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      NEED/IMPORTANCE OF THE STUDY

      STATEMENT OF THE PROBLEM

      OBJECTIVES

      HYPOTHESES

      RESEARCH METHODOLOGY

      RESULTS & DISCUSSION

      FINDINGS

      RECOMMENDATIONS/SUGGESTIONS

      CONCLUSIONS

      SCOPE FOR FURTHER RESEARCH

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CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

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- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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ROLE OF EXCESS OF MALES IN MARRIAGE SQUEEZE OF INDIA AND ITS EAG STATES

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ABSTRACT

In the last few decades India has developed both economic and social sector. Preliminary results of the Indian census 2011 shows that child sex ratio is 914 females per 1,000 males, which has been declined from year 2001 (927 females per 1,000 males) indicating that female birth rate has been declined and implying prevailing gender discrimination is one of the major problem in Indian society. Also it is seen that strong son preference is culturally imbedded in Indian society, resulting in imbalanced sex ratio at birth and hence in marriage market in future. Therefore in this context broad objective of the paper is to study the impact of imbalanced sex ratio on marriage squeeze in future years in India and EAG states for period 2001-2051. The study uses data from NFHS-3, and Report of the Technical group on Population Projections. Preliminary findings of the study show that there is strong son preference in India and among all EAG states. Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh will face high imbalanced sex ratio till 2051 and it is favorable to male; hence resulting into male marriage squeeze. However Orissa, Uttaranchal and Jharkhand will achieve balanced sex ratio almost by year 2051.

KEYWORDS
Marriage squeeze, Gender discrimination in India.

INTRODUCTION

ver the past two decades, demographers have noted worrying trends in the sex ratio at birth (SRB) in some of the countries of Asia like India, China and the Republic of Korea. A statement by Amartya Sen in the year 1990 supports about the female deficit in Asia and Africa. He concludes that about 11 percent of women are missing in both continents. In the last few decades India has developed both economic and social sector, but the evidences show that the prevailing gender discrimination is one of the major problem in the Indian society. A distinctive dimension of India's recent population dynamics has been its unexpected masculinisation means increasing number of males in total population. According to preliminary results of the census 2011 child sex ratio is 914 females per 1,000 males, which has been declined from year 2001 (927 females per 1,000 males) indicating that female birth rate has been decline as compared to census 2001 and showing that prevailing gender discrimination is one of the major problem in the India.

In demographic literature, any imbalance in the sex ratio of prime marriageable males and females is defined as marriage squeeze. In other words, when the number of males (females) in the prime marriageable age group surpasses the number of females (males) in the preferred age group at a certain point of time in a particular geographical area, then this phenomenon is called *male (female) marriage squeeze.* The term marriage squeeze was introduced by Glick *et al.* (1963) quoted by Glick (1988). It has also been termed as *marriage deprivation* and *marriage exclusion* (Zhigang *et. al.*, 1967). As many demographic, biological, social and economic factors influence the nuptial behaviour, they can sometimes cause a squeeze on the marriage market and on the possible choices of people involved. In the absence of large scale international migration there are two main demographic such as *mortality transition and fertility transition* causes of imbalance of marriage market. Due to *mortality transition* the successive birth cohorts become larger and under the assumption that males seek younger females to get married it can be concluded that mortality decline will result in more female chasing lesser number of males for marriage resulting in female marriage squeeze. The phenomenon can ease when the *fertility transition* starts and results in smaller birth cohorts, that is, less females chasing more males resulting in male marriage squeeze.

Besides these two the other factor influencing in marriage squeeze is skewed sex ratio at birth (SRB, the ratio of boys per 100 girls at birth). Generally in most of the population sex ratio at birth ranges between 104-106 due to some biological reasons (Guilmoto, 2007), but in some population due to strong son preference and consequent sex selective abortion SRB is getting distorted and becoming much favorable to males. The large number of male children compared to female children results in to future male marriage squeeze. Marriage squeeze can also be due to the some societal norms like spousal age gap, remarriages etc.

Asia has the highest proportion of males in the world with the fact that overall sex ratio (number of males per 1000 females) is almost stable from 1950 to 2005 as 105 (Guilmoto, 2007). In India estimated overall sex ratio according to census 2011 is recorded as 940 females per 1,000 males whereas among all Empowered Action Group (EAG) states Uttar Pradesh have lowest overall sex ratio (908 females per 1,000 males). This imbalance in India is mainly due to strong son preference in terms of economic and social utility of son. Son preference is culturally imbedded in our society but its strength varies from one region to another. So the rapid fertility decline in the some of the region and increasing SRB favorable to male is expected to results in to strong imbalance between the number of men and women and marriage market. Therefore here an attempt is made to study the impact of imbalanced sex ratio on marriage market of India as well as in eight EAG states (Uttar Pradesh, Bihar, Madhya Pradesh, Chhattisgarh, Uttaranchal, Jharkhand, Orissa and Rajasthan).

