sex by intimate partner (Per cent)	N
West Bengal	20.63	4026
Rajasthan	19.82	2093
Bihar	18.81	6505
Tripura	17.92	2242
Assam	14.62	3802
Manipur	13.51	2582
Jharkhand	12.82	2261
Odisha	12.10	2228
Madhya Pradesh	10.67	1721
Arunachal Pradesh	9.16	4279
Uttar Pradesh	9.00	3452
Haryana	7.39	3836
Chhattisgarh	7.24	5134
Gujarat	7.21	2093
Punjab	6.69	1918
Uttarakhand	5.41	1578
Sikkim	4.71	1985
Kerala	4.54	1102
Andhra Pradesh	3.84	1607
Karnataka	3.74	1443
J & K	3.66	2175
Tamil Nadu	3.07	1893
Goa	2.86	1705
Nagaland	2.79	944
Delhi	2.02	2041
Maharashtra	1.76	1693
Himachal Pradesh	1.74	1119
Meghalaya	1.37	1039
Mizoram	1.30	937
India	9.45	69433

DETERMINANTS OF SEXUAL VIOLENCE

Table 2
Factors affecting sexual violence

Factors	N	Weighted proportion (Per cent)	Chi Square ^a
Personal Characteristics			
Age at Marriage			
<18	3709	11.3	532.3
18+	1732	6.2	
Woman Educational Attainment			
Primary and Below	3894	11.6	644.9
Secondary & above	1548	5.8	
Partner Educational Attainment			
Primary and Below	2798	12.0	447.0
Secondary & above	2559	7.3	
Well Being Indicators			
Residence			
Urban	1864	6.8	224.5
Rural	3578	10.7	
Wealth Quintiles			
Lowest	1263	13.9	631.0
Lower	1231	12.0	
Middle	1241	9.7	
Richer	1064	7.4	
Richest	643	3.9	
Partner's Work Status			
Not Working	127	14.2	9.7
Working	5298	9.4	
Household Sanitation			
Not improved	3059	11.1	406.8
Improved	2195	7.0	
Cultural Indicators			
Religion			
Hindu	4130	9.2	213.8
Muslim	876	12.7	
Others	371	4.8	
Social class			
SC	1,250	12.4	153.3
ST	667	10.6	
OBC	1656	8.1	
General	1552	8.3	

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Factors	N	Weighted proportion (Per cent)	Chi Square ^a
Alcohol Consumption			
No	2464	7.3	763.2
Yes	2976	13.7	
Violence Indicators			
Inter-generational Violence			
No	3159	7.4	615.6
Yes	1707	15.9	
Domestic Violence Index			
Low	871	2.7	852.1
Moderate	691	10.9	
High	3866	23.9	
Preference for Sex			
Boy	1611	12.3	32.1
Girl	147	9.4	

Note: $df=(r-1)(c-1)$, where r=Number of categories in predictor variable, c=Number of categories in predicted variable. Chi-square (df, $p<0.001$) for dichotomous variables for the comparison between entries in forced sex when wanted or not.
^a $P < 0.001$; ^b < 0.001 ; ^b weighted correlation coefficient ($p<0.0001$)

DETERMINANTS OF SEXUAL VIOLENCE

Table 3
Results of logistic regression analysis
determinants of forced sex by intimate partner/husband
India, 2007-08

Factors	Model 1	Model 2	Model 3	Model 4	Model 5
Woman Educational Attainment					
<Secondary ^R	1	1.00	1.00	1.00	1
≥Secondary	0.71*** (0.62,0.81)	0.89 (0.77,1.01)	0.95 (0.82,1.09)	1.12 (0.97,1.29)	1.12 (0.97,1.29)
Partner Educational Attainment					
<Secondary ^R	1.00	1.00	1.00	1.00	1
≥Secondary	0.81*** (0.73,0.90)	0.94 (0.84,1.04)	0.99 (0.89,1.11)	1.04 (0.92,1.16)	1.04 (0.92,1.16)
Age at Marriage					
<18 ^R	1.00	1.00	1.00	1.00	1
18+	0.67*** (0.60,0.75)	0.72*** (0.65,0.81)	0.77*** (0.69,0.86)	0.87* (0.77,0.98)	0.87* (0.77,0.98)
Partner's Occupation					
Not Working ^R		1.00	1.00	1.00	1
Working		0.63** (0.47,0.86)	0.61** (0.44,0.83)	0.71* (0.50,0.98)	0.71* (0.51,0.99)
Wealth Quintiles					
Lowest ^R		1.00	1.00	1.00	1
Lower		0.82** (0.71,0.93)	0.84** (0.73,0.96)	0.83* (0.72,0.96)	0.83* (0.72,0.96)
Middle		0.66*** (0.57,0.77)	0.69*** (0.59,0.79)	0.76** (0.65,0.89)	0.76** (0.65,0.89)
Richer		0.59*** (0.49,0.71)	0.60*** (0.50,0.73)	0.73** (0.59,0.89)	0.73** (0.60,0.89)
Richest		0.33*** (0.26,0.43)	0.36*** (0.28,0.46)	0.57*** (0.44,0.73)	0.57*** (0.44,0.73)
Sanitation					
Not improved ^R		1.00	1.00	1.00	1.00
Improved		0.96 (0.84,1.11)	1.03 (0.89,1.19)	1.07 (0.92,1.25)	1.07 (0.92,1.24)
Residence					
Urban ^R		1.00	1.00	1.00	1.00
Rural		0.76*** (0.67,0.86)	0.89 (0.78,1.01)	1.04 (0.91,1.19)	1.04 (0.91,1.19)

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Factors	Model 1	Model 2	Model 3	Model 4	Model 5
Religion					
Hindu ^R			1.00	1.00	1
Muslim			1.39***	1.11	1.11
			(1.19,1.61)	(0.94,1.30)	(0.94,1.30)
Others			0.47***	0.53***	0.53***
			(0.38, 0.59)	(0.42, 0.66)	(0.42, 0.66)
Alcohol Consumption					
No ^R			1.00	1.00	1.00
Yes			2.21***	1.41***	1.41***
			(2.00,2.45)	(1.30,1.57)	(1.26,1.56)
Social class					
SC ^R			1.00	1.00	1.00
ST			0.82**	0.98	0.98
			(0.70,0.97)	(0.82,1.17)	(0.82,1.17)
OBC			0.94	1.01	1.02
			(0.82,1.07)	(0.89,1.17)	(0.89,1.17)
General			1.04	1.29***	1.29**
			(0.90,1.20)	(1.11,1.51)	(1.12,1.51)
Inter-generational Violence					
No ^R				1.00	1.00
Yes				1.46***	1.46***
				(1.31,1.62)	(1.30,1.62)
Physical Violence Index					
Low ^R				1.00	1.00
Moderate				5.02***	5.02***
				(4.17,6.04)	(4.16,6.04)
High				13.87***	13.87***
				(11.99,16.04)	(11.99,16.03)
Preference for Sex					
Boy ^R					1.00
Girl					0.99
					(0.83,1.19)
N	14680	14680	14680	14680	14680
Log likelihood	-4522.74	-4482.037	-4368.161	-3661.037	-3661.036
AIC	9053.48	8986.07	8770.32	7362.07	7364.07
Model					
sensitivity	62.94	58.83	58.69	82.7	82.7

Note: OR: Odds ratios (90 per cent confidence interval in parentheses)

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

AIC: Akaike's Information Criterion; ^R Reference category.

Utilisation of Maternal Health Care Services in Selected Districts of Uttar Pradesh, India

Naveen Kumar Roy
Kaushalendra Kumar

Introduction

Complications of pregnancy and delivery are the leading causes of disability and death among women of childbearing age throughout the developing countries. In 2005, an estimated 536,000 maternal deaths occurred globally due to complications during pregnancy and child birth and developing countries accounted for 99 per cent (533,000) of these deaths. According to estimates prepared jointly by WHO, UNICEF, UNFPA and World Bank, developed countries have maternal mortality ratio of the maximum of 20 maternal deaths per 100,000 live births whereas average maternal mortality ratio in the developing countries is around 730 maternal deaths per 100,000 live births (WHO, 2007). The Millennium Development Goals set by United Nations, target to reduce maternal mortality ratio by two-third from the level that prevailed around 1990. This means that the maternal mortality ratio in India should be reduced to around 109 maternal deaths per 100,000 of live births by the year 2015. Estimates prepared the Registrar General of India suggest that the maternal mortality ratio in the country was around 178 maternal deaths per 100,000 live births during the period 2010-12 (Government of India, 2013). Very high risk of death due to complications of pregnancy and child birth in India may be judged from the fact that, in 2005, maternal mortality ratio in India was 16 times higher than that in Russia; 10 times higher than that in China; and 4 times higher than that in Brazil (Kashyap, 2009). India is estimated to have contributed more than one-fourth or 26 per cent of the total maternal deaths in the world (Government of India, 2006). Every year, around 68,000 women in India die from the complications associated with pregnancy and delivery. This burden of maternal deaths is the highest burden for any single country in the world (Pachauri, 2010). Postpartum haemorrhage (38 per cent) is the leading cause of maternal deaths in India followed by sepsis (11 per cent) and abortion (8 per cent) (Government of India, 2009).

Among the constituent states of India, maternal mortality ratio is estimated to be the highest in Assam (328 maternal deaths per 100,000 live births), followed by Uttar Pradesh/Uttarakhand (292 maternal deaths per 100,000 live births). By comparison, the risk of death due to complications of pregnancy and child birth has been estimated to be the lowest in Kerala (66 maternal deaths per 100,000 live births). However, the life time risk of a maternal death faced by women of child-bearing age is the highest in Uttar Pradesh/Uttarakhand (1 per cent). By contrast, the life time risk of a maternal death faced by women of child-bearing age is the lowest in Kerala (0.1 per cent). For each woman, who dies due to complications of pregnancy and child birth in the developing countries, as many as 20-40 or even more sustain serious, unbearable injuries (Koblinsky et al, 1993; Weinstein, 1997).

Determinants of the risk of death during pregnancy and child birth can be grouped broadly into four factors. The first group of factors is constituted by demographic and socio-economic characteristics of the population such as age, religion, social class, income, standard of living, etc. The second group of factors is related to the delivery of maternal health care services. The third group of factors may be christened as ecological factors while the fourth group of factors essentially comprises of psychological factors (Anderson, 1973). A number of studies have found that access to and utilisation of maternal health care services has a greater effect on the risk of a death associated with complications of pregnancy and child birth than socioeconomic factors, although socio-economic factors have a strong impact on the access to and utilisation of maternal health care services (Anwar et al, 2004; Kanitkar and Sinha, 1989; Elo 1992; Swenson et al, 1993; Abdalla 1993; Govindasamy 1994; Khan et al, 1994; Barlow and Diop, 1995; Ahmed and Mosley, 1997; Regmi and Manandhar, 1997; Govindasamy and Ramesh 1997; Das et al, 2001). A positive association between economic status of the household and institutional delivery has been found in a number of studies (Raghupathy, 1996; Navaneetham and Dharmalingam, 2002; Gertler et al, 1993). Religion influences the utilisation of maternal care services with significant association in some settings (Falkingham, 2003). The present study, therefore analyses utilisation of maternal health care services in Uttar Pradesh in the context of very high risk of death during pregnancy and child birth in the state. From the social, cultural and development point of view, Uttar Pradesh is generally divided into four -regions - central, west, east and Bundelkhand. As such it is imperative that any analysis of the utilisation of maternal health within the state are analysed through a regional perspective.

Objectives

Specific objectives of the present study are as follows:

- To examine the inter-district variation in the utilisation of maternal health care services in selected districts of Uttar Pradesh
- To identify the demographic and socio-economic determinants of the utilisation of maternal health care services in selected districts of the state.

Data and Methodology

The study is based on the data available through the District Level Household Survey-3 (DLHS-3), 2007-08 (IIPS, 2010). During the survey, currently married women whose last pregnancy resulted in either a stillbirth or a live birth during five years preceding the survey were interviewed to collect data on the utilisation of maternal health care services. Data pertaining to the utilisation of maternal health care services during 42 days after the latest birth were retained for the analysis.

For the purpose of the analysis, one district from each of the four regions of the state Uttar Pradesh was selected. The criteria for selection was the highest human development index (HDI) was selected. District Lucknow has the highest HDI (0.710) in the central region; district Gautam Buddha Nagar has the highest HDI (0.671) in the western region; district Ballia has the highest HDI (0.609) in the eastern region while Jhansi has the highest HDI (0.574) in the Bundelkhand region. Accordingly, the present analysis is limited to the situation in these four districts.

Bi-variate analysis is used to explain levels and differentials in the utilisation of maternal health care services in the four districts. Moreover, logistic regression analysis has been carried out to identify the effect of a set of covariates on antenatal care, institutional delivery and postnatal check-up.

Results

Table 1 shows background characteristics of currently married women aged 15-49 years whose last pregnancy resulted as stillbirth or live birth during five years preceding the survey in the four districts. It is clear from the table that the distribution of women by their background characteristics is different in the four districts included in the analysis. This is expected that the four districts are different from each other in terms of both demography and development. For example, almost half of the women included in the analysis were below 25 years of age in district Jhansi whereas this proportion was just around 32 per cent in district Lucknow and around 35 per cent in district Ballia. On the other hand, more than 15 per cent women in district Lucknow aged 35-49 years compared to less than 4 per cent in district Jhansi. Majority of women in district Lucknow were from the urban background but in the remaining districts majority of women were from the rural background. Similar variations may also be seen in terms of education, wealth index and birth order.

Table 2 provides information about the use of any antenatal care service in the four districts by background characteristics of women. The use of any antenatal care services has been found to be the highest in district Lucknow (85 per cent) followed by Ballia (84 per cent), Jhansi (76 per cent) and Gautam Buddha Nagar (68 per cent). Use of any antenatal care is comparatively low in older women (age 35-49 years) than in younger women in all selected districts. Similarly, use of any antenatal care service increases with the increase in the education of the woman and her husband and increase in the wealth

index. On the other hand, use of any antenatal care service has been found to be more in Hindu women as compared to non-Hindu women in Gautam Buddha Nagar, Lucknow and Jhansi but in district Ballia, the use is relatively higher in non-Hindu women, although the difference is small. Use of any antenatal care service by social class is however different in different districts whereas it is the highest in first order births but lowest in birth order five and above.

Table 3 provides information about the proportion of institutional deliveries to total deliveries in the four district. This proportion is the highest in district Lucknow (47.7 per cent) followed by district Jhansi (40.7 per cent), district Ballia (34.9 per cent) and district Gautam Buddha Nagar (27.5 per cent). It is higher in urban than in rural areas in all the four districts. Similarly, this proportion increases with the increase in the education of the woman and her husband and with the increase in the wealth index. In terms of other background characteristics, the distribution of women is essentially different in different districts.

Table 4 presents information about the proportion of women who received any postnatal care check-up within 42 days after delivery. This proportion ranges from 53 per cent in district Gautam Buddha Nagar to less than 30 per cent in district Ballia. This proportion is, in general, higher in younger women, women from urban background, women and her husband with at least high school level education, women belonging to richest wealth index quintiles group and in case of first birth order births. Interestingly, this proportion has been found to be lower in case of institutional deliveries when compared to non-institutional deliveries.

Table 5 shows results of logistic regression for the use of any antenatal care. As expected, women's educational attainment is statistically significantly associated with the use of any antenatal care service in all the four districts. The probability of using any antenatal care service is four time higher in educated women than in uneducated women in Lucknow district; nearly three times higher in Ballia district and around two times higher in Jhansi and Gautam Buddha Nagar districts as compared to women who had no education. Similarly, the probability of using any antenatal care service is more than three times higher in Ballia district and almost three times higher in Jhansi and Lucknow districts in women belonging to the richest wealth index quintiles as compared to women with poorest wealth index quintiles. In district Gautam Buddha Nagar also, the probability of using any antenatal care service is higher in women with richest wealth index quintiles than in women with poorest wealth index quintiles but the difference is not statistically significant.

Table 6 presents results of logistic regression analysis for institutional deliveries. The only variable that has been found to impact the probability of an institutional delivery in all the four districts is the use of any antenatal care service. The probability of an institutional delivery among women who have used at least one antenatal care service is found to be almost 6 times higher in district Ballia; nearly three times higher in district Jhansi; and nearly two times higher in districts Lucknow and Gautam Buddha Nagar

compared to women who did not use any antenatal care service. Other variables are significant in one or two districts only while some of the variables are not significant in any district.

Finally, table 7 presents logistic regression results for postnatal check-up within 48 hours after delivery. The only variable that has statistically significant impact on the postnatal check up is the institutional delivery. Results show that almost all background characteristics are not significant with postnatal check-up in all districts. Among other variables, religion and caste have statistically significant impact in district Gautam Buddha Nagar and birth order has some impact in district Lucknow. The impact of the remaining variables has not been found to be statistically significant in any of the four districts.

Conclusions

The study highlights the fact that different background characteristics of women have significant impact on the use of different maternal health care services in different districts. This means that a district-based approach should be adopted to universalise the utilisation of antenatal, natal and postnatal maternal health care services. The importance of universal access and use of antenatal care services is important as use of even at least one antenatal care service significantly increase the chance of an institutional delivery and an institutional delivery significantly increases the probability of postnatal checkup. Key determinants of the use of antenatal care services in all the four districts are education of the woman and the wealth index. Other factors have impact in specific districts only, not in all districts.