REVIEW OF LITERATURE

Firstly Akers (1967) made an attempt to measure the marriage squeeze of USA considering the situation of 1960s. He concludes that due to changes in marriage pattern there will be some impact on birth rate and the family formation. It was also concluded that single men will go for first marriage at faster rate as compared to earlier in 1960s. Muhsam (1974) did a study considering the situation of marriage squeeze in Australia. In his study it was concluded that female deficit in the population shows negative effect in terms of women succeed to avoid the marriage with relatively old or young men and also men face a force to marry with relatively old or very younger women. Lena Edlund (1999) made an attempt to establish the link among son preference, sex ratios and marriage pattern in China. In his study he concludes that preference for sons could be a factor behind men's marrying younger women than themselves.

The study of Verma (2000) was based on the phenomenon marriage squeeze in India. In her study she gave a conclusion that India is passing through the male marriage squeeze. Also the marriage squeeze has great impact on permanent celibacy. Shuzhuo Li (2005) did a study to lay down the focus on the implications of son preference on marriage squeeze in China. This study concludes that there will be large male marriage squeeze due to strong son preference from 2000 onwards in China. Jean Louis Rallu (2006) did a study to understand the situation of female deficit and marriage market in Korea. Study shows that for small populations like Korea, migration could be a solution to imbalances on the marriage market through emigration of males or immigration of foreign females from neighbouring Asian countries but in large populated countries like India and China migration cannot be a solution. Ranjana (2010) made an attempt to study the association between skewed sex ratio at birth and marriage squeeze in selected south Asian countries including India. The study reflects that countries like India, Korea and China will face high male marriage squeeze in future years and it is due to strong preference for male child.

NEED FOR THE STUDY

There are various studies on marriage squeeze but no one study shows the implication of distorted sex ratio on marriage squeeze in the context of comparative study among EAG states in future years. Also it is seen that strong son preference is culturally imbedded in India which is resulting in imbalanced sex ratio at birth and hence in marriage market. Thus in this context this study is trying to answer some queries; what is the situation of marriage market of India as well as EAG states at present time? In the context of strong son preference in selected states what will be the intensity of imbalanced in the marriage market in future?

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OBJECTIVES

The broad objective of the paper is to study the situation of marriage squeeze in present and future years in India and EAG states. The specific objectives are

1. To study the son preference and its association with sex ratio at birth.
2. To study the sex differential in mortality in EAG states of India.
3. To study the marriage squeeze in EAG states for the period 2001-2051.

ASSUMPTIONS

In this study we are assuming that age gap between spouses on an average is five years that is almost all males are getting married with five years younger females than themselves.

METHODS AND MATERIALS

The data utilized in this study came from National Family Health Survey and Report of the Technical group on Population Projections. The National Family Health Survey (NFHS) programme was started in1990s under the supervision of Ministry of Health and Family Welfare (MOHFW), Government of India and co-ordinated by International Institute for Population Sciences, Mumbai. In the present study we have used the third series of NFHS (NFHS-3, 2005-06). It covered 29 states of India. The NFHS is national representative Survey. The sample selection was based on systematic, multistage and stratified design. The major topic cover in the survey include fertility, marriage patterns, knowledge and practice of family planning method, use of antenatal care services, child health and nutrition, vaccination, HIV/AIDS etc. Technical group or Expert Committee was constituted by National Commission on Population (NCP) in 2001 under the Chairmanship of the Registrar General of India to prepare population projection for the period 2001-2051.

There are various indicators which can be used to investigate the son preference. Here we are using a few indicators which are as follows: *Desire for more children, Use of contraceptive method and Ideal Family Size.* The indicators used for sex differential in mortality are *Infant mortality rate (IMR), Childhood mortality rate (CMR), under five mortality rate (U5MR) and Life Expectancy at Birth (LEB).*

To study the marriage squeeze in future years we have used Software **Spectrum** to project the future year population by age and sex taking base year (2001) from Population Projections for India and states 2001-2026, Report of the Technical group on Population projection constituted by National Commission on Population , May 2006.

The simplest approach for measuring the marriage squeeze is based on the calculation of overall sex ratio. It means the ratio of total males and females. Let I_1 be the Mate Availability Index, M and F be the total male and female population respectively. Then Availability Index can be measured as

$$I_1 = (M/F)*100$$

The drawback of this Index (I_1) is that it assumes all the population of a region has the same risk of getting married including children and elderly which is not possible in any society. Therefore in the next Availability Index we will consider the only population which is at the risk of getting married. Let us consider that all marriages takes place within age range (x, x + n) then Index of marriage squeeze can be measured as

$$I_2 = ({}_nM_x / {}_nF_x)*100$$

In this study we have made an attempt to measure the Index of marriage squeeze by considering that all marriages are taking place between ages 15-49 and 15-54. But in most of the society it is seen that marriages are concentrated only over the few ages which is assumed as peak marriageable ages and known as prime marriageable ages (Akers, 1967). Prime marriageable age varies from one region to another. Let us consider that for females prime marriageable age is x to x + m and for males it is y to y + n. Then Index of marriage squeeze can be represented as

$$I_3 = ({}_nM_y / {}_mF_x)*100$$

In the present paper on the basis of above index we have calculated two indices by assuming two different prime marriageable ages in which one is considering that prime marriageable ages for female is 15-29 years and for male it is 20-34 and another is considering that 20-34 for female and 25-39 for males.