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Table 1
Proportion of currently married women (aged 15-49 years) according to selected
background characteristics, 2007-08

Background Characteristics	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years	42.7	32.1	48.1	35.3
25-34 years	47.0	52.5	48.1	55.3
35-49 years	10.3	15.4	3.9	9.4
Place of Residence				
Rural	67.1	44.7	62.7	90.3
Urban	32.9	55.3	37.3	9.7
Religion of Respondent				
Hindu	74.2	74.5	91.3	97.1
Non-Hindu	25.8	25.5	8.7	2.9
Caste of Respondent				
SC/ST	10.6	27.7	37.7	12.8
OBC	52.1	42.9	46.8	75.4
Others	37.3	29.4	15.5	11.7
Respondent's Education				
No Education	44.2	46.3	43.9	59.4
Less than High School	34.5	30.6	42.1	21.2
High School and above	21.4	23.1	14.0	19.5
Husband's Age				
< 25 years	41.4	31.2	47.7	34.2
25-34 years	47.0	52.5	48.1	55.3
35 years and above	11.6	16.3	4.2	10.5
Husband's Education				
No Education	15.8	29.2	10.8	28.8
Less than High School	39.3	37.8	49.2	29.5
High School and above	44.9	33.0	40.0	41.6
Birth Order				
1	19.6	25.6	26.3	19.4
2	18.4	21.1	31.8	22.3
3-4	27.6	25.7	30.6	36.3
5+	34.3	27.7	11.3	22.1
Wealth Index Quintiles				
Poorest	11.4	22.0	21.6	44.3
Middle	14.9	15.0	18.3	24.7
Richest	73.7	63.0	60.0	31.0
N	469	337	279	495

UTILISATION OF MATERNAL HEALTH CARE SERVICES IN UTTAR PRADESH

Table 2
Proportion of ever married women (aged 15-49 years) who received any ANC during pregnancy by background characteristics, 2007-08

	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years	74.4	81.0	75.8	85.7
25-34 years	70.1	90.7	78.1	84.4
35-49 years	29.3	70.5	60.0	72.1
Place of Residence				
Rural	65.2	82.0	79.0	82.7
Urban	73.5	86.8	72.5	91.5
Religion of Respondent				
Hindu	73.1	88.0	76.7	83.5
Non-Hindu	53.2	76.3	70.8	85.7
Caste of Respondent				
SC/ST	57.8	84.5	71.3	83.6
OBC	71.4	79.8	79.4	83.6
Others	65.8	92.3	79.1	85.5
Respondent's Education				
No Education	54.5	72.4	61.3	77.4
Less than High School	72.3	92.6	83.9	88.2
High School and above	88.0	100.0	100.0	97.8
Husband's Age				
< 25 years	79.0	95.5	86.2	87.2
25-34 years	72.8	85.5	75.6	86.5
35 years and above	52.9	81.4	73.0	78.1
Husband's Education				
No Education	48.5	75.5	46.7	77.0
Less than High School	64.3	85.7	76.2	81.1
High School and above	77.1	92.9	84.5	89.9
Birth Order				
1	80.2	92.7	79.5	92.7
2	74.1	85.3	80.7	84.7
3-4	71.1	85.5	79.8	85.0
5+	49.0	72.5	37.5	70.0
Wealth Index Quintiles				
Poorest	50.0	75.4	69.0	75.0
Middle	55.6	63.8	66.0	86.1
Richest	73.7	93.1	82.6	93.9
All	67.8	84.6	76.3	83.6
N	469	337	279	495

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Table 3
Proportion of currently married women (aged 15-49 years) delivering at institution by
background characteristics, 2007-08

Background characteristics	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years	29.0	48.0	48.1	41.1
25-34 years	29.4	50.0	33.6	32.2
35-49 years	11.9	38.6	30.0	27.9
Place of Residence				
Rural	25.8	33.8	41.3	32.7
Urban	30.9	59.3	39.2	53.2
Religion of Respondent				
Hindu	32.6	45.8	40.4	35.3
Non-Hindu	12.7	52.5	41.7	21.4
Caste of Respondent				
SC/ST	22.2	29.8	35.6	32.3
OBC	28.2	42.6	42.1	30.1
Others	28.0	71.4	48.8	69.1
Respondent's Education				
No Education	16.6	32.4	34.7	21.7
Less than High School	24.8	37.6	41.6	39.2
High School and above	53.3	95.5	56.4	71.0
Husband's Age				
< 25 years	30.6	54.5	60.7	41.0
25-34 years	31.2	50.0	36.9	36.5
35 years and above	18.2	43.2	43.5	30.4
Husband's Education				
No Education	10.6	27.7	26.7	17.9
Less than High School	21.0	36.6	43.8	31.5
High School and above	38.3	78.8	40.9	49.2
Birth Order				
1	40.0	65.1	56.2	56.3
2	35.3	54.4	42.0	38.7
3-4	24.8	39.8	27.4	26.0
5+	14.6	29.0	34.8	25.6
Wealth Index Quintiles				
Poorest	11.5	17.6	32.8	26.4
Middle	19.4	25.0	38.0	32.0
Richest	31.7	64.4	44.7	49.3
All	27.5	47.7	40.7	34.9
N	469	337	279	495

UTILISATION OF MATERNAL HEALTH CARE SERVICES IN UTTAR PRADESH

Table 4

Proportion of currently married women (aged 15-49 years) received any check-up within 48 hours after delivery according to background characteristics

Background characteristics	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years	56.0	49.0	40.9	30.2
25-34 years	55.3	45.1	31.0	20.4
35-49 years	31.0	40.9	30.0	20.9
Place of Residence				
Rural	52.3	41.7	34.1	23.0
Urban	54.4	49.1	38.8	29.8
Religion of Respondent				
Hindu	58.6	48.4	35.5	24.0
Non-Hindu	38.2	38.3	37.5	14.3
Caste of Respondent				
SC/ST	56.8	36.9	33.7	24.2
OBC	50.0	36.2	34.9	20.8
Others	56.1	67.0	44.2	43.6
Respondent's Education				
No Education	46.5	33.1	29.7	16.8
Less than High School	51.5	37.6	34.8	28.4
High School and above	68.1	83.6	57.9	40.2
Husband's Age				
< 25 years	59.7	54.5	53.6	39.5
25-34 years	54.3	50.6	31.3	23.4
35 years and above	47.1	37.3	40.3	20.6
Husband's Education				
No Education	40.9	30.9	17.2	17.1
Less than High School	50.0	36.3	35.4	18.2
High School and above	59.6	70.4	40.9	32.7
Birth Order				
1	60.0	68.7	45.2	40.6
2	54.8	45.6	35.2	24.3
3-4	57.8	35.4	31.0	20.4
5+	41.7	31.9	26.1	12.2
Place of Delivery				
Institutional	36.9	13.8	6.3	8.0
Non-institutional	95.6	80.7	79.1	53.6

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Background characteristics	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Wealth Index Quintiles				
Poorest	36.5	26.1	28.8	20.8
Middle	50.0	31.3	32.0	23.0
Richest	56.7	56.6	39.8	28.6
All	53.0	45.8	35.9	23.9
N	469	337	279	495

UTILISATION OF MATERNAL HEALTH CARE SERVICES IN UTTAR PRADESH

Table 5
Odds of receiving any ANC by selected demographic and socio-economic characteristics

Background characteristics	Odds Ratio			
	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years ^a				
25 years & above	1.22*	1.97	1.82*	1.47
Place of Residence				
Rural ^a				
Urban	1.49	1.04	0.48**	2.47*
Religion of Respondent				
Hindu ^a				
Non-Hindu	0.55**	0.61	1.06*	0.98
Caste of Respondent				
SC/ST ^a				
OBC	1.67*	1.24	1.73	0.95
Others	1.31*	0.91	1.38	0.21**
Respondent's Education				
Non-Educated ^a				
Educated	1.73**	4.21**	2.27**	2.6**
Husband's Age				
< 25 years ^a				
25 years & above	0.92	0.31	0.64**	1.21*
Husband's Education				
Non-Educated ^a				
Educated	1.49	1.09*	2.05	1.19*
Birth Order				
1 ^a				
2 - 3	0.93	0.63	0.93	0.45*
4 & above	0.43**	0.42	0.30**	0.26
Wealth Index				
Poorest ^a				
Middle	0.63*	0.89	0.81	1.69**
Richest	1.21	2.72*	2.84**	3.36**

N

a Reference category

***P<0.01; **P<0.05; *P<0.10

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Table 6
Odds of institutional delivery by selected demographic characteristics

Background Characteristic	Odds Ratio			
	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
< 25 years ^a				
25 years & above	1.54*	1.39	0.74	0.77*
Place of Residence				
Rural ^a				
Urban	1.33**	0.89	0.77*	1.83
Religion of Respondent				
Hindu ^a				
Non-Hindu	0.48**	1.23	1.83	0.45*
Caste of Respondent				
SC/ST ^a				
OBC	1.63	1.63	1.15	0.86
Others	1.33	2.02*	1.53	3.01**
Respondent's Education				
Non-Educated ^a				
Educated	1.99**	0.93	1.01	2.63***
Husband's Age				
Less than 25 years ^a				
25 years & above	1.03*	1.05	0.61	1.26
Husband's Education				
Non-Educated ^a				
Educated	1.88	1.75*	0.74	2.00**
Birth Order				
1 ^a				
2 - 3	0.57*	0.44**	0.57*	0.44**
4 & above	0.55	0.23***	0.32**	0.63
Wealth Index				
Poorest ^a				
Middle	1.79	1.32	1.28*	0.82*
Richest	1.61	4.24***	1.55	0.67
Antenatal Care				
No ^a				
Yes	2.34**	2.37*	2.74**	5.62***

^a Reference category

***P<0.01; **P<0.05; *P<0.10

UTILISATION OF MATERNAL HEALTH CARE SERVICES IN UTTAR PRADESH

Table 7
Odds of postnatal check-up within 48 hours after delivery

Background characteristics	Odds Ratio			
	Gautam Buddha Nagar	Lucknow	Jhansi	Ballia
Age of Respondent				
Less than 25 years ^a				
25 years & above	0.85*	1.36*	0.83	0.85**
Place of Residence				
Rural ^a				
Urban	0.96	0.63*	2.04	1.05
Religion of Respondent				
Hindu ^a				
Non-Hindu	0.6*	0.95	1.32	0.83
Caste of Respondent				
SC/ST ^a				
OBC	0.48*	1.17	0.71**	0.78
Others	0.77	1.52	1.02	1.25
Respondent's Education				
Non-Educated ^a				
Educated	0.69	0.86	1.19	1.45**
Husband's Age				
Less than 25 years ^a				
25 years & above	0.69	0.86*	1.19*	1.45
Husband's Education				
Non-Educated ^a				
Educated	0.81**	0.99	2.31	0.92*
Birth Order				
1 ^a				
2 - 3	1.66	0.40**	1.22	0.89
4 & above	1.46	0.47	2.45	0.98*
Wealth Index				
Poorest ^a				
Middle	1.41	1.71	0.93**	0.94
Richest	2.08*	2.04	0.98	0.71
Institutional Delivery				
Non-institutional ^a				
Institutional	31.72***	18.28***	98.59***	14.83***

^a Reference category

***P<0.01; **P<0.05; *P<0.10

Infertility and Treatment Seeking Behaviour among Women of EAG States in India

Rajiva Prasad

Background

Desire to have children is virtually a universal fact but in medical terms, inability to conceive or problem in conceiving is seen as an infertility problem. The terms infertility and sterility are often used loosely without regard to precise definition. Infertility is mainly categorised in two ways: a) primary infertility which means inability to conceive; and b) secondary infertility which means inability to conceive after conceiving earlier. The World Health Organization (1975) defines infertility as the inability to conceive within two years of exposure to pregnancy. In clinical studies, the period of exposure is usually taken as one year whereas in demographic studies, a period of 5 years is generally considered to define infertility.

Motherhood is a social status which is actively sought by most of the women. It is symbolically important as it shapes cultural and social identities of women. Although, motherhood is seen as an essential stage in women's life, yet, it is frequently romanticised as women's supreme achievement. Childless women are socially stigmatised and, regardless of medical causes of their childlessness, they are blamed for infertility and face grave personal and social consequences including economic deprivation, violence and marital disruption. Childless couples are also excluded from taking leading roles in important family functions and events such as birthday, christening and wedding.

Childlessness is a product of complex interaction of biological, environmental and cultural factors which needs to be understood at the community level and for planning reproductive health care services to address the problem of infertility. Although, perceptions are changing, especially among middle and upper classes of the society, the Indian tradition still demands that all marriages result in children. The patrilineal system produces a strong desire for sons to continue family line (Reddy, 1992). Children are also regarded as sources of income and old age security.

Over the past few decades, infertility has been a subject of significant media attention and public discussion, particularly due to new technological advancement in medical sciences. However, inability to conceive a child is still viewed essentially as a private matter rather than social or public health concern. Issues related to infertility have a significant impact on not only the health and well-being of the individual or the couple but also the society as a whole, particularly in the context of low fertility. Incidence of infertility in the population has important demographic and health implications because high infertility has dampening effect on overall fertility and the rate of population growth (Rutstein and Shah, 2004). In countries where fertility decline is not a problem anymore and the replacement fertility is already achieved, proportion of couples remaining infertile becomes a concern for all the public health researchers and policy makers. In a study carried out in Mumbai slums (Mulgaonkar, 2001) has found that majority of husbands and wives had felt that neither of the two were responsible for infertility. Most husbands cooperated in treatment seeking and willingly accompanied their wife on first or subsequent medical consultations.

India is not exceptional in its emphasis on childbearing - making babies is the primary way, women encounter stigma if they do not become mothers (Miall, 1986). Though infertility is evidently an issue for couples and men are at least partly responsible for infertility in a significant proportion of cases, male infertility remains a relatively neglected issue and little is known about men's involvement/participation in fertility seeking practices. Frank (1983) estimated that a reduction in infertility in sub-Saharan Africa to normal levels would increase fertility in that region by about 15 per cent. Married women who remain childless in India are invisible in social research but they are highly visible in their families and communities. A study of Indian women who visited an infertility clinic has revealed considerable self-blame "There is something wrong with me" was the common statement. Voluntary childlessness is rare in India and research about it is largely absent (Jindal and Gupta, 1989).

There are a number of studies which have explored different aspects of the phenomenon of infertility in contemporary social and cultural settings. An African study has indicated that circumcision of female increases the risk of infertility (Shandall, 1967). In Cameroon, a country with an unusually high level of infertility, it was estimated that the then current total fertility rate of 5.5 children would have risen to around 7.3 in the absence of sterility (Larsen and Menken, 1989). Unisa (1999), in a study in Andhra Pradesh, India has found that majority of the childless women had primary infertility and there was lack of modern infertility treatment facilities at sub centres, primary health centres and community health centres of the public health care delivery system. Veivers (1971) observed that there could be an association between low age at marriage, first coitus, sexually transmitted infections and infertility. In a Yoruba study, Winny (1999) has suggested that infertility prevention and treatment should be integrated into regular public/reproductive health services in which orthodox medicine and traditional healers should work together.

Rationale for the study

Data about infertility was collected for the first time in the District Level Household and Facility survey 2007-08 DLHS-3. Women aged 15-49 years covered during the survey were enquired about infertility problems and their treatment seeking behaviour. The survey revealed that around 8 per cent of currently married women in the reproductive age group had infertility problems, although there is wide variation in the level of infertility among women across states ranging from 14 per cent in West Bengal to just 3 per cent in Meghalaya. At the national level, around 6 per cent women have primary while around 2 per cent women have secondary infertility. More than 50 per cent women surveyed in 8 EAG states (Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand) have some infertility problem. On the other hand, there are very few studies on infertility treatment seeking practices due to the scarcity of data. There is no study pertaining to infertility problems among women in EAG states.

Objectives

The present study is directed towards the study of infertility among ever married women of EAG states. Specific objectives of the study are:

- Estimation of the prevalence of infertility;
- Analysis of the infertility treatment seeking behaviour; and
- Outcome of the infertility treatment

Data and Methodology

The study is based on the response of 6,38,800 ever married women aged 15-49 about questions related to infertility. In all, around 53 thousand ever married women reported some type of infertility problem at the time of the survey. Simple proportions are calculated to estimate the prevalence of infertility, treatment seeking behaviour and sources and outcome of the treatment. Multivariate technique is used to know about the factors affecting infertility treatment seeking behaviour.

Results and Discussion

Around 51 per cent of women who experienced some infertility problem hailed from EAG states. The prevalence of infertility is found to be the highest in Bihar (12.5 per cent) followed by Chhattisgarh (11.4 per cent), Uttar Pradesh (10.2 per cent), Jharkhand (9.5 per cent), Odisha (7.6 per cent) and Madhya Pradesh (7.0 per cent). Prevalence of infertility is found to be more among older women, women aged 30 years and above. In Bihar, Odisha and Chhattisgarh, the prevalence of infertility is found to be more among women aged 30-39 years compared to women aged 40-49 years but the prevalence is found to be more in women aged 40-49 years in Uttarakhand, Rajasthan, Uttar Pradesh, Jharkhand and Madhya Pradesh. Prevalence of infertility is higher in rural than in urban

women in all states except Madhya Pradesh. Similarly, the prevalence of infertility is found to be higher in women who consummated before reaching 18 years of age than women who consummated after reaching 18 years of age in all EAG states except Rajasthan and Jharkhand. The impact of marital duration on the prevalence of infertility is direct in Rajasthan, Uttar Pradesh and Bihar - an increase in the marital duration is associated with an increase in the prevalence of infertility. Prevalence of infertility is estimated to be high among uneducated women in Rajasthan, Jharkhand and Chhattisgarh compared to educated women. In Rajasthan and Jharkhand, prevalence of infertility is higher in women having uneducated husband than women having educated husband. In Bihar, Odisha, Chhattisgarh, Rajasthan and Madhya Pradesh, prevalence of infertility is higher in Hindu women but not in other states. Prevalence of infertility is also higher among Scheduled Castes and Scheduled Tribes women in Bihar, Jharkhand, Odisha, Madhya Pradesh and Chhattisgarh.

The prevalence of infertility is found to be higher in poor women in Uttarakhand, Rajasthan, Bihar, Jharkhand, Odisha and Chhattisgarh but in middle economic women in Uttar Pradesh and Madhya Pradesh. Moreover, in all states, the prevalence of infertility is found to be higher in women having any symptom of RTI/STI. Similarly, the prevalence of infertility is higher among women reporting menstruation problems than in women who had no menstruation problem.

Around three-fourth of the infertile women have taken some type of treatment to address the problem of infertility (Table 5). The proportion of infertile women seeking treatment is the highest in Rajasthan and Uttar Pradesh (83 per cent) but the lowest in Odisha and Chhattisgarh (64 per cent). More than 60 per cent of the women aged 20 years and above in all the 8 EAG states have taken some treatment for infertility. In case of women aged less than 20 years, around one third women of Uttarakhand, Odisha and Chhattisgarh and more than 50 per cent women in Madhya Pradesh have taken some treatment for infertility. The proportion of infertile women seeking treatment is more in urban than in rural areas. Similarly, proportion of infertile women with a marital duration of more than 5 years seeking treatment is more than the proportion of infertile women with a marital duration of less than 5 years. In fact, the proportion of infertile women seeking treatment increases with the increase in marital duration up to 10-14 years in all states but decreased afterwards. Proportion of infertile women seeking treatment also increases in general with the level their education and education of their husband. Similarly, proportion of infertile non-Scheduled Castes/Tribes women seeking treatment is higher than infertile Scheduled Castes/Tribes women. However, the pattern is not so clear in case of religion whereas treatment seeking is directly related to the income of the family of the infertile woman.

Majority of infertile women who had gone for treatment had opted for allopathic treatment, although the proportion of women opting for religious/traditional treatment is also quite substantial, particularly in Rajasthan, Bihar, Jharkhand, Chhattisgarh and Madhya Pradesh. On the other hand, significant proportion of women had gone for

Ayurvedic treatment. Majority of women in all states reported that the cause of infertility was related to their own problems rather than the problems of their husband. In Rajasthan and Madhya Pradesh, more than 30 per cent women did not know the cause of infertility. Interestingly, a large proportion of infertile women seeking treatment in all states reported that their treatment was successful and they were able to conceive. This proportion was 79 per cent in Bihar followed by 73 per cent in Uttar Pradesh, 67 per cent in Uttarakhand and 64 per cent in Madhya Pradesh. In Rajasthan, Jharkhand and Chhattisgarh, less than 60 per cent women reported that infertility treatment was successful. At the same time, a significant proportion of women reported that the treatment was not successful and they did not conceive even after treatment. This proportion was 33 per cent in Jharkhand, 30 per cent in Rajasthan and Madhya Pradesh and 26 per cent in Chhattisgarh and Uttarakhand. Finally, a small proportion of women reported continuing treatment at the time of the survey. Similarly, a small proportion of women reported that they had discontinued the treatment.

Table 6 provides information about factors that influence infertile women to go for allopathic treatment. Significantly influencing factors are age of the woman, marital duration, education of women/husband, religion, caste and economic status. Since all the EAG states are not culturally the same, an attempt has been made to study the influencing factors separately in each state. Interestingly, there is only one variable - economic status - which was statistically significantly associated with the probability of seeking allopathic treatment in all states and all categories. Caste was statistically significantly associated in six states other than Uttarakhand and Rajasthan. Other variables have been found to be associated statistically significantly in selected states and in selected categories indicating, at best, only limited impact.

Summary and Conclusion

This study is an exercise to analyse the pattern of infertility and infertility treatment seeking behaviour in ever married women in EAG states of India. Among the 34 states for which data are available through DLHS-3, prevalence of infertility among ever-married women of reproductive age is found to be higher than the national average in 13 states which include four EAG states - Bihar, Chhattisgarh, Uttar Pradesh and Jharkhand. Results show that prevalence of infertility is relatively low in Rajasthan and Uttarakhand on the basis of the response of the ever married women surveys, although, the 8 EAG states account for almost half (49 per cent) of the estimated infertile women in India.

The study also suggests that the problem of infertility is relatively more among women having lower socio-economic background which may also be the reason for the lack of awareness about factors responsible for infertility and lack of infertility treatment. In Uttar Pradesh and Bihar, rural women who consummated at an age younger than the legal minimum age at marriage appear to have relatively higher risk of infertility. Bi-variate results also suggest that infertility may also be the result of RTI/STI and menstrual problems.

As regards infertility treatment, the influence of family income is very much evident from the analysis. The other important factor appears to be the caste. Remaining variables do not have universal influence on infertility treatment in all EAG states. It appears that allopathic treatment of infertility is determined more by the ability to pay and by the knowledge of women or their husband about such treatment. This is expected as most of the infertility treatment is available through the private health care delivery system which is costly. A major challenge towards addressing the problem of infertility in EAG states, therefore, is to improve access to infertility treatment facilities at an affordable cost.

On the whole, infertility and its treatment deserves a place in public health strategy in the EAG states. However, lack of data and appropriate analysis is a major bottleneck in this direction. There is a need to incorporate infertility related issues in any health and family welfare survey so that the magnitude and complexity of the problem can be understood in the right perspective. This is important as infertility is not merely a health problem. It is also a matter of social injustice and inequality.

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INFERTILITY AND INFERTILITY TREATMENT SEEKING BEHAVIOUR

Table 1
Prevalence of infertility among currently married women aged 15-49 years
in India and states, 2007-08

SN	India/States	Prevalence of infertility (Per cent)
1	Meghalaya	2.5
2	Arunachal Pradesh	3.0
3	Andaman and Nicobar Islands	3.2
4	Assam	4.8
5	Mizoram	4.9
6	Rajasthan	4.9
7	Himachal Pradesh	4.9
8	Uttarakhand	5.1
9	Dadra and Nagar Haveli	5.8
10	Chandigarh	5.9
11	Puduchery	6.3
12	Gujarat	6.5
13	Tripura	6.5
14	Tamil Nadu	6.7
15	Madhya Pradesh	7.0
16	Manipur	7.2
17	Sikkim	7.6
18	Odisha	7.6
19	Karnataka	7.6
20	Daman and Diu	7.9
21	Maharashtra	8.1
22	Delhi	8.7
23	Jammu and Kashmir	8.7
24	Punjab	8.9
25	Jharkhand	9.5
26	Uttar Pradesh	10.2
27	Kerala	10.7
28	Andhra Pradesh	11.0

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SN	India/States	Prevalence of infertility (Per cent)
29	Haryana	11.3
30	Chhattisgarh	11.4
31	Lakshadweep	12.5
32	Bihar	12.5
33	Goa	13.7
34	West Bengal	14.2
35	India	8.4

Estimates for Nagaland are not available.

INFERTILITY AND INFERTILITY TREATMENT SEEKING BEHAVIOUR

Table 2
Share of EAG states in total infertile women in India

Category	States	Proportion of total infertile women (Per cent)
EAG states		51.1
Non-EAG states		48.9
	Bihar	10.9
	Chhattisgarh	3.8
	Jharkhand	4.8
	Madhya Pradesh	6.1
	Odisha	4.0
	Rajasthan	3.8
	Uttar Pradesh	16.5
	Uttarakhand	1.2
India		100.0

Table 3
Proportion of currently married women having infertility problems
in EAG states of India by some background characteristics

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Age of the women(Years)								
Less than 20	3.2	2.2	5.2	7.0	6.9	4.7	7.2	3.9
20-29	5.1	4.6	10.1	12.3	9.5	7.4	11.0	7.3
30-39	4.9	5.3	10.9	14.0	9.6	8.2	12.4	7.0
40-49	5.6	5.7	11.1	13.7	9.9	7.6	11.8	7.3
Place of residence								
Rural	5.3	5.0	10.2	12.7	9.9	7.9	11.5	6.7
Urban	4.3	4.7	9.9	10.3	7.0	5.9	10.7	8.0
Age at consummation of marriage(Years)								
Less than 18	5.7	4.9	10.7	13.3	9.4	7.7	11.9	7.4
18 and above	4.8	5.0	9.0	9.9	9.6	7.6	10.6	6.3
Marital Duration(Years)								
Less than 5	4.1	2.4	5.9	6.3	7.1	6.4	7.7	4.8
5-9	6.0	4.9	10.9	12.7	10.8	8.1	11.9	7.9
10-14	5.4	5.5	11.1	13.4	10.2	8.0	13.0	7.4
15 and more	5.0	5.4	11.0	14.2	9.4	7.8	12.0	7.2

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Education of women(Years)								
Illiterate	6.1	5.3	10.5	13.3	10.2	8.2	13.1	6.8
Less than 5	6.2	4.8	11.9	13.9	10.0	9.3	11.5	7.9
5-9	5.0	3.9	10.5	11.1	8.7	6.7	9.3	7.6
10 and more	3.8	4.0	7.5	8.9	6.2	6.0	7.1	6.2
Education of husband(Years)								
Illiterate	5.9	5.5	10.1	12.8	10.8	7.6	13.2	6.4
Less than 5	5.4	5.3	11.1	13.9	10.7	8.7	13.6	7.6
5-9	5.4	4.9	10.4	12.7	9.1	7.8	10.9	7.3
10 and more	4.7	4.2	9.9	11.6	7.7	6.4	8.4	7.1
Religion								
Hindu	5.0	5.0	10.3	12.7	9.5	7.8	11.5	7.0
Muslim	5.9	4.5	9.3	11.2	7.0	6.2	10.2	6.5
Others	6.8	4.2	11.9	11.2	10.6	4.4	8.3	6.9
Caste								
Scheduled Castes/Tribes	4.0	5.4	9.5	12.8	10.9	7.8	12.8	6.6
OBC & others	5.4	4.7	10.3	12.5	8.2	7.5	10.0	7.3
Economic status								
Poor	6.1	5.6	10.1	13.0	10.3	8.5	12.6	6.5
Middle	5.2	4.7	10.3	12.2	8.4	6.5	10.1	7.7
Rich	4.5	4.0	9.9	8.5	5.5	5.7	8.3	7.3

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Any symptoms of RTI/STI								
No	4.2	4.8	9.4	12.0	8.7	7.2	11.0	6.0
Yes	7.7	5.2	12.7	13.9	12.2	12.0	15.7	9.5
Menstruation problem								
No	4.4	4.4	9.0	11.0	7.4	7.0	10.8	6.2
Yes	8.2	7.5	17.5	22.1	22.0	15.1	21.2	10.5
Total	5.1	4.9	10.2	12.5	9.5	7.6	11.4	7.0

Table 4

Proportion of currently married infertile women seeking treatment by some background characteristics in EAG states of India

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Age of the women(Years)								
Less than 20	30.7	64.0	68.8	59.8	62.6	34.6	35.3	52.5
20-29	69.7	79.1	83.3	83.0	69.6	61.6	65.4	71.7
30-39	72.7	87.0	84.9	85.2	72.8	67.1	65.3	77.8
40-49	64.8	83.3	81.8	82.4	74.4	68.3	63.6	75.5
Place of residence								
Rural	67.3	81.3	81.9	82.1	70.7	63.5	61.8	71.1
Urban	78.7	88.6	88.1	85.0	76.5	73.3	75.2	82.3
Age at consummation of marriage(Years)								
Less than 18	66.8	81.3	81.8	82.0	71.6	64.9	63.2	73.0
18 and above	70.1	85.1	85.8	83.6	70.9	64.1	64.8	76.1
Marital Duration(Years)								
Less than 5	57.8	70.4	76.4	64.5	61.3	50.9	54.4	57.7
5-9	71.4	80.3	82.5	79.8	71.1	64.1	63.3	72.0
10-14	76.2	84.6	86.0	85.0	75.0	65.3	69.2	80.6
15 and more	68.4	84.2	83.2	84.8	72.6	69.1	64.1	75.7
Education of women(Years)								
Illiterate	62.3	81.3	80.9	81.0	67.9	58.2	58.3	71.1
Less than 5	65.2	82.3	82.5	82.3	75.8	67.5	75.2	74.4
5-9	73.2	85.3	86.3	84.6	79.5	68.6	70.8	75.8
10 and more	77	90.5	88.7	90.1	78.6	79.6	80.1	85.4

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Education of husband(Years)								
Illiterate	60.7	81.8	78.7	79.0	66.0	53.7	57.5	70.5
Less than 5	49.9	80.5	79.1	81.3	70.8	63.2	64.3	68.4
5-9	67.9	82.2	83.2	82.3	72.9	67.7	65.0	72.1
10 and more	73.4	84.9	86.9	87.6	78.8	76.1	74.8	82.0
Religion								
Hindu	61.5	81.3	75.4	75.9	66.8	56.8	59.3	69.5
Muslim	70.6	83.4	84.8	84.2	76.4	71.7	69.8	76.6
Others								
Caste								
Scheduled Castes/Tribes	67.7	82.3	82.1	82.3	72.8	64.3	63.5	73.4
OBC & others	86.9	85.3	87.6	82.2	77.5	88.7	81.6	83.7
	61.4	90.4	90.5	83.3	64.7	61.5	67.4	89.0
Economic status								
Poor	50.2	80.3	78.0	80.4	68.7	59.8	58.1	68.1
Middle	68.8	82.0	84.4	85.8	77.8	71.6	73.0	74.8
Rich	81.5	91.8	89.8	90.3	82.4	82.1	81.8	89.8
Any symptoms of RTI/STI	69.0	82.7	83.0	82.3	71.3	64.4	63.8	74.0

Table 5

Proportion of currently married infertile women seeking treatment for infertility by type of treatment, problems and outcome of treatment

	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
At least one treatment	69.0	82.7	83.0	82.3	71.3	64.4	63.8	74.0
Allopathic treatment	61.8	64.2	69.4	65.5	47.0	47.0	38.5	52.8
Ayurvedic treatment	1.5	2.4	1.5	4.1	1.1	3.2	0.5	1.1
Religious /traditional treatment	18.5	48.8	25.9	36.0	38.8	29.4	37.7	39.1
Cause of problem in conception								
Only wife problem	65.2	39.0	71.5	68.1	45.5	39.4	38.3	38.9
Only husband problem	6.6	4.0	3.9	6.3	6.2	7.7	7.2	4.4
Both	10.4	9.0	7.1	9.7	12.9	11.1	10.6	8.7
None	7.3	17.7	9.3	7.6	10.1	19.3	22.9	16.9
Don't know	10.6	30.3	8.2	8.3	25.3	22.6	21.0	31.2
Outcome of treatment								
Conceived	66.6	51.4	72.8	79.3	56.2	59.6	59.8	63.9
Not conceived	25.4	30.0	16.3	17.2	32.5	21.0	26.8	29.6
Still under treatment	4.2	14.5	5.4	1.9	8.3	12.1	6.5	3.0
Discontinued treatment	3.8	4.1	5.5	1.6	3.0	7.3	6.9	3.5

Table 6
Factors influencing infertile women going for allopathic treatment in EAG states of India

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Age of the women(Years)								
Less than 20								
20-29	0.74	0.66	1.27	1.4	1.04	0.39*	0.68	1.15
30-39	1.84	0.86	1.81**	2.09**	1.19	1.08	1.32	1.52*
40-49	1.54	1.11	1.42**	1.46**	1.06	0.93	1.03	1.27*
Place of residence								
Rural								
Urban	1.16	0.68*	0.96	0.88	0.95	0.95	0.77	0.93
Age at consummation of marriage(Years)								
Less than 18								
18 and above	1.1	0.92	1.04	1.20*	0.88	0.88	1.31*	1.29*
Marital Duration(Years)								
Less than 5								
5-9	1.52	1.3	1.41**	1.56**	1.3	1.26	1.23	1.96**
10-14	2.22*	1.57*	1.69**	1.88**	1.91*	1.79*	1.73*	2.73**
15 and more	2.26*	1.23	1.75**	2.50**	1.54*	1.46	2.07*	2.42**
Education of women(Years)								
Illiterate								
Less than 5	1.22	1.41	0.86	1.12	1.41*	1.31*	2.07**	1.2
5-9	1.38	1.44*	1.21**	1.11	1.53*	1.54*	1.90**	1.42*
10 and more	1.16	2.25**	1.54**	1.69**	1.52*	2.48**	2.56*	1.76*

Background characteristics	Uttarakhand	Rajasthan	Uttar Pradesh	Bihar	Jharkhand	Odisha	Chhattisgarh	Madhya Pradesh
Education of husband(Years)								
Illiterate								
Less than 5	0.65	0.89	1.05	1.22*	1.01	1.58**	1.14	0.89
5-9	2.02*	0.90	1.26**	1.42**	1.23*	1.57**	1.47*	1.01
10andmore	2.27**	0.83	1.56**	1.68**	1.64*	1.62*	1.43*	1.52*
Religion								
Hindu								
Muslim	2.26*	0.89	1.35**	1.09	1.09	1.41	1.9	1.81*
Others	0.62	0.95	1.2	0.65	0.63**	0.76	1.36	1.22
Caste								
Scheduled Castes/Tribes								
OBC & others	0.95	1.06	1.29**	1.57**	1.80**	1.46**	1.58**	1.35*
Economic status								
Poor								
Middle	1.88*	1.39**	1.15*	1.46**	1.62**	1.47*	1.50**	1.53*
Rich	4.37**	2.21**	1.63**	1.92**	2.01*	2.23**	2.38**	3.01**
Any symptoms of RTI/STI								
No								
Yes	1.42*	0.91	0.95	1.1	0.97	1.13	1.29	0.77*
Menstruation problem								
No								
Yes	0.97	0.88	0.99	0.94	0.86	1.17	1.27*	0.99
Total	0.10**	1.58	0.53**	0.31**	0.35*	0.27**	0.14*	0.19**

** p<.05, * p<.10

Spatial Pattern of Urbanization in Districts of Jharkhand

Rakesh Kumar

Introduction

Urbanisation is the process of transformation of the society from traditional rural to modern industrial one. It varies from time to time, leading to not one but several urbanization processes at different points in time. Today, urbanisation is a global phenomenon and is closely related with industrialization and associated economic development (Datta,2006). In the past, from ancient times to the colonial period, urbanisation was inextricably related to the rise and fall of kingdoms, dynasties and empires. Urbanisation, during that period, was essentially a political process. In the current times, however, urbanisation is both a driver and a consequence of economic growth and development. Expansion of economic activities and industrialisation have led to the evolution of cities and towns as growth centres (Pangotra and Govil, 2008). Economic development is correlated with urbanisation which means urbanisation is both an outcome of and a contributing factor to increased economic activity (Debroy et al, 2011). According to Davis (1962), urbanisation may be perceived as a process of the shift from the spread-out patterns of human settlement to those of concentration in urban centres.

The pace of urbanisation in India is quite rapid. At the 2011 population census, the urban population in India was enumerated to be 377 million recording a growth rate of 2.76 per cent per year during the period 2001-2011. The proportion of population living in the urban areas in India has increased from 27.7 per cent in 2001 to 31.2 per cent in 2011 - an increase of 3.5 percentage points. By comparison, the proportion of urban population increased by 2.1 percentage points between 1991 and 2001 (Government of India, 2006). Gupta et al (2004) have argued that urban scenario in India cannot be understood properly without analysing spatial dimensions of urbanisation and urban population growth (Gupta et al, 2004).

Jharkhand is one of the newly formed states of India. It came into existence in 2000 when it was separated from Bihar. Level of urbanisation in Jharkhand is lower than the national average but the pace of urbanisation in the state has been faster than the national average during the period 2001-2011. During the period 2001-2011, the urban population in Jharkhand increased at an annual average rate of 2.9 per cent per year (Debroy et al, 2011).

Review of Literature

The phenomenon of urbanisation in India has been analysed extensively (Bose, 1978; NIUA, 1988; Mohan, 1996). At the 1951 population census, 17.3 per cent of India's population was living in urban areas which increased to 31.2 per cent in 2011. However, the urban population growth peaked during 1971-81 when it recorded an average annual growth of 3.79 per cent (Dyson & Visaria, 2004). Industrialisation and associated economic activities has played vital role in urbanisation in the country. An important feature of urbanisation in India is dualism. Urban population growth at the micro level is decelerating but accelerating in class I cities. The proportion of urban population in class I cities increased from 26 per cent at the 1991 population census to 68.7 per cent at the 2001 population census.

Level of urbanisation in Jharkhand is still low compared to the national average. At the 2011 population census, around 24 per cent of the state population was living in the urban areas which was distributed over 152 towns with varying population size. The process of urbanisation is particularly rapid in Ranchi, Bokaro, Dhanbad and Jamshedpur districts (Debroy, 2011). It is projected that by the year 2030, around 31 per cent population of the state will be living in the urban areas. It is estimated that 61 per cent of the domestic product of the state comes from the urban areas. This means that urban and semi-urban areas are essentially engines of future economic growth. It is therefore imperative that urban areas are properly planned so that they do not get burdened under unsustainable infrastructure and unplanned and chaotic growth (Singh, 2011).

This paper attempts to analyse patterns and transition of urbanisation in Jharkhand and in its constituent districts during 2001 through 2011 using the data available through 2001 and 2011 population census. Specifically, the paper has the following objectives.

Objectives

Specific objectives of the present study are as follows:

- To analyse patterns of urbanisation and the trend in the urban population growth rate in Jharkhand and in its constituent districts.
- To analyse the inequality in the distribution of urban population across the districts of the state.
- To analyse the change in the pattern of urbanisation in the districts of the state between 2001 and 2011.

Data and Methods

The analysis is based on the data available through 2001 and 2011 population census. The population census in India classifies a habitation as an urban area if

1. It is notified as a municipality or a corporation or a cantonment board or a notified area, etc.
2. Any habitation which has not been notified as a municipality or a corporation or a cantonment board or a notified area etc. but satisfies the following conditions:
 - (i) Minimum population of 5,000;
 - (ii) At least 75 per cent of the male working population engaged in non-agricultural pursuits; and
 - (iii) A population density of at least 400 persons per sq. km.

The Population census in India also uses the concept of urban agglomeration which was introduced at the 1971 population census. An urban agglomeration is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs) or two or more physically contiguous towns together and any adjoining urban outgrowths, of such towns.

Urban areas in the population census are classified into the following six categories on the basis of their population size:

Class I	Population \geq 100,000
Class II	Population ranging between 50,000-99,999
Class III	Population ranging between 20,000-49,999
Class IV	Population ranging between 10,000-19,999
Class V	Population ranging between 5,000-9,999
Class VI	Population less than 5,000

A number of indicators have been proposed to analyse the pattern of urbanisation. In the present analysis, the following indicators have been used:

Degree (or level) of urbanisation

1. Proportion of population urban
2. Ratio of the urban population to the rural population

Tempo of urbanisation

1. Annual urban population growth rate
2. Average annual rate of change in the urban population
3. Difference between urban and rural population growth rate

There is evidence to suggest that there exists regularity between the size of the urban area and its rank. This relationship between the sizes of the urban area and its rank is known as the rank size rule. This rule is used to study the trend in urbanisation hierarchy.

One of the dimensions of urbanisation is the concentration of urban population in few urban areas. Gini concentration index has been used to measure the inequality in the distribution of urban population. Higher value of Gini suggest higher level of concentration in bigger cities and towns.

Results and Discussion

Table 1 presents the size and growth of urban population in India and in its selected states. In Jharkhand, the proportion of urban population to the total population increased from 22.2 per cent in 2001 to 24.1 per cent in 2011. Among the newly created states of Chhattisgarh, Jharkhand and Uttarakhand, the proportion of the urban population to the total population in Jharkhand is marginally higher than Chhattisgarh but smaller than that in Uttarakhand.

Table 2 presents the trend in urbanisation in Jharkhand since 1971. The urban population in Jharkhand increased from 2.3 million in 1971 to 7.9 million in 2011 so that the proportion of population urban increased from around 16 per cent in 1971 to more than 24 per cent in 2011. The average annual rate of urban population growth in the state was very high during the period 1971-81 but decreased substantially till 2001. During 2001-2011, the trend has reversed and the average annual rate of urban population growth increased again in the state. In 1971, there were 12 urban agglomerations and 96 towns in the state. In 2011, total number of urban agglomerations decreased to 11 but total number of towns increased to 228.

Table 3 shows the trend in urbanisation in selected districts of the state during the period 1981 through 2011. The most urbanised district in the state is Dhanbad where more than 58 per cent of the population lived in urban areas at the 2011 population census. This proportion was almost 53 per cent at the 1981 population census suggesting that the concentration of the urban population in the district has increased over time. By contrast, the least urbanised district of the state at the 2011 population census was Palamu where less than 12 per cent population was living in urban areas at the 2011 population census. This proportion was less than 6 per cent at the 1981 population census.

Table 4 shows the decadal growth of urban population in the districts of the state as they existed at the time of 2001 population census. The decadal urban population growth was the highest in district Pakur followed by district Palamu. On the other hand, the decadal growth of urban population was negative in Hazaribagh, Gumla, Dumka and Paschim Singhbhum districts which means that the urban population in these districts decreased between 2001 and 2011.

Table 5 presents the tempo of urbanisation in the state of Jharkhand and in its constituent districts during the period 2001-2011. The tempo of urbanisation has been found to be very high in Palamu district. On the other hand, the tempo of urbanisation has been negative in Hazaribagh, Lohardaga and Paschim Singhbhum districts during this period.

Table 6 shows the distribution of districts by the level of urbanisation which has largely remained unchanged in 2011 as compared to that in 2001. In 2001, the proportion of districts where the urban population was less than 10 per cent of the total population of the district was around 44 per cent which marginally increased to almost 46 per cent in 2011. On the other hand, there has been no change in the proportion of districts with at least 40 per cent of the population living in urban areas between 2001 and 2011.

Table 7 presents the population in the urban agglomerations of the state. Jamshedpur was the largest urban agglomeration in the state in 2011 as well as in 2001. On the other hand, Chirkuuda was the smallest urban agglomeration in 2011 whereas Chakradharpur was the smallest urban agglomeration in 2001. The decadal population growth between 2001 and 2011 was the highest in Chakradharpur but the lowest in Phusro. The decadal population growth was also very high Deoghar.

Table 8 presents the distribution of the urban population by the size class of towns. At the 2001 population census, the population of size class I towns or cities accounted for more than 41 per cent of the total urban population of the state whereas this proportion was less than 37 per cent at the 1991 population census. However, the share of size class II, III and IV towns to the total urban population of the state decreased during this period but that of size class V and VI towns increased. As a result, the Gini Concentration Index increased from 0.40 in 1991 to 0.46 in 2001.

Summary and Conclusion

Using the data available through the population census, this paper has described patterns of urbanisation in Jharkhand and in its constituent districts. The analysis reveals that the pace of urbanisation in the state is still slower than the national average despite the fact that the state is comparatively lowly urbanised state of the country. Moreover, there is considerable inequality in the pattern of urbanisation across the districts of the state. Most of the urbanisation in the state is confined to four districts - Ranchi, Dhanbad, Purbi Singhbhum and Bokaro. There is also enough evidence to suggest that the urban population of the state is increasingly getting concentrated in size class I towns or cities of the state.

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Table 1
Urban population in India and selected states, 2001 and 2011

	2001			2011			Exponential growth rate (2001-11) (Per cent)
	Total population (Million)	Urban population (Million)	Proportion urban (Per cent)	Total population (Million)	Urban population (Million)	Proportion urban (Per cent)	
India	1027.0	285.4	27.8	1210.2	377.1	31.2	2.79
Bihar	82.9	8.7	10.5	103.8	11.7	11.3	3.01
Jharkhand	26.9	6.0	22.2	33.0	7.9	24.1	2.81
Uttar Pradesh	166.1	34.5	20.8	199.6	44.5	22.3	2.53
Uttarakhand	8.5	2.2	25.6	10.1	3.1	30.6	3.54
Madhya Pradesh	60.4	16.1	26.7	72.6	20.1	27.6	2.20
Chhattisgarh	20.8	4.2	20.1	25.5	5.9	23.2	3.52

Table 2
Trend in urbanisation in Jharkhand

Year	Number of urban agglomerations	Number of towns	Total population	Urban population	Proportion urban (Per cent)	Average annual rate of change (Per cent)
1971	12	96	14227133	2277632	16.00	5.35
1981	10	101	17612069	3574045	20.29	4.51
1991	14	124	21843911	4641227	21.25	2.61
2001	11	152	26909428	5986697	22.25	2.55
2011	11	228	32966238	7929292	24.05	2.81

Table 3
Trends in urbanisation in selected districts of Jharkhand

District	1981		1991		2001		2011	
	Proportion urban (Per cent)	Average annual urban population growth rate (Per cent)	Proportion urban (Per cent)	Average annual urban population growth rate (Per cent)	Proportion urban (Per cent)	Average annual urban population growth rate (Per cent)	Proportion urban (Per cent)	Average annual urban population growth rate (Per cent)
Dhanbad	52.9	5.6	51.3	1.7	52.4	-1.0	58.1	2.2
Hazaribagh	15.1	-1.6	18.1	4.3	23.2	0.3	15.9	-6.5
Palamu	5.6	4.3	5.3	1.9	6.0	-0.5	11.7	5.9
Ranchi	22.1	6.6	33.1	0.6	35.1	2.9	43.2	2.5
Singhbhum	32.1	3.6	33.4	2.2	35.4	2.3	39.3	0.4

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Table 4
Decadal growth of total population and urban population in districts of Jharkhand,
2001-2011

District	Decadal growth of total population (Per cent)	Decadal growth of urban population (Per cent)
Garhwa	27.9	63.3
Palamu	-7.4	80.6
Chatra	31.8	49.8
Hazaribagh	-23.9	-48.0
Kodarma	43.8	63.0
Giridih	28.6	70.5
Deoghar	28.5	61.5
Godda	25.2	74.0
Sahibganj	24.0	62.5
Pakur	28.2	87.4
Dumka	-24.7	-21.2
Dhanbad	12.0	24.0
Bokaro	16.1	22.2
Ranchi	4.6	28.7
Lohardaga	26.7	24.2
Gumla	-23.8	-10.5
Pashchimi Singhbhum	-27.8	-37.8
Purbi Singhbhum	15.8	17.0
Jharkhand	22.5	32.4

Table 5
Tempo of urbanisation in districts of Jharkhand, 2001-2011

District	2001		2011		Urban growth rate (2001-2011)
	Proportion urban (Per cent)	Urban-Rural ratio (Per cent)	Proportion urban (Per cent)	Urban-Rural ratio (Per cent)	
Garhwa	4.1	4.3	5.3	5.6	4.9
Chatra	5.3	5.6	6	6.4	4
Kodarma	17.4	21	19.7	24.6	4.9
Giridih	6.4	6.9	8.5	9.3	5.3
Deoghar	13.7	15.9	17.3	20.9	4.8
Godda	3.5	3.7	4.9	5.2	5.5
Sahibganj	10.6	11.8	13.9	16.1	4.9
Pakur	5.1	5.4	7.5	8.1	6.3
Dhanbad	52.4	110	58.1	138.8	2.2
Bokaro	45.3	82.7	47.7	91.2	2
Lohardaga	12.7	14.5	12.4	14.2	2.2
Purbi Singhbhum	55	122.4	55.6	125	1.6
Palamu	6	6.3	10.4	11.6	8
Hazaribagh	23.2	30.3	25.9	34.9	2.7
Dumka	6.5	7	7.9	8.5	3.7
Ranchi	35.1	54.1	37.8	60.7	2.9
Gumla	5.5	5.8	6.6	7.1	3.8
Pashchimi Singhbhum	16.8	20.3	18.6	22.8	3.1
Jharkhand	22.3	28.6	24.1	31.7	2.8

Source: Census of India, 2001 and 2011

Table 6
Distribution of districts by level of urbanisation in Jharkhand

Level of urbanisation (Per cent)	2001				2011			
	Numbers		Proportions		Numbers		Proportions	
	Districts	Urban population	Districts	Urban population	Districts	Urban population	Districts	Urban population
Less than or equal to 10	8	592630	44.4	9.9	11	1219609	45.8	15.4
10.1 - 40.0	7	2247338	38.9	37.5	9	1636914	37.5	20.6
>40.1	3	3146729	16.7	52.6	4	5072769	16.7	64.0
Total	18	5986697	100.0	100.0	24	7929292	100.0	100.0

Table 7
Rank and decadal growth of population in urban agglomerations in Jharkhand

Urban agglomeration	2001		2011		Decadal growth		
	Population	Rank	Urban agglomeration	Population	Rank	Urban agglomeration	Decadal growth rate (per cent)
Jamshedpur	1101804	1	Jamshedpur	1337131	1	Jamshedpur	21.4
Dhanbad	1064357	2	Dhanbad	1195298	2	Dhanbad	12.3
Ranchi	862850	3	Ranchi	1126741	3	Ranchi	30.6
Bokaro	4,97,855	4	Bokaro	563417	4	Bokaro	13.2
Phusro	174367	5	Deoghar	203116	7	Phusro	6.8
Hazaribagh	1,35,446	6	Phusro	186139	5	Hazaribagh	13.4
Deoghar	1,12,501	7	Hazaribagh	153599	6	Deoghar	80.5
Ramgarh	110497	8	Giridih	143529	10	Ramgarh	19.9
Chirkunda	106200	9	Ramgarh	132441	8	Chirkunda	11.9
Giridih	1,05,212	10	Chakradharpur	119972	11	Giridih	36.4
Chakradharpur	55158	11	Chirkunda	118822	9	Chakradharpur	117.5

Table 8
Distribution of urban population by size class of towns

Class	Population	1991			2001			2011		
		No of towns	Total population	Share of urban population (Per cent)	No of towns	Total population	Share of urban (Per cent)	No of towns	Total population	Share of urban (Per cent)
I	100000 and above	6	1671828	36.9	7	2465317	41.1	11	5280205	59.6
II	50000-99999	18	1144822	25.3	18	1381825	23.1	12	882716	10
III	20000-49999	31	964938	21.3	37	1227809	20.5	38	1261334	14.2
IV	10000-19999	37	531456	11.7	35	541085	9.0	48	674280	7.6
V	5000-9999	28	197988	4.4	45	336624	5.6	90	634552	7.2
VI	Less than 5000	4	18651	0.4	10	41081	0.7	29	131447	1.5
All		124	4529683	100.0	152	5986697	100.0	228	8864534	100

Masculinity and Inter-spouse Communication

Shiva Nand Chauhan

Introduction

Communication plays a key role in developing a close relationship between the husband and the wife. Communication can encourage equality among them. Encouraging partners to discuss contraceptive use and other reproductive issues can lead to healthier practices. Inter-spouse communication is therefore an important step towards increasing men's participation in reproductive health (Becker, 1996; Biddlecom and Fapohunda, 1998; Lasee and Becker, 1997).

An appraisal of research over the past four decades has revealed, time and again, that men and women who discuss family planning are more likely to use contraception, to use it effectively and, therefore, are more likely to have fewer children (Mitchell, 1972; Jolly, 1976; Beckman, 1983; De Silva, 1994; Lasee and Becker, 1997). On the contrary, when men and women do not know their partner's fertility desires, attitudes about family planning, or contraceptive preferences, the outcome can be unintended pregnancies, sexually transmitted infections, and unsafe abortions (McGinn et al, 1989; Biddlecom and Fapohunda, 1998).

In many societies, there exists patriarchy which, standing on the essence of masculinity, establishes stereotypes and defining images of the man and his characteristics. In addition, patriarchy dictates men's expectations from women. Becoming a man (masculine) begins from infancy. It is believed that being a man is a feat to be achieved as it is acknowledged and valued by the society. This kind of thinking deeply affects issues of sexuality, couple relations, reproductive health, and work. The tendency to avoid talking about sexual and reproductive health issues with a partner is the characteristic of the existing gender-imbalanced society. Women's lack of power puts them at a great disadvantage as far as sexual relations are concerned. They cannot negotiate sex or say no

to risky sex demands which make them vulnerable (IP Mission Report Zambia. 1999). Gender inequalities favour men in patriarchal societies and sexual and reproductive health decisions are made by them. There is growing realisation that unless men are reached, programmes efforts will have only limited impact. Therefore, to address reproductive health needs of women, special efforts should be made to encourage men to share the responsibility of reproductive health as the responsible sexual partner, husband and father (Pachauri, 1997). Inter-spouse communication is an important step in this direction (Lasee and Becker, 1997).

In India, young men mature and develop in a male-dominated social context (patriarchy) with little contact with female peers and little or no sex education during the post-pubertal period. Under these circumstances, masculinity is often characterised by male sexual dominance, unequal gender attitudes and behaviour, and lack of sexual knowledge (Verma and Mahendra, 2004). Traditional male and female gender roles deter couples from discussing sexual matters, condone risky sexual behaviour, and ultimately contribute to poor reproductive health among both men and women (Oladeji, 2008). There are however very few studies that have explored linkages of male gender roles and attitudes with inter-spouse communication. The present paper attempts to examine the link between masculinity and inter-spousal communication.

Objectives

The main purpose of the present study is to examine the patterns of inter-spouse communication among currently married women in India. At the same time, the study also attempts to explore how the perceptions about masculinity influence the inter-spouse communication in the typical Indian social context.

Data and Methodology

The study is based on the primary data collected in Varanasi district of Uttar Pradesh. Uttar Pradesh is the most populous state of India and Varanasi is the most urbanised district of the eastern part of the state. Since urbanisation and associated modernisation induce changes/modifications in cultural and traditional norms and values, the most urbanised district of the region was selected to capture the effect of modernisation on changing notions of masculinity.

The survey, on which the present study is based, covered 6 villages of district Varanasi which were selected through a multistage sampling procedure. At the first stage, primary health centres of the district were selected on the basis of their geographical proximity from district headquarters. The primary health centres were grouped into two strata - primary health centres within 10 kilometres of district headquarters and primary health centres beyond 10 kilometres of district headquarters - and one primary health centre was selected randomly from each stratum. At the second stage, three villages were selected from each primary health centre. The first village was the primary health centre village

itself, the second village was a randomly selected sub-centre village while the third village was selected randomly from villages under the primary health centre where there was no government health facility. A cut-off of 300 households for the selection of village was fixed for proper randomisation of households. Finally, 67 households were selected from each of the six selected villages through circular systematic random sampling after listing all households having a couple aged 20 to 40 where husband and wife both were the usual residents of the village. If there were more than one couple in a household, then the Kish table was used to select one couple. The total sample size was 402 households. A combination of both quantitative and qualitative methods was used for data collection and the data were collected from both the husband and the wife.

The outcome variable of the study is the index of inter-spousal communication on reproductive issues (ISCR) which was created with the help of nine questions that were asked the from respondents during the survey. The respondents were asked "how often do you and your husband discuss about number of children you should have; number of sons and daughters you should have; use of family planning; timing of family planning use; timing to have the first child; birth interval; and aborting an unwanted pregnancy. The response to the above questions was recorded as 'Often', 'Sometimes' and 'Never'. The response categories were given weight from 1 to 3 depending upon the intensity of the response. A score of 1 was assigned if the respondent never had any such communication; a score of 2 was assigned if the woman had sometimes discussed these issues with her partner while a score of 3 was assigned if she had often discussed these issues. The scores obtained in all the nine questions were added to obtain the total score to obtain ISCR. On the basis of this index, inter-spouse communication was characterised as 'low' (9-14), 'moderate' (15-20) and 'high' (21-27). The internal consistency of items included in the index was checked using reliability analysis (Cronbach alpha= 0.96). In order to analyse correlates of ISCR, the following socio-demographic, cultural and programmatic variables were considered as independent variables: current age, women's education, caste, religion, mass media exposure, working status, wealth index and masculinity index. The main independent variable is the masculinity index which reflects gender roles and attitudes of men. The masculinity index was estimated using the Gender Equitable Men (GEM) scale (Barker et al, 2011). The GEM scale in the present study was created on the basis of 22 attitudinal statements about different dimensions of men's gender attitudes (including sexuality, violence, household tasks and male/female roles). The internal consistency of items included in the scale was checked (Cronbach alpha= 0.74). A score of 3 was assigned in case of full agreement; a score of 2 was assigned in case of partial agreement and a score of 1 was assigned in case of disagreement. Subsequently, scores were added to obtain the masculinity index which was further classified into 'low masculinity' (score 22-38), 'moderate masculinity' (score 39-47) and 'high masculinity' (score 48-59). On the other hand, exposure to mass media was computed by adding five different forms of media exposures measured on 5 point scale and hence ranged from minimum of 5 for those who were never exposed to any form of mass media in the 30 days

prior to the survey to the maximum of 25 for those who were exposed to all forms of mass media every day. The media exposure index was classified into three categories - low (5-6), medium (7-10) and high (11-17). Working women were defined as those women who worked for at least six months during the one year prior to the survey and got money in return. Similarly, wealth index was constructed by using data on household assets and housing characteristics.

Both bivariate and multivariate statistical analyses have been carried out. Multivariate analysis results are presented in terms of odds ratios (OR) with 95 per cent confidence interval. All statistical analysis was carried out using the SPSS v17 software package.

Results

Profile of the respondents. Around three fifth of women surveyed (61 per cent) were in the age group 17-29 years while around two fifth (39 per cent) were in the age group 30-38 years. The mean age of married women was around 28 years. Two third of rural women (67 per cent) got married before 18 years of age, but little more than two fifth of them (43 per cent) started living with their husband before reaching 18 years of age. The mean age at marriage and mean age at consummation were 16 years and 18 years respectively. Around 12 per cent of women became mother before 18 years of age. Two fifth of women were illiterate; 13 per cent had 1-5 years of schooling; one fourth had 6-10 years of schooling; and little more than one fifth (22 per cent) had more than 10 years of schooling. Nine out of every ten respondents belonged to either Scheduled Castes (SC) or Scheduled Tribes (ST) or other backward classes (OBC). Around 89 per cent of the respondents were Hindu while 11 per cent were Muslim. Little more than one third (36 per cent) had low media exposure, about two fifth (42 per cent) had moderate media exposure and little more than one fifth (22 per cent) had high media exposure. All the respondents were categorised into three wealth quintiles in the same proportion using factor analysis. About 12 per cent of women belonged to households where males had low support for equitable gender norms, around half of the women belonged to households where males had moderate support for equitable gender norms and two fifth of the women belonged to households where males had high support for equitable gender norms.

Inter-spouse communication. Proportionate distribution of women with different level of inter-spouse communication on different reproductive issues is given in Table 1. Most of the women surveyed discussed reproductive health related issues with their husband only occasionally. The most common issue for discussion was the composition of children followed by family planning use, timing to have first birth, interval between successive births and aborting an unwanted pregnancy. Only 7 to 18 per cent of women reported to have discussed different reproductive issues with their husband quite frequently. Finally, a substantial proportion of women never discussed any reproductive health related issue with their husband.

Variation in the index of inter-spouse communication on reproductive issues (ISCR) by selected background characteristics of the respondents is given in Table 3. The index

was high in only 15 per cent of the women surveyed. It was moderate in three fifth but low in one fourth women surveyed. The index was found to be high in women of younger age group (16 per cent), having late age at consummation (18 per cent), living in the joint family (19 per cent), belonging to general caste (24 per cent), Hindu religion (16 per cent), belonging to rich households (25 per cent), with high mass media exposure (32 per cent), working women (20 per cent), and whose husband had high support for equitable gender norms (19 per cent). The analysis revealed that type of family, education, religion, mass media exposure, economic status and masculinity index had significant association with ISCR.

Results of multinomial logistic regression. Results of multiple logistic regressions show that masculinity along with education, religion, and economic status has significant effect on moderate levels of inter-spousal communication (Table 4). Women whose husband have high support for equitable gender norms are two times more likely to have moderate level of inter-spousal communication than their counter parts. Women with more than 10 years of schooling are around 4 times more likely to have moderate level of inter-spousal communication compared to women with no education. However, Muslim women and women with middle wealth index are less likely to have moderate level of inter-spousal communication than their counterparts.

In case of women with high level of inter-spousal communication, masculinity, education, religion and economic status have significant effect. Women whose husband have high support for equitable gender norms are three times more likely to have high level of inter-spousal communication than their counterparts. Women with 1-5 years schooling and women with more than 10 years of schooling are respectively 3 times and 5 times more likely to have high level of inter-spousal communication than women who have no schooling. Women belonging to middle and rich households are 3 times more likely to have inter-spousal communication than women belonging to poor households. However, Muslim women are less likely to have high level of inter-spousal communication than Hindu women.

Discussions and Conclusions

The present study reveals that a considerable proportion of women (25 per cent) have poor inter-spouse communication on reproductive health related issues. This may be attributed to women's illiteracy and low support to equitable gender norms by her husband. On the other hand, only 15 per cent women had high level of inter-spouse communication. The study also found that masculinity and education of the woman are positive factors to promote inter-spouse communication on reproductive health related issues. Women whose husband have high support for equitable gender norms are more likely to have high level of inter-spouse communication. This finding is consistent with studies conducted in Brazil, Chile, Croatia, India, Mexico, and Rwanda in 2009-10 which reports that men with more equitable gender attitudes were more likely to report having spoken with a partner about personal problems in the last month (Barker et al, 2011).

Women with higher level of education are more likely to have high level of inter-spouse communication. Higher level of education and high support for equitable gender norms are supposed to make individuals more responsible and trustworthy in the household and in the community and hence higher inter-spouse communication on reproductive health related issues. Women's inferior position within the household and lack of negotiation power because of her illiteracy often limit couple communication from either side (Salway, 1994; Dixon-Muller, 1993).

Women belonging to households with middle and rich wealth income quintiles are more likely to have high level of inter-spouse communication. This may be because women belonging to middle and rich households have in general higher levels of education. Religion has immense social, economic, and political significance in most societies and it plays an important role towards supporting or opposing the use of family planning methods (Pearce 2001; Islam et al, 1991), consequently affecting inter-spouse communication on reproductive health related issues. The present study reveals that Muslim women are less likely to have inter-spouse communication as compared to Hindu women on reproductive health related issues.

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Table 1
Distribution of married women by selected socio-economic and demographic characteristics, Varanasi (Rural), Uttar Pradesh, 2012

Background Characteristics	Proportion (Per cent)	N
Age (in years)		
17-29	61.0	225
30-38	39.0	144
Age at consummation		
12-17	42.6	157
18-23	57.4	212
Type of family		
Nuclear	37.0	136
Joint/Extended	63.0	233
Age at first child birth		
15-17	11.5	36
18-26	88.5	276
Level of education		
No education	40.4	149
1-5 years	13.0	48
6-10 years	24.9	92
11 years and above	21.7	80
Caste		
SC/ST/OBC	90.8	335
General	9.2	34
Religion		
Hindu	89.2	329
Muslim	10.8	40
Mass media exposure		
Low	36.0	133
Moderate	42.0	155
High	22.0	81
Work status		
Working	13.3	49
Not working	86.7	320
Wealth Index		
Poor	33.6	124
Middle	33.3	123
Rich	33.1	122

MASCULINITY AND INTER-SPOUSE COMMUNICATION

Background Characteristics	Proportion (Per cent)	N
Masculinity index		
Low equity	12.2	45
Moderate equity	48.2	178
High equity	39.6	146
Total	100.0	369

Table 2
Distribution of women with different level of inter-spouse communication on different reproductive health issues
Varanasi (Rural), Uttar Pradesh, 2012

S N	Statements	Often	Sometimes	Never
	How often do you and your husband discuss about			
1	Number of children a couple should have	18.2	61.2	20.6
2	Number of son (s) a couple should have	17.6	61.5	20.9
3	Number of daughter (s) a couple should have	16.5	62.6	16.5
4	Whether to use family planning	17.1	61.2	21.7
5	When to use family planning	16.5	61.2	22.2
6	Which method of family planning to be used	16.3	62.1	21.7
7	When to have first child	9.2	58.0	32.8
8	Birth interval between two subsequent children	10.8	58.8	30.4
9	Aborting an unwanted pregnancy	7.3	49.1	43.6

MASCULINITY AND INTER-SPOUSE COMMUNICATION

Table 3
Distribution of inter-spouse communication on reproductive health issues among women by some selected background characteristics
Varanasi (Rural), Uttar Pradesh, 2012

Background Characteristics	Inter-spousal communication on reproductive health issues			N	Chi-square
	Poor	Moderate	High		
Age (in years)					
17-29	24.9	59.1	16	225	0.376
30-38	24.3	61.8	13.9 [#]	144	
Age at consummation					
12-17 years	24.8	64.3	10.8 [#]	157	4.197
18-23 years	24.5	57.1	18.4	212	
Type of family					
Nuclear family	24.3	66.2	9.6 [#]	136	5.787*
Joint family	24.9	56.7	18.5	233	
Level of education					
No education	31.5	61.7	6.7 [#]	149	26.571***
1-5 years	22.9	60.4	16.7 [#]	48	
6-10 years	25	59.8	15.2 [#]	92	
11 years and above	12.5	57.5	30.0 [#]	80	
Caste					
SC/ST/OBC	25.7	60	14.3	335	3.243
General	14.7 [#]	61.8 [#]	23.5 [#]	34	
Religion					
Hindu	22.5	61.7	15.8	329	7.777**
Muslim	42.5 [#]	47.5 [#]	10.0 [#]	40	
Mass media exposure					
Low	26.3	67.7	6.0 [#]	133	26.950***
Moderate	25.8	60	14.2 [#]	155	
High	19.8 [#]	48.1	32.1	81	
Work status					
Not working	23.8	61.9	14.4	320	3.005
Working	30.6 [#]	49.0 [#]	20.4 [#]	49	
Wealth Index					
Poor	22.6	74.2	3.2 ⁺	124	28.098***
Middle	29.3	53.7	17.1 [#]	123	
Rich	22.1	52.5	25.4	122	

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Background Characteristics	Inter-spousal communication on reproductive health issues			N	Chi-square
	Poor	Moderate	High		
GEM scale					
Low equity	35.6 [#]	55.6	8.9 ⁺	45	
Moderate equity	29.8	56.7	13.5 [#]	178	13.814***
High equity	15.1 [#]	65.8	19.2	146	
All	24.7	60.2	15.2	369	

Note: # indicates less than 25 cases, + indicates less than 5 cases

***p<0.01, **p<0.05 and *p<0.10

MASCULINITY AND INTER-SPOUSE COMMUNICATION

Table 4
Results of multinomial logistic regression analysis of inter-spouse communication on selected characteristics of women

Background characteristics	Moderate vs low ISCR	<i>p</i>	High vs low ISCR	<i>p</i>
Age				
20-29 [®]				
30-40	1.326	0.334	1.472	0.359
Age at consummation				
10-20 years [®]				
21-29 years	0.733	0.271	0.981	0.964
Type of family				
Nuclear [®]				
Joint/Extended	0.708	0.264	0.770	0.577
Level of education				
No education [®]				
1-5 years	1.588	0.283	3.031	0.072
6-10 years	1.607	0.197	2.223	0.151
11 years and above	3.6	0.012	5.282	0.011
Caste				
SC/ST/OBC [®]				
General	1.578	0.441	0.857	0.825
Religion				
Hindu [®]				
Muslim	0.451	0.038	0.349	0.094
Mass media exposure				
Low [®]				
Moderate	1.067	0.851	1.053	0.926
High	0.826	0.674	2.225	0.201
Work status				
Not working [®]				
Working	0.595	0.190	1.294	0.629
Wealth Index				
Poor [®]				
Middle	0.501	0.052	3.134	0.085
Rich	0.5	0.111	3.713	0.072

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Background characteristics	Moderate vs low ISCR	<i>p</i>	High vs low ISCR	<i>p</i>
Masculinity				
Low [®]				
Moderate	1.109	0.787	1.447	0.575
High	2.228	0.06	3.027	0.1
-2 Log-likelihood	507.8			
Chi-square Value (df)	77.442 (30)			
Level of Significance	0			
N	369			

Performance of Janani Express in Tribal Areas of Odisha

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Introduction

Millennium Development Goals (MDGs) 4 and 5 stress upon reduction in infant, child and maternal mortality and India's commitment to MDGs to reduce mortality is being taken up through various interventions. India has comparatively high rate of maternal mortality ratio (MMR) and infant mortality rate (IMR) in the developing world (WHO, 2000). Within India, Odisha has one of the highest MMR and IMR. Although, Odisha's MMR has improved from 358 maternal deaths per 100 thousand live births during 2001-03 to 258 maternal deaths per 100 thousand live births during 2007-09, it is well above the national average of 212 maternal deaths per 100 thousand live births. Over the years, Government of India has launched various programmes and schemes to bring down MMR and IMR with only limited success. The National Rural Health Mission (Government of India, 2005) and National Health Policy 2002 (Government of India, 2002), at the national level, envisage reducing MMR to 100 maternal deaths per 100 thousand live births in the country. To achieve this goal, Janani Suraksha Yojana (JSY) has been launched under the National Rural Health Mission to promote institutional deliveries by providing cash incentives to women who deliver in government institutions (Government of India, 2006). It is argued that major proportion of maternal deaths occurs due to inadequate access to health facilities. However, the reality is that health facilities are available but vehicle to transport pregnant women are not available in the tribal areas. In Odisha, Scheduled Tribes population constitutes 22.8 per cent while Scheduled castes population accounts for 17.1 per cent of the total population of the state according to the 2011 population census.

Promotion of institutional deliveries is considered critical to reduce MMR and IMR. According to the District Level Household and Facility Survey, 2007-08 (DLHS-3), only

44 per cent of the deliveries were conducted in institution in Odisha (IIPS, 2010). It is argued that if pregnant women can be brought to hospital or to professional health practitioners in time, the unnecessary deaths of mothers and neonates can be checked. In Odisha, a referral transport scheme is being implemented since 2009 to promote institutional delivery and reduce maternal and infant mortality. This scheme is known as Janani Express. This scheme is a public-private partnership initiative and the main objective of the scheme is to provide 24x7 transport facilities at the field level to bring pregnant women to government health institutions for delivery. Vehicles, under the scheme, are hired locally at the district level on contract basis.

Objective

The objective of the present study is to review the performance of the Janani Express Scheme in those districts of the state which have a high concentration of Scheduled Tribes population.

Methodology

For the purpose of the present review, two districts - Kandhamal and Keonjhar - were randomly selected. According to DLHS-3, the proportion of institutional deliveries in Kandhamal and Keonjhar districts was 25.3 per cent and 34.3 per cent respectively. We collected information from the beneficiaries and non beneficiaries of the Janani Express scheme in the two district. The study sample comprised of 323 women who had delivered during one year prior to the survey in 60 villages from the two districts. The ratio of the beneficiaries of Janani Express to the non-beneficiaries of Janani Express was 3: 2. In addition, we also collected information from field level functionaries and various stakeholders of the Scheme including ASHA, AWW, ANM, Medical Officer, Block Medical Officer, members of Rogi Kalyana Samitis, members of Panchayat Raj Institutions, District Program Managers of National Rural Health Mission and Chief District Medical Officers. In addition, we also analysed records related to the scheme maintained at the health facilities.

Profile of Districts

The Kandhamal district was created on 1 January 1994 from the former Boudh-Kandhamal district as a result of district reorganisation. Earlier, the district was known as Phulbani. According to the 2011 population census, the district had a population of 733,110 and a population density of 91 inhabitants per square kilometre. During the period 2001 through 2011, the population of the district increased by 12.9 per cent. The district had a population sex ratio of 1037 females for every 1000 males and a literacy rate of 64.1 per cent at the 2011 population census. Odia and Kui (tribal language of Khonds) are spoken in the district. The district has a geographical area of 7654 sq km and is bounded by Boudh district in the north; Rayagada district in the south; Ganjam and

Nayagarh districts in the east; and Kalahandi district in the west. The district has two sub-divisions, Phulbani and Balliguda, 12 tehsils, 12 blocks and 153 Gram Panchayats. Scheduled Tribes account for almost 54 per cent of the population of the district while the share of the Scheduled Castes population is around 16 per cent.

The Keonjhar district, on the other hand, came into existence on 1 January 1948. It is a land-locked district with an area of 8240 sq km. The district is bounded by Mayurbhanj and Bhadrak districts in the East; Jajpur district in the South; Dhenkanal and Sundargarh districts in the west; and West Singhbhum district of Jharkhand State in the north. The district had a population of 1,801,733 at the 2011 population census with a literacy rate of 68 per cent which is lower than state and national averages. The male literacy was 78.1 per cent while the female literacy was 57.7 per cent at the 2011 population census. The district has three sub-divisions, Anandpur, Champua and Keonjhar, 13 tahsils, 13 blocks, 286 Gram Panchayats and 2132 villages. Scheduled Tribes constitute 45.5 per cent population of the district while Schedule Castes constitute 11.62 per cent. Table 1 presents selected characteristics of the population of the two districts.

Results

Table 2 presents details regarding the implementation of Janani Express scheme in Odisha and in the two districts selected for the study. Vehicles for transporting pregnant women to the health facility were deployed at 282 health facilities in the state where facilities for institutional deliveries were available. The average case load per vehicle per month was 42 in the state during 2009-10 which increased to 51 during 2010-11. The average case load in district Kandhamal decreased from 31 to 29 between 2009-10 to 2010-11 whereas the average case load in Keonjhar district increased from 38 to 69 during this period.

Brief profile of women surveyed in the present study is as follows:

- About 43 per cent of the surveyed women were Scheduled Tribes.
- Mean age of women surveyed was 24 years.
- One out of every four women surveyed was illiterate.
- More than half of women surveyed studied up to middle class.
- Most of the women surveyed were occupied in some remunerative work.
- The main source of household income in Kandhamal district was agriculture or labourer.
- The main source of household income in Keonjhar district was business.
- The household size in Kandhamal was 5.6 persons compared to 6 per sons in Keonjhar district.

During the survey, women were specifically asked about their knowledge regarding the Janani Express scheme. About 84 per cent of the women surveyed were aware about the scheme. Even three fourth of non beneficiaries had knowledge about the scheme. However, only 57 per cent of the women surveyed in Kandhamal and 73 per cent in Keonjhar had the correct knowledge about the activities of Janani Express. Similarly, only

77 per cent of the women surveyed (four-fifth women in Kandhamal and three-fourth women in Keonjhar) knew about the availability of Janani Express facilities in the nearest hospital. Among surveyed women, only 8 per cent delivered at home. On average, the Janani Express vehicle took 25 minutes to reach beneficiary's home after receiving the request and took, on average, 33 minutes to reach back to the health facility with the pregnant woman. In Kandhamal district, the average time taken by the Janani Express vehicle to take the pregnant woman to the health facility was 45 minutes whereas this time period was only 18 minutes in Keonjhar. Around 90 per cent pregnant women in Keonjhar and 78 per cent women in Kandhamal were JSY beneficiaries. Overall 84 per cent women were JSY beneficiaries. In most of the cases, ASHA accompanied the pregnant woman in the vehicle along with her family members.

During the field visits, seven transport authority/drivers of the Janani Express were also interviewed to know about the type of services provided by them in their respective area and problems faced by them. Among the seven, five were from two blocks - Brahamapada and Daringbari - of Kandhamal district and three from two blocks - Ghatigaon and Harichandrapur - of Keonjhar district. The vehicles were Mahendra Bolero outsourced from the private agencies with valid registration number. The vehicles were converted into ambulance and deployed as Janani Express to transport pregnant women for institutional delivery. The rear and the front side of the body of the vehicle was painted as Janani Express with mobile number of the driver and benefits of the institutional delivery. All vehicles were hired locally on contractual basis for a period of one year through open tenders. The Janani Express was available in all CHCs and PHCs and at delivery points or some convenient place as decided by the district Rogi Kalyana Samiti. All Janani Express were operating in their respective area daily on 24X7 basis.

Regarding role of ANMs in the implementation of the Janani Express scheme, they neither played any active role in arranging the vehicle for pregnant women nor maintained any record of Janani Express services or its beneficiaries. They, however, knew about the utilisation of the scheme through ASHA. Their role was limited in creating awareness among pregnant women regarding availability of Janani Express in their areas and providing the contact number of ASHA. ANMs also facilitated implementation of the scheme by providing the contact number of the Janani Express to pregnant women during ANC visits on the village health and nutrition day (MAMTA divas). The contact number of the Janani Express was also entered in the MAMTA card. In some cases, ASHA contacted the ANM when ASHA could not contact the Janani Express directly. ANMs are also reported to have helped pregnant women in arranging a private transport facility, mostly TATA Magic or Auto in those areas where transport under the Janani Express scheme was not available.

On average, an ASHA in the Kandhamal district of the state helped 13 pregnant women to take benefit of the Janani Express by going for institutional delivery during one year prior to the survey. The corresponding number in the Kendujhar district was 15 on average.

ASHA were found to be playing a leading role in the implementation of the scheme in both the districts. When the woman was in labour, the family members of pregnant woman contacted ASHA who then rang up the driver of the Janani Express. Although, it is envisaged that the Janani Express would be available round the clock, yet majority of ASHA from the Daringbadi block of the Kandhamal district reported that the Janani Express was not available especially during the night. Moreover, it was not possible to contact the Janani Express when the mobile network was not available. On the other hand, most of the ASHA in the Keonjhar district reported that the Janani Express was available round the clock. However, a few ASHA reported that the Janani Express was not available during the night, especially during the period 12 pm through 5 am. In the event of non-availability of the Janani Express, pregnant women were transported by private transport.

The findings of the study suggest that institutional deliveries increased substantially in the dominantly tribal and backward districts of the state since the inception of Janani Express. The performance of the scheme, however, was less satisfactory in Kandhamal district than in Keonjhar district. In Kandhamal district, the average case load per month decreased from 31 per month to 29 per month during the last 3 years whereas in Keonjhar, it more than doubled during the same period. The Annual Health Survey suggests that the IMR was substantially higher in Kandhamal (86 infant deaths per 1000 live births) than in Keonjhar (57 infant deaths per 1000 live births).

Conclusions

The present study suggests that the Janani Express scheme has served the purpose well. However, the Janani Express generally did not operate during the night due to the fear of naxalites as there had been incidents of attacks on the general public by naxalites in the past. Another problem in the implementation of the scheme, especially in Kandhamal district, was the problem of networking and inaccessible roads. The study also suggests deployment of additional drivers for each Janani Express and strong monitoring of Janani Express to sustain the scheme and maximise its benefit.

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JANANI EXPRESS IN TRIBAL AREAS

Table 1
Background characteristics of the two districts

Background Characteristics	Odisha	Kandhamal	Keonjhar
Total population	41974218	733110	1801733
Rural population (%)	83.3	90.1	85.9
Scheduled Tribes Population (%)	22.8	53.6	45.4
Sex ratio (Females per 1000 males)	979	1037	988
Sex ratio of Scheduled Tribes	1029	1062	1018
Population density (per square km)	270	91	217
Total literacy rate	72.9	64.1	68.2
Male literacy rate (%)	81.6	76.9	78.1
Female literacy rate (%)	64	51.9	57.7

Table 2
Performance of Janani Express in Odisha

Performance of Janani Express	Odisha	Kandhamal	Keonjhar
Average case load, 2009-10 (per month)	42.0	31.0	38.0
Average case load, 2010-11 (per month)	51.0	29.0	69.0
Institutional deliveries (Per cent)	71.3	67.5	59.4
Institutional deliveries in government institution, 2010-11	61.7	66.1	53.0
Infant mortality rate, 2010-11	62.0	88.0	58.0
Neonatal mortality rate, 2010-11)	40.0	43.0	41.0
Children with birth weight less than 2.5 kg	89.9	79.5	90.1
Children aged 12-23 months fully immunised (AHS 2010-11)	55.0	18.6	64.1

Birth Registration and Related Issues in Madhya Pradesh

BP Thiagarajan

Background

Registration of vital events, namely births and deaths, is necessary for any country and the level of registration has to be 100 per cent. Birth registration and issuing birth certificate are important features in providing the first identity to the newborn. In India, Registration of Births and Deaths (RBD) Act, 1969 provides for compulsory registration of births and deaths. Records resulting from the civil registration system have two main uses. First, the birth certificate serves as the legal document for citizens as a proof of the facts like age, identity, etc. Second, the data generated through the civil registration system provides the evidence for planning and evaluation of the effectiveness of various public health programmes.

An important condition for the use of civil registration data is that the civil registration must be complete. Inadequate and incomplete registration of births and deaths affects the quality of civil registration data which limits their use. Poor quality of civil registration data may lead to poor planning and faulty analysis of the demographic and health situation and trends in such indicators as fertility, mortality and sex ratio at birth. Main reasons attributed to incomplete registration of vital events is either the ignorance on the part of informants in reporting vital events - births and deaths - or indifference on the part of data collectors.

In India, registration of birth is still not 100 per cent, although there has been an improvement in birth registration over the years. According to the Registrar General of India, the registration of births in the country increased from 58 per cent in 2000 to 82 per cent in 2012. On the other hand, estimates prepared by UNICEF suggest that 59 per cent births in urban areas and 35 per cent births in the rural areas were registered during 2010. In Madhya Pradesh, birth registration is estimated to have increased from 38.0 per cent in 2001 to 82.3 per cent in 2010 (Government of India, 2013).

It is in the above context that the present paper aims to explore the level of birth registration in Madhya Pradesh as compared to other states of the country, especially the EAG states. In addition, the paper attempts to comprehend the extent of birth registration across the 45 districts of the state as they existed prior to its division in the existing states of Madhya Pradesh and Chhattisgarh. The paper also analyses the gap between births registered and birth certificates received in each of the 45 districts. The analysis is based on the data available through the Annual Health Survey, 2010-11 and the data available through the civil registration system.

Civil Registration System in Madhya Pradesh

The civil registration system in Madhya Pradesh is headed by the Chief Registrar at the state level and Additional Chief Registrar at the district level. The Commissioner, Economics and Statistics is the ex-officio Chief Registrar at the state level while the District Collector is the ex-officio Additional Chief Registrar at the district level. The District Planning Officer is the ex-officio District Registrar and is responsible for organising civil registration activities in the district. At the local level, the Panchayat Secretary/Karmi has been entrusted with the responsibility of registering all births and death as per provisions of the Birth and Death Registration Act. There are 24496 registration units in the state and 89 per cent of these registration units submitted monthly returns of registered births and deaths to the District Registrar office during the year 2010 (Government of India, 2013).

Status of Birth Registration in Madhya Pradesh

According to the Annual Health Survey, 2010-11, more than 78 per cent of births of children under 5 years of age were registered in Madhya Pradesh (Table 1). The corresponding proportion was around 75 per cent in rural areas and more than 86 per cent in the urban areas. Among the eight EAG states of the country, Madhya Pradesh ranks fourth after Odisha (83.7 per cent), Chhattisgarh (81.9 per cent) and Assam (79.3 per cent) in terms of birth registration. On the other hand, according to the civil registration system, more than 82 per cent of the births in the state were registered during the year 2010. The birth registration in the state improved consistently from just around 38 per cent in 2001 to more than 82 per cent in 2010. By comparison, the proportion of births registered at the national level increased from 58 per cent to 82 per cent during the same period (Government of India, 2013). This indicates that the performance of Madhya Pradesh has been marginally better than that of the country as a whole in terms of birth registration.

The Annual Health Survey, however, suggests that only 62 per cent children aged less than 5 years in Madhya Pradesh had received the birth certificate, although this proportion was the highest among the EAG states of the country. The proportion of children below 5 years of age having birth certificate in the rural areas of the state was almost 57 per cent

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but around 77 per cent in the urban areas. Moreover, it was reported at the Annual Health Survey that 20.6 per cent children below 5 years of age in the state were registered but did not have birth certificate at the time of the survey, although, this difference was the narrowest among the EAG states of the country.

Estimates of the completeness of birth registration in the districts of the state are available through the civil registration system. These estimates suggest that birth registration was the highest in Hoshangabad district where almost 92 per cent of the births were registered in the year 2010 (Table 2). In addition to Hoshangabad, birth registration was estimated to be more than 90 per cent in Balaghat, Jabalpur and Betul districts. By contrast, birth registration was only 50 per cent in district East Nimar. Other districts where birth registration is still less than 60 per cent are Shivpuri (54.0 per cent), Guna (57.5 per cent) and Sheopur (59.9 per cent). All the three districts are geographically contiguous and are located in the north-western part of the state.

The proportion of children having birth certificate was however found to be the highest in district Jabalpur (83 per cent) followed by Bhopal (81.6 per cent) and Balaghat (80.7 per cent). There is no other district in the state where this proportion was at least 80 per cent. On the other hand, in district Jhabua, just around 37 per cent children below 5 years of age were having the birth certificate. The proportion of children having birth certificate was also very low in East Nimar (43.3 per cent), Damoh (41.9 per cent) and Panna (44.1 per cent) districts.

Finally, the gap between the proportion of children registered and the proportion of children having birth certificate was found to be the widest in district Tikamgarh (35.0 per cent). Other districts where this gap has been found to be very wide are Panna (37.5 per cent), Jhabua (42.7 per cent) and Dindori (44.5 per cent). By contrast, this gap was less than 10 per cent in Bhopal (5.6 per cent), Shivpuri (5.7 per cent), Mandsaur (7.1 per cent) and Ujjain (7.8 per cent) districts.

It is generally argued that one of the factors in improving birth registration is the Janani Suraksha Yojna (JSY) which has been instrumental in promoting institutional deliveries. We have used the district level data on the proportion of births registered and the proportion of women who availed benefit under JSY to examine the impact of JSY on birth registration. Results of the regression of the proportion of births registered on the proportion of women registered under are presented in table 3. These results suggest little association between birth registration and registration of women under JSY.

Programmatic factors appear to be responsible for relatively poor registration of births in the state and a low proportion of children having birth certificate as revealed through the Annual health Survey. Although, mass media like television, radio and newspaper, wall paintings/posters are the common source of creating the awareness about birth registration and the need of having a birth certificate and health functionaries like ANM, AWW and ASHA contribute to creating awareness about birth registration, yet data available through the Annual Health Survey indicate that whatever awareness has been created, it could not be translated into action and there are some very strong inter-district

differentials in birth registration. On the other hand, the gap between birth registration and children with birth certificate reflect the inefficiency of the civil registration system. The analysis clearly suggests that the civil registration system in the state is both needs ineffective and capacity inefficient and there is substantial scope of improvement and a district-based approach is needed to improving the needs effectiveness and the capacity efficiency of the civil registration system as inter-district disparities in both birth registration and children with birth certificate are very strong in the state. Reducing and ultimately eliminating these disparities can go a long way towards achieving the goal of universal birth registration in the state.

Finally, the analysis suggests that the Janani Suraksha Yojna has virtually little impact on both civil registration and the proportion of children having birth certificate. This disconnect shows that there is little coordination and cooperation between the department of health and family welfare which is responsible for implementing JSY and the civil registration system.

Conclusion and Suggestions

It can be concluded that lack of knowledge about birth registration and obtaining birth certificate appears to be the main reason for relatively low birth registration in Madhya Pradesh and the gap between the levels of birth registration and proportion of children who have birth certificate. Concerted efforts are required to create and diffuse messages related to the importance of birth registration and birth certificate among the masses, especially among illiterates. More analysis on the level of birth registration by districts, residence, place of delivery and effectiveness of IEC activities can throw more light on the observed disparities in birth registration and possession of birth certificate.

The level of birth registration has not been found to be related to the registration of women under JSY presumably because of the lack of coordination between the two departments involved in the implementation of the two schemes. This situation can be changed by improving the coordination and linkages between the two departments.

At the same time, the grassroots level service providers should pro-actively participate in the registration of births and in the distribution of birth certificates. At present, their participation is far from satisfactory.

In case of institutional deliveries, births are registered by default without the knowledge or intimation to the beneficiaries. This unawareness leads to ignorance about the need to obtain birth certificate. As a result, birth certificates are not distributed to the majority of births delivered at institutions. The general perception of the registration officials is that birth certificate collection is the responsibility of the family members as they will benefit out of it. On the other hand, parents and family members perceive that birth certificates should be distributed by the civil registration officials at their door steps. To avoid this misconception, certificate distribution mela may be organised at least twice in a year. In these melas or camps, structured propaganda may be organised to create awareness about birth registrations and its benefits.

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Table 1
Level of birth registration, proportion of children received birth certificates and proportion of mothers who availed financial assistance under JSY in EAG states

States	Level of birth registration (Per cent)	Children whose birth was registered having birth certificate (Per cent)	Difference between the proportion of births registered and proportion received birth certificate	Mothers who availed financial assistance under JSY (Per cent)
Madhya Pradesh	78.3	62.2	20.6	61.1
Chhattisgarh	81.9	41.4	49.5	21.7
Odisha	83.7	30.4	63.7	61.6
Assam	79.3	59.9	24.5	44.8
Jharkhand	46.4	23.5	49.4	14.6
Bihar	56.2	23.1	58.9	30.4
Uttar Pradesh	46.6	18.1	61.2	15.8
Uttarakhand	66.7	37.7	43.5	26.9
Rajasthan	75.4	43.4	42.4	53.9

Source: AHS 2010-11 Fact Sheets

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Table 2
Level of birth registration, proportion of children received birth certificates and proportion of mothers who availed financial assistance under JSY in districts of Madhya Pradesh

SN	States	Level of birth registration (Per cent)	Children whose birth was registered having birth certificate (Per cent)	Difference between the proportion of registered and proportion received birth certificate	Mothers who availed financial assistance under JSY (Per cent)
1	Balaghat	91.3	80.7	10.6	61.5
2	Barwani	68.3	51.7	16.6	64.8
3	Betul	90.0	73.9	16.1	67.1
4	Bhind	64.8	51.4	13.4	70.3
5	Bhopal	86.4	81.6	4.8	55.7
6	Chhatarpur	66.5	46.9	19.6	67.3
7	Chhindwara	86.4	72.2	14.2	62.3
8	Damoh	64.0	41.9	22.1	48.0
9	Datia	65.6	58.7	6.9	68.4
10	Dewas	73.4	60.6	12.8	67.5
11	Dhar	60.1	46.2	13.9	62.7
12	Dindori	80.0	44.4	35.6	41.4
13	East Nimar	50.0	43.3	6.7	47.6
14	Guna	57.5	49.8	7.7	80.2
15	Gwalior	70.8	62.5	8.3	56.8
16	Harda	80.1	70.1	10.0	61.1
17	Hoshangabad	91.5	79.8	11.7	69.5
18	Indore	86.4	78.9	7.5	44.1
19	Jabalpur	91.2	83.0	8.2	55.9
20	Jhabua	65.4	37.5	27.9	62.6
21	Katni	86.1	62.6	23.5	69.3
22	Mandla	78.6	54.4	24.2	51.6
23	Mandsaur	80.4	74.7	5.7	64.9
24	Morena	72.1	52.5	19.6	78.8
25	Narasimhapur	82.7	68.9	13.8	68.3
26	Neemuch	77.7	67.6	10.1	60.6
27	Panna	68.6	44.1	24.5	67.7

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SN	States	Level of birth registration (Per cent)	Children whose birth was registered having birth certificate (Per cent)	Difference between the proportion of births registered and proportion received birth certificate	Mothers who availed financial assistance under JSY (Per cent)
28	Raisen	68.9	55.5	13.4	63.8
29	Rajgarh	69.8	47.3	22.5	72.4
30	Ratlam	85.7	74.8	10.9	77.2
31	Rewa	68.8	54.3	14.5	66.9
32	Sagar	78.9	53.1	25.8	55.4
33	Satna	76.7	54.3	22.4	61.3
34	Sehore	69.5	54.4	15.1	75.3
35	Seoni	82.1	59.9	22.2	68.5
36	Shahdol	68.0	51.5	16.5	52.7
37	Shajapur	74.8	63.8	11.0	74.8
38	Sheopur	59.9	49.4	10.5	63.5
39	Shivpuri	54.0	50.9	3.1	73.4
40	Sidhi	69.4	56.9	12.5	48.6
41	Tikamgarh	77.7	50.5	27.2	66.6
42	Ujjain	76.6	70.6	6.0	63.8
43	Umariya	75.7	60.3	15.4	72.8
44	Vidisha	77.5	69.0	8.5	73.9
45	West Nimar	76.7	67.1	9.6	67.0

Source: AHS 2010-11 Fact Sheets

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Table 3
Results of the regression of proportion of births registered (Birth) and proportion of children having birth certificate (Certificate) on the proportion of women availed benefit under JSY

	B	SE	't'	<i>p</i>
Dependent variable		Birth		R ² =0.00
Intercept	79.209	10.817	7.323	0.000
JSY	-0.076	0.168	-0.452	0.654
Dependent variable		Certificate		R ² =0.04
Intercept	56.283	12.961	4.343	0.000
JSY	0.052	0.201	0.261	0.795

Source: Author's calculations

HIV Related Behavioural Transition among Young Injecting Drug Users in Three States of India

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Introduction

HIV and AIDS pose a serious challenge to public health in many low-income and some middle income countries. Deaths attributed to HIV/AIDS are generally concentrated in the childhood and young adulthood. As such, the impact of HIV/AIDS on life expectancy is substantial. In several countries, mortality due to AIDS results in a decrease in the life expectancy by over 20 years. HIV/AIDS related mortality and associated morbidity, therefore, places increasing pressure on the already overburdened health care delivery systems and households (Economic & Social Affairs, 2012).

Young people are at the forefront of the HIV/AIDS epidemic. There are many reasons why young people are not able to protect themselves from HIV infection. They often do not have sufficient correct knowledge about HIV/AIDS. Sometimes, they have the knowledge but do not have necessary skills to use the knowledge that they have to protect themselves from this deadly disease.

Around 30 per cent of global HIV infections outside sub-Saharan Africa are caused by injecting drugs, and an ever growing proportion is exposed to this infection. The illegal nature of injecting drugs is also a barrier to adequate treatment and prevention which make the injecting drug users (IDUs) more vulnerable to HIV and associated infections. At the same time, IDUs are also vulnerable to the risk of HIV and associated infections because of the sharing of contaminated injection equipment and because of their high risk sexual behaviour. HIV is transmitted through injecting drugs when drug users share syringes that are contaminated with small amount of infected blood (Huizhen et al, 2009).

Risk factors for starting drug use include homelessness, dropping out of school and unemployment. Patterns differ from place to place and change over time but most IDUs have the history of the use of other drugs. For example, some begin sniffing or smoking opioids and then start injecting drugs. In some places where injecting drug use is common

among young people, illicit drugs are easily available and are relatively cheap. In Central Asia, young people are in close proximity to about 90 per cent of the world's opiate supply (FHI, 2010). Opioids are readily available and are inexpensive in Tajikistan. Curiosity, availability, and imitating older youth contribute to first injection (Gray et al, 2005). Young people seek out peers or siblings who already inject and ask them for help. First injection rarely occurs alone. It usually takes place in a social situation, with a young person injected first by a friend, relative, or the sexual partner. Young people take part because they want to be the member of the group (Howard et al, 2003). Young people who inject drugs also seem to take more risks with unprotected sex than older users. They tend to change sexual partners more often and may have several concurrent sexual relationships. In addition, young IDUs sometimes sell sex in order to pay for their drugs which means multiple sexual partners and, often, unprotected sex (The MAP Report, 2005).

Various studies related to young IDUs show that multi-factorial drug and sexual vulnerabilities account for very high HIV risk. In India, studies related to young IDUs are rare, although they are important contributor to HIV/AIDS epidemic in the country. In order to evolve a policy and design a programme directed towards IDUs in the context of HIV/AIDS, it is pertinent to analyse their HIV related risk behaviour. The present study is an attempt in this direction.

Objectives

Specific objectives of the present study are as under.

1. To study the changes in HIV related risk behaviours among young IDUs over time.
2. To study socioeconomic and behavioural correlates of HIV sero-positivity among young IDUs.

Materials and Methods

Data for the study are derived from two rounds of Integrated Behavioural and Biological Assessment (IBBA) survey in Bishnupur and Churachandpur districts of Manipur; Phek and Wokha districts of Nagaland; and Mumbai/Thane districts of Maharashtra. The first round of IBBA was conducted in 2005-06 while the second was conducted in 2009-10 jointly by the Indian Council of Medical Research and National AIDS Research Institute, in partnership with Family Health International. These surveys provide data about important indicators related to HIV related sexual behaviour such as type of sexual partners; condom use patterns; knowledge, awareness and prevalence of HIV and STI among the high-risk groups including female sex workers and their clients; men who have sex with men, injecting drug users, and long distance truck drivers. During the first round of the survey, 2075 IDUs were covered while 1,977 IDUs were covered in the second round. An IDU, in IBBA survey, is defined as a male at least 18 years of age who has injected drugs for non-medical reasons at least once during the six months prior

to the survey. The present analysis is however restricted to only young IDUs - IDUs below 25 years of age.

Bivariate analysis using χ^2 statistics has been used to analyse the association between injecting behaviour and sexual behaviour of young IDUs with their background characteristics. Subsequently, Namboodiri and Suchindran life table technique has been used to see the progression from first drug use to first drug injection. In this technique, survivorship is estimated on the basis of grouped data. The formula for this technique is given as

$$S(i) = p_0 * p_1 * p_2 * p_3 \dots p_{i-1} * p_i$$

Where S(i) is the survival probability of progression from first drug use to first drug injection.

Moreover, binary logistic regression was applied to analyse socioeconomic and behavioural correlates of HIV sero-positivity among young injecting drug users. For the purpose of the analysis weight variable was calculated using the RDSAT 7.1.38 software.

Results and Discussion

A comparative picture of the socio-demographic profile of IDUs in the two rounds of IBBA survey is presented in table 1. The proportion of IDUs in the age group 18-20 years has shown a decrease between the two rounds of IBBA survey but the proportion of IDUs in the age group 21-24 has increased over time. However, it is evident from the table that injecting drugs at a young age is still common in the surveyed population. Moreover, almost, 90 per cent of IDUs were found to be unmarried, although there is a marginal decrease in this proportion over time. It may also be seen from the table that the profile of young IDUs in Maharashtra (Mumbai/Thane) is quite different from that in Nagaland and Manipur. Majority of young IDUs in Nagaland and Manipur were not working, but this proportion was very small in Maharashtra. Finally, young IDUs were found to be highly mobile in all districts, except districts in Nagaland. Injecting drug use demands a great deal of mobility to acquire/buy drugs. As use of drugs is illegal, it involves lot of secrecy so that there is a regular change in places or joints where young IDUs meet and get and use drugs.

Table 2 shows that there has been a considerable decrease in the proportion of young IDUs starting drug use below 18 years of age between the two rounds of IBBA. This decrease is attributed primarily to intensified programme to address dual risk of STI and HIV among young IDUs. However, transition from a more risky behaviour to a less risky behaviour is not evident in all districts. For example, the mean duration between drug use and injecting drug has increased in Bishnupur, Phek and Mumbai/Thane districts but decreased in Churchandrapur and Wokha districts. Similarly, there appears transition in terms of sharing of needle/syringe by others and reuse of needle/syringe which has been previously used by someone else has not been the same in all the four districts. Similarly, the practice of cleaning the needle/syringe before use appears to have decreased between the two rounds of IBBA.

In all districts, young injecting drug users started injecting drugs within one year of starting drug use in both rounds. The probability of initiating injecting drugs within one year of starting drug use in Mumbai/Thane was 0.71 in round 1 which decreased to 0.62 in round 2. However, in other districts, the probability of starting injecting drug use within one year of starting drug use was lower in round 1 compared to round 2.

As regards the change in the needle sharing behaviour of young IDUs, it is observed that in all but one districts, the proportion of young IDUs who shared needle with their partners decreased in round 2 as compared to round 1. In Bishnupur district of Manipur, this proportion decreased from 40 per cent to 20 per cent among young IDUs who started using drugs before 15 years of age and from 39 per cent to 9 per cent in young IDUs who started using drugs after 18 years of age. A similar trend may be observed in Churachandpur district of the state. In Phek district of Nagaland, this proportion decreased from 69 per cent to 45 per cent. In Mumbai/Thane districts also, this proportion decreased from 69 per cent in round 1 to 35 per cent in round 2. However, in Wokha district, this proportion increased from 61 per cent to 70 per cent.

As far as needle cleaning behaviour is concerned, the pattern is found to be different for different group of young IDUs. In Bishnupur district of Manipur, the proportion cleaning the needle before use decreased from 53 per cent in round 1 to 50 per cent in round 2 among young IDUs aged 18-20 but increased in young IDUs aged 21-24 years from 69 per cent to 72 per cent. Among those young IDUs who started injecting drugs within one year of starting drug use, this proportion decreased from 60 per cent to 32 per cent. However, among those who shared needle in the past month, this proportion increased from 73 per cent to 89 per cent. In Phek district of Nagaland also, the proportion cleaning the needle decreased from 97 per cent to 74 per cent among those young IDUs who shared the needle in the past month. In Wokha district, the scenario was the same. In Mumbai/Thane districts, 98 per cent of young IDUs who shared the needle in the past month were cleaning the needle in round 1 but this proportion decreased to 85 per cent in round two.

IDUs may transmit HIV not only by needle-sharing but also by unprotected sexual intercourse. Likewise, they may expose themselves to HIV through high-risk sexual behaviour. Very rapid increase in HIV prevalence among IDUs have been documented in many parts of Asia and the world (Rhodes, 2002). There has been considerable debate over the extent to which these epidemics might fuel the spread of HIV in other non-injecting populations through sexual contact between injectors and non injectors. Some assert that HIV among IDUs tends to remain largely separate from sexually driven epidemics because drug injectors have low levels of sexual activity (WHO, 2001). Most of the interventions in India that aim to reduce HIV among IDUs have largely Focussed on transmission of infection through unsafe injecting drug use (Hangzo, 1997). However, there is also a need to understand and address sexual transmission of HIV infection among IDUs and their sexual partners. While a few studies from Indonesia and United States of America (USA) have demonstrated no association between injecting and sexual risk behaviours (Pisani,

2003; Latkin, 1994), other studies conducted in South Africa and USA have established this association (Hikovani, 2011; Strathdee, 2003). Although some Indian studies have investigated sexual risk behaviour of IDUs (Parry, 2007; Armstrong, 2011), yet none of these studies have attempted to analyse the association between injecting and sexual risk behaviour of IDUs in north-east India where injecting drugs remains an important route of HIV transmission. Understanding this association will assist program planners and managers to sharpen the focus of their HIV prevention interventions.

Data available through IBBA suggest that majority of IDUs were sexually active. Around 88 per cent of the injecting drug users in Maharashtra, 73 per cent in Manipur and 91 per cent in Nagaland reported that they had sex at least once with a woman during 12 months prior to round 2 of IBBA and this proportion has increased over time. Majority of young IDUs reported multi partner sexual behaviour in both rounds of IBBA. Overall, paid sex increased in all districts except in district Wokha. On the other hand, sex with non-paid partner or regular partner/spouse decreased in Manipur but increased substantially in Nagaland and Maharashtra.

In all districts, most of the young IDUs reported in both the rounds that their partners were not drug user during the 12 months prior to the survey. In Phek and Wokha districts, 4 per cent and 22 per cent young IDUs respectively reported that their partner was drug user in round 2 compared to 6 per cent and 7 per cent respectively in round 1. In Mumbai/Thane districts, 19 per cent of young IDUs had single sexual partner during one year prior to round 2 while this proportion was 24 per cent in round 1. In Bishnupur and Churachandpur districts, these proportions were 45 per cent and 30 per cent respectively whereas in Phek and Wokha districts, these proportions 17 per cent and 23 per cent.

Condom use at the last sex with different female partners is found to be different in different districts in both the rounds. Approximately 73 per cent of young IDUs in Mumbai/Thane reported in round 2 that they had used condom at the last sex with paid partner. The corresponding proportions were 27 per cent in Bishnupur district; 83 per cent in Churachandpur district; 60 per cent in Phek district; and 51 per cent Wokha district. Moreover, the proportion of young IDUs using condom increased over time in all districts except district Bishnupur.

Table 3 presents results of binary logistic regression for partner mixing among young IDUs during 12 months prior to IBBA 2 by their background characteristics and contextual factors regarding injecting drug use. Results show different determinants in different states. In Manipur migrant young IDUs were 5 times more likely to have partner mixing than non-migrant young IDUs. In Nagaland, migrant young IDUs were three times more likely to have partner mixing than non-migrant young IDUs. However, there was no such difference in Maharashtra. In Maharashtra, mobile young IDUs were two times more likely to have partner mixing than young IDUs who were not mobile but in Manipur and Nagaland, the observed difference was not statistically significant. In Manipur, young IDUs who used a previously-used needle were four times more likely to have partner mixing

compared to young IDUs who did not use previously-used needle but this was not the case in Nagaland and Maharashtra.

Table 4 presents results of binary logistic regression for condom use at the last sex prior to IBBA 2. In Maharashtra, married young IDUs were 18 times more likely to use condom at the last sex with any type of female partner than their unmarried counterparts. In Nagaland, literate young IDUs were three times more likely than illiterate young IDUs and working young IDUs were 2 times more likely than non-working ones to use condom at the last sex. Young IDUs who initiated injecting drug 2 to 5 years after starting drug use were 2 times more likely to use condom than those who started injecting drug within one year of starting drug use. Mobility has been found to be an important predictor of condom use in Maharashtra. Similarly, young IDUs living with partner were 4 times more likely than those not living with any partner to use condom whereas those sharing the needle/syringe with another partner were 3 times more likely to use condom than those not sharing needle/syringe.

It is a well established fact that having STI can increase susceptibility to HIV many folds. There is however marked reduction in the prevalence of STI. In Maharashtra, it decreased from 23 per cent in IBBA1 to 15 per cent in IBBA2. Similarly, in Bishnupur, prevalence of STI decreased from 25 per cent to just 2 per cent. In other districts also, the prevalence of STI decreased substantially between round 1 and round 2 of IBBA.

Despite all programme efforts, testing for HIV remains a concern, although there is some improvement over time. In round 1 of IBBA, only 17 per cent of young IDUs had gone for HIV testing. This proportion increased to 50 per cent in IBBA2. However, only 88 per cent of those who had gone for HIV testing collected their test results.

Table 5 presents results of three binary logistic regression models for HIV prevalence among young IDUs. The first model takes into account only the background characteristics of young IDUs while the second includes age at starting injecting drug, duration between the first drug use and the first injecting drug use and needle/syringe sharing behaviour. The third model also includes indicators related to the sexual behaviour of young IDUs. The table suggests that only two variables have significant effect. Young IDUs who started injecting drug after 18 years of age were two times more likely to have HIV than those who started injecting drug before 15 years of age. Similarly, young IDUs whose sexual partner was drug user were two times more likely to have HIV than those whose sexual partner was not a drug user.

Summary and Conclusions

The study highlights significant changes in the behaviour of young IDUs over time in selected districts of India which were covered under IBBA. There has been a significant decrease in the proportion of young IDUs starting drug use before 15 years of age. This change may be attributed to intensified programmes to address dual risk of STI and HIV among young IDUs. On the other hand, the proportion of young IDUs sharing needle/syringe with partners has decreased in some districts but increased in others,

although it appears that there is a decline over time in the practice of cleaning the needle/syringe irrespective of whether the needle/syringe was shared or not. At the same time, the proportion of young IDUs starting injecting drug within the first year of starting the drug use appears to have increased over time. There has also been an increase in the paid sex among young IDUs over time, although use of condom even during the paid sex also appears to have increased in most of the districts but not in all districts. The study also suggests that young IDUs who were mobile were more likely to have sex with more than one female partners than those who were not mobile. Finally age at starting injecting drug use and drug use by the sexual partner were found to be the main determining factors of HIV prevalence among the young IDUs. The analysis also suggests that factors determining the behaviour of young IDUs are different in different states. This finding suggests that a state specific approach to tackle the problem of injecting drug use among the young generation need to be adopted.

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Table 1
Demographic profile of young IDUs in four districts, IBBA1 and IBBA2

Background Characteristics	Manipur				Nagaland				Maharashtra	
	Bishunpur		Churachandpur		Phek		Wokha		Mumbai/Thane	
	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2
Age (years)										
18-20	28.8	13.6	30.8	17.2	54.0	44.9	40.1	24.0	23.5	19.5
21-24	71.2	86.4	69.2	82.8	46.0	55.1	59.9	76.0	76.5	80.5
Education										
Illiterate	2.2	6.6	7.8	7.8	5.6	8.5	20.8	27.1	61.7	64.8
Literate	97.8	93.4	92.2	92.2	94.4	91.5	79.2	72.9	38.3	35.2
Marital status										
Unmarried	92.4	89.8	87.5	81.2	96.7	93.7	91.7	87.5	92.6	87.1
Married	7.6	10.2	12.5	18.8	3.3	6.3	8.3	12.5	7.4	12.9
Living Status										
Live with partner/spouse	19.0	9.1	23.0	12.5	3.3	7.6	89.6	87.5	13.3	8.0
Don't have/live with partner/spouse	81.0	90.9	77.0	87.5	96.7	92.4	10.4	12.5	86.7	92.0
Occupation										
Not working	47.4	34.2	34.7	76.6	46.2	31.9	64.9	60.4	0.0	6.3
Agriculture	5.1	16.6	4.8	7.8	7.7	10.3	17.3	6.3	24.3	0.0
Professional	1.1	2.3	0.0	1.6	1.7	3.1	4.2	2.1	5.4	11.5
Others	46.3	46.9	60.5	14.1	44.5	54.7	13.6	31.3	70.3	82.2
Migration										
Migrant	87.5	49.7	73.3	50.0	62.3	89.2	46.9	61.5	1.2	4.9

Background Characteristics	Manipur				Nagaland				Maharashtra	
	Bishunpur		Churachandpur		Phek		Wokha		Mumbai/Thane	
	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2
Mobility										
No	34.8	3.4	35.6	54.7	57.6	69.2	4.2	29.2	30.0	27.9
Yes	65.2	96.6	64.4	45.3	42.4	30.8	95.8	70.8	70.0	72.1
Frequency of visit to the other places										
Almost everyday	24.2	20.4	37.7	65.5	9.4	31.0	94.3	22.7	57.9	40.6
Once a week or more	75.8	79.6	62.3	34.5	90.6	69.0	5.7	77.3	42.1	59.4
N	184	96	149	64	302	224	192	96	81	60

Table 2
Injecting drug use profile of young IDUs in four districts, IBBA 1 and IBBA 2

Response categories	Manipur				Nagaland				Maharashtra	
	Bishnupur		Churachandpur		Phek		Wokha		Mumbai/ Thane	
	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2
Age at first drugs use										
<15 years	14.7	12.5	19.6	17.2	37.4	15.7	53.6	20.8	49.4	30.0
15-18 years	37.0	32.9	54.5	39.1	37.7	42.2	34.9	51.0	34.6	35.2
>18 years	48.4	54.7	25.9	43.7	24.8	42.1	11.5	28.1	16.0	34.8
Median	18.0	19.0	17.0	18.0	17.0	18.0	15.0	17.0	16.0	18.0
Age at first injecting drug use										
<15 years	3.3	6.8	11.6	10.9	9.6	5.8	3.1	5.2	13.6	10.5
15-18 years	27.7	24.9	42.9	35.9	51.3	43.5	45.3	20.8	34.6	34.5
>18 years	69.0	68.3	45.5	53.1	39.1	50.6	51.6	74.0	51.9	55.0
Median	19.0	18.0	19.0	18.0	19.0	19.0	20.0	19.0	19.0	19.0
No. of partners shared needle/syringe in the past month										
None	66.7	85.7	24.0	70.3	39.8	57.2	34.8	47.5	38.2	25.4
1-2	14.2	9.3	51.9	21.9	29.5	27.6	19.6	23.8	20.2	46.0
3 and more	19.2	5.0	24.1	7.8	30.7	15.2	45.7	28.8	41.6	28.6
Used Needle/syringe previously someone else has injected with										
Every time	7.6	7.5	8.8	18.8	0.3	8.5	2.6	4.2	11.1	4.9
Most of the times	4.3	0.0	0.0	0.0	4.3	1.8	13.5	33.3	3.8	5.2
Sometimes	33.2	29.0	74.6	57.8	57.9	38.2	66.7	22.9	43.9	38.7
Never	54.9	63.5	16.6	23.4	37.4	51.5	17.2	39.6	41.2	51.2

Response categories	Manipur				Nagaland				Maharashtra	
	Bishnupur		Churachandpur		Phek		Wokha		Mumbai/ Thane	
	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2	IBBA1	IBBA2
Procurement of syringe/ needle										
NGO drop-in centre	37.5	51.9	77.0	93.7	13.3	76.7	17.8	17.0	62.7	63.1
Chemist shop	56.5	36.7	20.8	6.3	84.4	22.9	81.7	80.9	33.5	33.8
Drug dealer	2.2	5.7	1.5	0.0	1.7	0.4	0.5	2.1	2.5	0.0
Others	3.8	5.7	0.7	0.0	0.7	0.0	0.0	0.0	1.3	3.1
Duration between first drug use and first drug injection (years)										
≤1 years	62.5	22.7	66.4	18.8	55.0	29.5	24.0	31.3	28.6	25.4
1-5 years	31.5	64.8	32.1	57.8	35.1	62.4	56.3	66.7	50.5	46.0
≥6 years	6.0	12.5	1.5	23.4	9.9	8.1	19.8	2.1	20.9	28.6
Mean duration	3.0	2.8	1.0	3.6	1.9	2.3	3.4	1.7	3.2	3.6
N	184	96	149	64	302	224	192	96	81	60

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Table 3

Covariates of partner mixing among young injecting drug users in IBBA Round 2						
Covariates	Manipur		Nagaland		Maharashtra	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age (years)						
18-20 years						
21-24 years	0.512	0	0.902	0.904	0.374	0
Education						
Illiterate						
Literate	0.289	0	0.481	0.463	1.169	1.261
Occupation						
Not working						
Working	1.447	2.459	1.439	1.523	0	0
Marital status						
Never married						
Ever married	#	#	1.207	2.286	0.714	#
Living status						
Without partner						
With partner	0	0	0.47	0.284*	2.496***	0
Migration						
No						
Yes	2.768*	4.695*	2.640**	2.471**	1.998	0
Mobility						
No						
Yes	1.182	1.06	1.45	1.479	3.402**	2.10**
Age at starting injecting drug use(years)						
<15years						
15-18years		0.025**		0.417		0
>18years		#		0.437		#
Duration between first drug use to first injecting drug use						
≤1 years						
2-5 years		2.285		0.959		0.599
≥6 years		#		0.721		#
Sharing of needle/ syringe in past month						
No						
Yes		0.126**		1.247		#
Needle /syringe previously someone else has injected with						
No						
Yes		4.352*		0.691		0
Constant	2.321	#	2.968	8.208	#	#

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Table 4
Covariates of condom use in the last sex with any type of partner among young IDUs
IBBA Round 2

Covariates	Manipur		Nagaland		Maharashtra	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age (years)						
18-20 years						
21-24 years	1.562	0.354	1.036	1.68	0.384	0.54
Education						
Illiterate						
Literate	0.715	1.773	3.23***	3.025**	0.548	0.369
Occupation						
Not working						
Working	1.287	1.556	2.01***	2.257***	1.546	1.417
Marital status						
Never married						
Ever married	13.379**	18.1**	0.417	0.256***	0.744	0.734
Living status						
Without partner						
With partner	0.177	0.155	1.139	1.03	1.214	3.844**
Migration						
No						
Yes	1.111	0.912	0.988	0.866	0.19	0.139
Mobility						
No						
Yes	1.871	2.2	0.557**	0.629	1.099**	1.549**
Age at starting injecting drug use(years)						
<15years						
15-18years		2.096		1.468		0.183
>18years		5.354		0.745		0.089
Duration between first drug use to first injecting drug use						
≤1 years						
2-5 years		0.753		1.655*		0.871
≥6 years		2.649		2.51		0.6
Sharing of needle/ syringe in past month						
No						
Yes		1.025		0.989		2.81***
Needle /syringe previously someone else has injected with						
No						
Yes		0.501	0.356	1.03		0.143
Constant	0.183	0.112		0.202	4.186	62.307

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Table 5
Binary Logistic Regression for HIV Prevalence among young IDUs in India, IBBA
Round- 2

Background characteristics	Model 1	Model 2	Model3
Age group			
18-20 years [®]			
21-24 years	3.190**	0.325	0.765
Duration of education			
Illiterate [®]			
1-8 years	0.501	0.357**	0.256
9-10 years	0.037**	0.030**	0
11+ years	0.033**	0	0
Occupation			
Not working [®]			
Agriculture	0.724	1.19	0
Professional	0.408	0	0
Others	0.228	3.085**	1.197
Marital status			
Never married [®]			
Ever married	0.745	1.22	1.29
Living Status			
Living without partner [®]			
Living with partner	0.469	0.331	0.792
Migration			
Not migrant [®]			
Migrant	0.816	0.534	2.499
Mobility			
No [®]			
Yes	0.574	0.844	0.635
Age at starting injecting drug use			
<15 years [®]			
15-18 years		0.288	0.336
>18 years		0.42	2.400**
Duration between first drug use to first injecting drug			
≤1 years [®]			
2-5 years		0.15	4.039
≥6 years		7.750*	43.529
Sharing needle with partner			
No [®]			
Yes		0.843	0.96

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Background characteristics	Model 1	Model 2	Model3
Had Sex in last 12 month with female			
No®			
Yes			1.407
Having sexual partner as drug user			
No®			
Yes			2.00*
Condom use last time with different female partner			
No			
Yes			0.573
Constant	0.048	0.106	0.018

Women's Background Characteristics as Protective Shield Against Husbands' Negative Perception Towards Sexual and Reproductive Rights of Their Wives

Ankita Siddhanta

SK Singh

Background

Research done globally suggests that a very large proportion of women in the developing countries experience sexual assault perpetuated by their partners (Caceres, 2000; Koenig et al, 2004). Evidence also shows that substantial sexual coercion against women occurs within marriage (Santhya and Jejeebhoy, 2005; Santhya et al, 2007; Winter and Stephenson, 2013). When due respect is not given to a woman's body and her rights; when she is not allowed to exercise her sexual and reproductive rights; when she is forced to have sex against her will; when her reluctance is not respected, violation of sexual rights occur which is also termed as sexual violence against women. Literature also shows woman's submissive role in her family and justifying sexual violence by their intimate partners. A significant proportion of women, regardless of their social and economic background, subscribe to power differentials based on sex and accept that men have a right to discipline them, especially when they fail to fulfil gender-specific duties such as taking care of the house and children or cooking food on time in a manner that pleases the husband. Further, women who are beaten or otherwise physically abused tend to justify their husbands' behaviour as a way of rationalising the treatment meted out to them (Visaria, 2008). This is because perception and behaviour are two melded aspects where understanding of one enhances the certitude of the other. The prevalent scenario in India shows unpleasant mishaps occurring in the lives of girls in the form of rape, molestation and sexual assault even within the union of marriage. This paper aims to explore whether background characteristics of a married woman can defend her from marital sexual violence when her husband is having negative perception about bodily rights of women. More specifically, the paper attempts to analyse how women's background characteristics help them to transform negative attitude of their husband about women's sexual rights to positive attitude of respecting their bodily rights. The paper also attempts to answer why

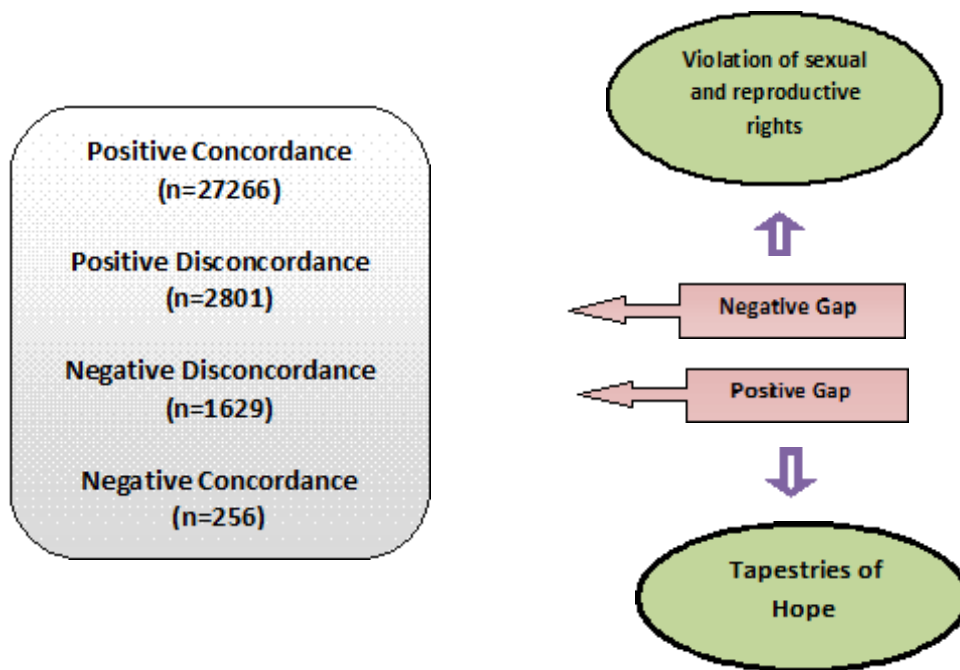
some husbands do not force their wife for sex even after perceiving negatively about her bodily rights. Is it the dominance of women or women's empowerment which protects them from the negative perception of their husband in the Negative Disconcordance group? At the same time, the paper examines why do women in the Negative Concordance group face sexual violence and the women of Negative Disconcordance group do not face sexual violence despite the fact that husbands of both categories of women have similar negative perception about bodily rights of women.

Data and Methodology

The paper is based on the data available through the National Family Health Survey-3 (2005-06) which is a nationally representative large scale survey covering more than 124 thousand women and 74 thousand men from 109 thousand households selected on the basis of a multistage probability sampling approach. Bivariate and multivariate methods have been used for the analysis of data. The paper first analyses the perception of Indian married men about the bodily rights of women and their behaviour in terms of sex or other sexual acts without the will of their wife. Based on this analysis, Indian married men (husbands) have been categorised into two groups - men with a negative perception and men with positive perception about the bodily rights of women. Each of the two groups have been further categorised on the basis of their behaviour related to intercourse and other sexual acts with their wife into four sub-groups - the positive concordance group; the positive disconcordance group; negative concordance group; and negative disconcordance group. The positive concordance group comprises of those married men who perceive positively about sexual and reproductive rights of women and in reality also they do not force their wife for intercourse or other sexual acts and thus do not violate the rights of their wife. The positive disconcordance group comprises of those married men who, although perceive positively about the bodily rights of women, yet they force their wife for intercourse or other sexual acts and thus violate her rights. The negative concordance group comprises of those married men who although perceive negatively about the bodily rights of women, yet they do not force their wife for intercourse and other sexual without her consent or will. Finally, negative disconcordance group comprises of those married men who perceive negatively about the bodily rights of women and they also force their wife for intercourse or other sexual acts without her will or consent. Based on the above categorisation of married men in terms of their perception of bodily rights of women and their behaviour related to intercourse or other sexual acts with their wife, we have calculated the positive and negative gap in the perception and behaviour of married men in India. This gap in the perception and behaviour is termed as positive if despite perceiving negatively about the bodily rights of women, a married man does not force his wife for intercourse or other sexual acts without her consent or will. On the other hand, the gap is termed as negative if despite perceiving positively about the bodily rights of women, a husband forces his wife for intercourse or other sexual acts without her will or consent and thus violates her sexual and reproductive rights. In the

present study, the background characteristics of the wife of married men belonging to negative concordance group and women belonging to negative discordance group have been analysed to answer the question whether married women's background characteristics play a protective shield against the violation of their sexual and reproductive rights or not.

Figure 1
Groups of married men showing concordance and discordance in their perception and behaviour related to bodily rights of women



For the purpose of the analysis, the perception of married men about the bodily rights of women is categorised into the following five categories:

1. Wife has the right to refuse sex with her husband when she knows that he suffers from STD (Short form- STD)
2. Wife has the right to refuse sex with her husband when he has sex with other women (Short form- Other woman)
3. Wife has the right to refuse sex with her husband when she is tired or not in mood (Short form- Tired/not in mood)
4. Husband has the right to use force and have sex even without the will of his wife (Short form- Force for sex)
5. Wife beating is justified if she refuses to have sex with husband (Short form- Beat)

Subsequently, married men in all the five categories were classified into two groups - negative discordance (ND) and negative concordance (NC) on the basis of their sexual behaviour as reported by married women. Finally, the distribution of married women by their background characteristics was calculated in all the ten categories of the perception and behaviour of their husband. The background characteristics included education, age at marriage, mass media exposure, working status and decision making power in the family. They serve as proxy to women's empowerment or women's protective shield against the behaviour of their husband. The analysis is based on the response given by 31942 currently married women about the perception of their husband related to reproductive and sexual rights of women and sexual behaviour of their husband.

Results and Discussion

Results of the analysis are summarised in table 1. The analysis shows that Indian married men, in general, do have a positive perception about the bodily rights of their women as more than 94 per cent of the married women reported that their husband had a positive perception about the bodily rights of women. However, about 9 per cent of the women reported that their husbands violate their sexual and reproductive rights despite having a positive perception about the bodily rights of women. On the other hand, less than one per cent of women reported that their husband belonged to the negative concordance groups. In fact, even among those women who reported that their husband had a negative perception about the bodily rights of women, only a small proportion reported that their husband violated their sexual and reproductive rights. Majority of those husbands who had a negative perception about the bodily rights of women did not violate the sexual and reproductive rights of their wife.

Educational differentials in women belonging to the negative discordance (ND) group and negative concordance (NC) group is very much obvious from table 1. In all the five categories of married men's perception about bodily rights of women, majority of women belonging to NC group had either no education or minimal education. For example, in Force and Beat categories, almost 80 per cent of the women had no education compared to just around 50 per cent in the ND group. Even in the other three categories of married men's perception about bodily rights of women, the educational differences in women belonging to the two groups - ND and NC - are very much obvious from table 1. Majority of women belonging to the NC group had no education.

The difference in other background characteristics of women belonging to the two groups, however, is at best marginal. Although, women belonging to ND group had more exposure to the women belonging to NC group, yet the difference in terms of median exposure is not very substantial. One possible reason is that the most common media these days is the electronic media which is now almost universally available. At the same time relatively higher exposure of women belonging to ND group may also be due to the fact that the educational status of women belonging to this group is comparatively better than the educational status of women belonging to NC group.

The difference in the distribution of women by their working status is not large between ND and NC groups. It is generally believed that working status of women increases her autonomy and empowers her. It is therefore expected that working women face comparatively less sexual violence than the sexual violence faced by non-working women. It is however not the case in India. Working women face more sexual violence in India than their non-working counterparts. It is estimated that 11 per cent working women experienced sexual violence in India against 9 per cent non-working women. This observation is also supported by the literature which shows that working women are at an increased risk of forced sex within marriage (Santhya et al, 2007; Acharya et al, 2009; Acharya et al, 2012).

The distribution of the women by the age at marriage is however different in the two groups. The proportion of women who got married before 15 years of age is relatively higher in the NC group as compared to the ND group. In the NC group, very close to 30 per cent women were married before 15 years of age whereas this proportion is only 20 per cent in the ND.

Similarly, the analysis revealed only marginal difference in the distribution of women in the two groups in terms of final decision in matters related to health care and final say in matters related to expenditure. The proportion of women who took decisions related to health care and how to spend money was relatively more in the NC group than in the ND group. On the other hand, the proportion of women taking decision on how to spend money in consensus with their husband was more in the ND group.

Summary and Conclusions

Young girls with low levels of education are more likely to experience violence by an intimate partner (Tangri, 2013). Findings from the present study also reflect that proportion of women in the NC group having no education was higher than that in the ND group. Education beyond 12 years of schooling appears to act as a protective factor against spousal violence. It has been observed that women who have the same level of education as their husband are least likely to suffer physical/sexual violence compared to those who are illiterate or have less education than their husband (Visaria, 2008). The analysis also reveals that the proportion of women married at a young age is higher in the NC group than in the ND group. This shows that women married at a young age may have little power in relation to their husband and therefore may be vulnerable to the negative perception and behaviour of their husband as regards bodily rights of women. Rao (1997) and Hindin (2002) have also observed that marriage at a young age makes the woman vulnerable to domestic violence. Women married as minors have been found to be significantly more likely than women married as adults to report ever experiencing marital violence in India (Raj et al, 2010). On the other hand, the fact that relatively small proportion of women in the NC group took decisions related to health care and how to spend money at their own implies that women belonging to this group have less say in the household and therefore become victims of negative perception and behaviour of their

husband about their bodily rights. The experience of violence or even the threat of violence and controlling behaviour by their spouse tend to lower women's self-esteem, instil fear in them and further lower their ability to fulfil daily tasks to the satisfaction of the members of the family (Visaria, 2008). Gender-based violence against women in most families is a result of over dependence on men and violation will not be there if women are empowered economically and are earning (BMGF, 2012). A young girl who is still struggling to understand her own anatomy is forced to make conjugal relations and often shows signs of post-traumatic stress and depression owing to sexual abuse by her older partner (Tangri, 2013).

The findings of the present study suggest that women's education can play a very strong empowering role which may serve as an effective protective shield against the violation of their bodily rights resulting from negative perception and behaviour of their husband about bodily rights of women. Education infuses a sense of equality in women with men in all facets of life and empowers them to communicate with their husband in different matters related to household decision-making on equal footings. At the same time education brings in a sense of confidence in women in raising voice against the violation of their rights including sexual rights even by their husband as a result of their negative perception and behaviour.

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Table 1
Distribution of married women by the different background characteristics and
by the negative concordance or negative discordance group to which their husband belong

Background Characteristics	Perception category									
	STD		Other women		Tired or not in mood		Force		Beat	
	ND	NC	ND	NC	ND	NC	ND	NC	ND	NC
Education										
No education	52.6	68.6	50.3	69.3	51.7	71.4	58.3	79.4	55.9	78.3
Primary	16.4	13.5	17.7	14.9	15.8	13.6	17.7	10.5	19	10.4
Secondary	27.3	17.2	28.3	15.3	29	14.3	22.8	10.1	23.7	11
Higher	3.8	0.7	3.7	0.5	3.5	0.7	1.2	0	1.4	0.3
χ^2	633.649***		648.121***		591.780***		682.580***		703.052***	
df	3		3		3		3		3	
Working Status										
Working	47.1	48.5	46.7	46.3	47.5	50.4	48.6	54.3	54.4	54
Not working	52.9	51.5	53.3	53.7	52.5	49.6	51.4	45.7	45.6	46
χ^2	66.252***		70.357***		67.043***		63.492***		141.414***	
df	1		1		1		1		1	

Background Characteristics	Perception category									
	STD		Other women		Tired or not in mood		Force		Beat	
	ND	NC	ND	NC	ND	NC	ND	NC	ND	NC
Age at marriage										
< 15	18.9	27	18	27	18.9	29.3	20.8	28.6	20.8	23.1
15-24	74.8	70	75.5	69.5	75.1	66.9	74.6	66.9	75.1	75
25+	6.3	3	6.3	3.5	5.9	3.7	4.6	4.6	4.2	1.9
χ^2	168.020***		179.641***		198.498***		210.361***		162.425***	
df	2		2		2		2		2	
Mass media Exposure										
Yes	64.3	60	69	61.5	67.9	57	64.2	45.7	65.7	51.1
No	35.7	40	31	38.5	32.1	43	35.8	54.3	34.3	48.9
χ^2	508.405***		359.176***		368.309***		387.966***		362.573***	
df	1		1		1		1		1	
Final say on healthcare										
Respondent alone	24.4	26.5	25.7	31.4	26.5	32.7	24.6	19.5	29.7	26.6
Both	34.9	31.6	35.6	33.8	35.7	31.8	35.3	28.5	31.8	23.7
Husband	36.9	40.5	35	32.2	34.3	31.8	37	43	35.1	46.4
χ^2	157.282***		149.730***		119.963***		142.809***		193.209***	
df	2		2		2		2		2	

Background Characteristics	Perception category									
	STD		Other women		Tired or not in mood		Force		Beat	
	ND	NC	ND	NC	ND	NC	ND	NC	ND	NC
Final say on how to spend money										
Respondent Alone	20.9	28.9	20.8	31.7	20.2	27.9	19.5	27.6	18	19.8
Both	60.1	50.4	58.7	47.8	59	42.6	59.8	44.8	59	60.5
Husband	17	20.7	19.1	19.4	19.6	29.4	19.7	27.6	20	19.8
χ^2	18.814**		47.767***		55.412***		28.860***		34.941***	
df	2		2		2		2		2	
N	2634	227	4208	337	3093	242	1423	175	1826	208

The group differences have been found significant in the chi-square test; *** p < 0.01, ** p < 0.05

An Agricultural Approach to Rural Development A Study from Bankura District of West Bengal

Subhasis Nandi

Introduction

India is a country where more than 65 per cent of the population lives in rural areas. Rural development and sustainability of rural development processes in the rural areas has therefore been one of the significant issues and concerns in India's development discourse right since the independence. At the same time, agriculture is the most important economic activity in the rural areas. As such, efforts to promote and sustain rural development need to be based on the development of agriculture. Agriculture development contributes to the development in the rural areas in such a way that each component of rural life and the agricultural landscape changes in the designed direction and in sympathy with other components. Agricultural development means optimal utilisation of agricultural resources and emphasises maximisation of agricultural production by agro-economic integration. Development of agriculture may change the existing agricultural landscape and condition of the human life and activities in the rural areas.

The present paper analyses the link between the level of agricultural development and the level of rural development in Bankura district of West Bengal. Specific objectives of the analysis are as follows.

Objectives

- To study the spatio-temporal pattern of agriculture development in the district.
- To analyse the socio economic situation of the district.
- To determine the relationship between the level of agriculture development and the level of rural development in the district.
- To suggest an alternative approach to rural development.

Database and Methodology

The present study is confined to district Bankura of West Bengal which is considered as the connecting link between the plains of Bengal on the east and Chhota Nagpur plateau on the west. The east and north-east parts of the district are low lying alluvial plains. In the western part of the district, on the other hand, the surface gradually rises, giving way to undulating country, interspersed with rocky hillocks. The district is situated between 22° 38' and 23° 38' north latitude and between 86° 36' and 87° 46' east longitude. It has an area of 6,882 square kilometres. On the north and north-east the district is bounded by Bardhaman district, from which it is separated mostly by the Damodar River. On the south-east it is bounded by Hooghly district; on the south by Paschim Medinipur district; and on the west by Purulia district. At the 2011 population census, total population of the district was 35,96,292 with a literacy rate of 71 per cent. The district is known as one of the backward districts of West Bengal.

District Bankura was selected for the present study on the basis of very high proportion of rural population to the total population (92.7 per cent) and low level of human development.

Data required for the present study was derived from a variety of sources. These included district statistical abstract, census reports, human development report, etc. Block level data were collected from offices of different departments and agencies in the district.

In order to measure the level of agricultural development, the index of agricultural development was calculated on the basis of the following formula:

$$I = \frac{\sum Y_j * C_j}{\sum C_j}$$
$$Y_j = \frac{E_j}{E}$$

where I is the index of agricultural development in the block, C_j is the proportion of area under j th crop to the total cropped area in the block, E_j is the yield of crop j in the block while E is the yield of the crop in the district as a whole.

On the other hand, the socio-economic situation at the block level was measured on the basis of the composite index based on the following nine indicators related to social and economic development:

1. Per capita gross output in the primary sector
2. Average wage rate
3. School enrolment ratio
4. Institutional deliveries
5. Prevalence of under nutrition
6. Coverage of sanitation
7. Female literacy rate
8. Per capita food production.

In order to combine the eight indicators of social and economic development, all indicators were first standardised using the z-ratio technique and then the composite index of social and economic development was calculated on the basis of the following formula:

$$D = \frac{(z_1 + z_2 + z_3 + z_4 - z_5 + z_6 + z_7 + z_8)}{8}$$

Obviously, the higher is the value of D , the better is the level of social and economic development.

Results

Table 1 presents the data on the index of social and economic development, agricultural productivity and the index of agricultural development in the blocks of the district. The level of social and economic development has been found to be relatively the best in block Kotulpur but the poorest in block Raipur of the district. There are 2 blocks where the level of social and economic development has been found to be extremely poor as the z-score of the index of social and economic development has been found to be less than -0.5. On the other hand, there is only one block where the level of social and economic development is found to be relatively advanced as the z-score of the index of social and economic development has been found to be more than 0.5. In 19 blocks of the district, the z-score of the index of social and economic development ranges between -0.5 to 0.5.

Agricultural productivity, on the other hand, has also been found to be relatively the lowest in the Raipur block but relatively the highest in the Indus blocks of the district. The Indus block of the district is located in the eastern part of the district. The soil type in this part of the district is alluvial which is an important factor in high agricultural productivity. Another factor behind high agricultural productivity in this part of the district is canal irrigation. In the western part of the district, on the other hand, agricultural productivity is relatively low. In all, there are 11 blocks in the district where agriculture productivity is found to be very poor as the z-score for agriculture productivity is estimated to be less than -0.5 in these blocks. On the other hand, there are seven blocks where the state of agriculture is relatively advanced as the z-score of agriculture productivity index is estimated to be at least 0.5 in these blocks. This leaves only 4 blocks where agriculture development may be termed as average on the basis of the agriculture productivity index.

The index of agriculture development has been found to be the lowest in Sonamukhi block of the district but highest in the Indus block. In 10 blocks of the district, the development of agriculture is relatively very poor as the z-score of the index of agricultural development has been found to be less than -0.5. In fact, there are only three blocks in the district where the development of agriculture is relatively advanced as the z-score of the index of agricultural development has been estimated to be more than 0.5. This leaves nine blocks where the z-score of the index of agricultural development ranges between -0.5 to 0.5.

The eight indicators of social and economic development which are the basis of the index of development also vary widely across the blocks of the district. The per capita gross output in the district is varies from a low of Rs 1627 in Hirbandh Block to a high of Rs 3864 in Indus Block. Similarly, the proportion of children aged 0-6 years who are under nourished also vary widely across the blocks. In Mejia, Taldangra and Simlapal blocks of the district, the prevalence of under nutrition is estimated to be less than 50 per cent. In Kotulpur and Indus blocks of the district, more than 80 per cent of the households have toilets whereas this proportion is very low in Patrasayer, Raipur, Taldangra, Barjora and Onda blocks. The female literacy rate across the blocks of the district varies from 57.7 per cent in Kotulpur block to 37 per cent in Saltora block. In 16 out of 22 blocks of the district, female literacy rate is less than 50 per cent. Between 1991 and 2011, proportionate increase in female literacy has been 24 per cent compared to 13.8 per cent for males so that the male-female gap in literacy is decreasing.

In order to analyse the relationship between the level of agriculture development, agricultural productivity and the level of social and economic development, we have correlated the simple zero order correlation coefficient between agricultural productivity and the index of social and economic development. The simple zero order correlation coefficient between z-scores of the agriculture productivity and the z-score of the index of social and economic development is estimated to be 0.415 which means that the relationship between agricultural productivity and the index of social and economic development is quite strong across the blocks of the district. Blocks where agricultural productivity is relatively high are also the blocks where social and economic development is also relatively advanced.

In view of the strong relationship between the productivity of agriculture and the level of social and economic development across the blocks of the district, we have carried out a SWOT analysis to identify strengths and weaknesses of the district in the context of social and economic development and to single out opportunities that may be utilised to accelerate development processes in the district. The analysis has also identified potential threats to social and economic progress of the district. Based on the SWOT analysis, the following recommendations may be put forward to increase the agricultural productivity in the district. The increase in the agricultural productivity, in turn, is expected to contribute to accelerating the pace of social and economic development in the district:

1. Promotion of Arhar cultivation which will retain fertility of the soil.
2. Strengthening the canal irrigation system to promote winter cultivation in the western parts of the district.
3. Application of SRI method of rice cultivation so as to double the production of the rice in the district.
4. Construction of road network under the PMGSY scheme to improve the connectivity of villages.
5. Proper monitoring of different government schemes.
6. Development of small scale rural industries such as dogra, teracota, etc.

Conclusions

In this paper, we have analysed the state of agriculture and the level of social and economic development in district Bankura and development blocks within the district. Based on this analysis, we have suggested that an approach based on increasing the agricultural productivity may be adopted to accelerate the pace of social and economic development in the blocks of the district. We have found that blocks which have high agricultural productivity are also the blocks which have high per capita income, good house condition, and high literacy and less vulnerability to natural and other shocks. We argue that improving the agricultural productivity may be an optimal yet feasible strategy for the social and economic development.

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Table 1
Index of social and economic development, agricultural productivity and the index of agricultural development in blocks of district Bankura

SN	Block	Index of social and economic development		Agricultural productivity		Index of agricultural development	
		Value	Rank	Value	Rank	Value	Rank
1	Bankura-I	-0.300	15	-0.620	13	-0.549	17
2	Bankura-II	-0.395	17	-0.620	13	-0.776	21
3	Barjora	-0.158	11	0.110	10	-0.271	10
4	Bishnupur	-0.058	8	0.830	7	-0.505	13
5	Chhatna	-0.378	16	-0.730	15	-0.028	7
6	Gangajal Ghati	-0.073	10	-1.050	20	-0.490	12
7	Hirbandh	-0.270	13	-1.260	21	-0.536	15
8	Indpur	-0.515	20	-0.900	19	-0.669	19
9	Indus	0.404	3	1.600	1	2.701	1
10	Joypur	0.410	2	1.060	6	0.449	4
11	Khatra	-0.070	9	-0.770	17	-0.541	16
12	Kotulpur	1.278	1	0.390	8	1.923	3
13	Mejia	-0.226	12	-0.560	12	-0.557	18
14	Onda	-0.270	14	0.140	9	-0.475	11
15	Patrasayer	-0.012	7	1.530	2	0.166	6
16	Raipur	-1.099	22	-1.520	22	2.478	2
17	Ranibandh	0.331	4	-0.830	18	-0.684	20
18	Saltora	-0.984	21	-0.750	16	-0.508	14
19	Sarenga	-0.454	19	1.390	4	0.172	5
20	Simlapal	-0.403	18	1.370	5	-0.225	9
21	Sonamukhi	0.216	6	-0.220	11	-0.865	22
22	Taldangra	0.235	5	1.400	3	-0.211	8

AGRICULTURAL APPROACH TO RURAL DEVELOPMENT

Table 2
Results of the SWOT analysis

Strengths	Weaknesses	Opportunities	Threats
The land is largely productive	67 per cent holdings are small to very small	Mulberry and Arjun plantation is initiated	Low precipitation rate
Agro-climatic conditions are suitable for plantation and horticultural crops	Fertility of soil is low in some parts of the district	Introduction of several minor irrigation schemes	Fluctuating ground water table
Work participation rate is good	Irrigation intensity is low	Seri-culture development	High cost of agricultural inputs
People's participation in development activities is very good	Low agricultural productivity.	Scope of small and medium scale industries	Low network connectivity