Age gap between spouses also affects the availability of mates or partners. In most of the society it is expected that grooms should be older than their brides. Due to this norm bride always belongs to younger cohort than groom. Thus for the purpose of Index of marriage squeeze it will more adoptable to calculate the sex ratio by assuming age gap between spouses is five years. Thus on this basis we can represent the Index of marriage squeeze/ Mate Availability Index for male as

$$AI = ({}_5M_{x+5} / {}_5F_x)*100$$

FINDINGS AND DISCUSSION

The analysis is divided in three different parts according to three objectives.

RESULTS FOR SON PREFERENCE

The first part of the discussion is about the indicators of son preference.

In **Table 1** we are taking into account the actual and behavioral attitude of the women regarding the sex composition of family size. Table presents the percentage of currently married women who have desire for more children according to the sex composition of family size (total number of living children). Table shows that in all states as well as in India among currently married women, whose family size is one and who have only one boy have less desire for another child as compared to the women who have only one girl. Among all selected states in Uttaranchal women with only one daughter have highest desire for more children as compared to women with only sons. Table also indicates that married women who have two or three sons have less desire for more children compared to those who have two or three daughters respectively indicating they are satisfied with the sex composition of family. Table also describes the reflection of son preference on contraceptive use. At national level 14 percent women with one child as a son using family planning method; whereas only four percent women having one child as a girl using contraception, it means they want to go for more children. From table we see that the contraceptive use is high where there is at least one son in the family and less where the number of girls is high. It is also observable that in Bihar and Rajasthan where family size is 3 and all of them are boys, the contraceptive use is respectively 36 and 12 times high compared to women having three girls indicating higher preference for male child.

Table 2 indicates the gender difference in median duration of exclusive breastfeeding and vaccination of living children, which reveals differential treatment given to girls and boys. At national level median duration for exclusive breastfeeding for male and female is 2.1 and 1.9 months respectively. Difference in median duration of exclusive breastfeeding is favorable to male in states like Bihar, Rajasthan, Jharkhand and Chhattisgarh. However Uttar Pradesh, Madhya Pradesh and Orissa shows not much difference in care giving to children in terms of exclusive breastfeeding. Only in state Jharkhand median duration of exclusive breastfeeding is much favorable to female child (1.5 months) than the male child (0.6 months). Table also discusses that percentage of children of both sexes not received vaccination. In India 6.0 percent girl children did not received any vaccination; however this percentage is declined up to 4.3 for male children indicating girl child receive less attention in health care. Uttar Pradesh treats girl and boy children equally. In states Bihar, Rajasthan, Chhattisgarh, Madhya Pradesh and Uttarakhand girl children are less vaccinated compared to male children; whereas in Jharkhand and Orissa percentage of children not vaccinated is higher for males than females.

Table 3 describes about the sex ratio at birth (SRB) for EAG states for the time period 2001-2051 which are projected by Registrar General of India (2006). In this projection constant SRB is considered over the period. From table it is clear that in states like Uttar Pradesh, Bihar and Rajasthan SRB is higher than the national average. Uttar Pradesh (UP) has highest sex ratio (115 male live births per 100 female live births) favorable to male among all EAG states. Rajasthan is second highest (114 male live births per 100 female live births) followed by Bihar (112 male live births per 100 female live births). Madhya Pradesh (MP) and Uttaranchal are having same SRB as 110 male live births per 100 female live births. Generally in most of the population sex ratio at birth ranges 104-106 due to some

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biological reasons (Guilmoto, 2007). Therefore analysis points out that Jharkhand and Chhattisgarh have almost balanced SRB; whereas Orissa shows slightly higher SRB than the balanced.

Therefore from above it can be summarizes that state UP, MP, Bihar and Rajasthan have strong preference for male child.

RESULTS FOR SEX DIFFERENTIAL IN MORTALITY

The second part of the analysis deals with mortality differential between males and females.

Table 4 contains information about the infant mortality rate (IMR), childhood mortality rate (CMR) and under five mortality rates (U5MR) by sex. As we know that there is huge difference in treatment and care giving to the two sexes, so this results in difference in mortality pattern between the two sexes. Table shows that IMR is highest for both male and female as 81 and 85 per 1000 live births respectively in Uttar Pradesh among the selected EAG states. However at national level IMR is 56 for males and 58 for females. Also IMR is lowest for both male and female (55 per 1000) in Uttaranchal. From table it can be also observed that the difference in IMR of male and female children is highest in Orissa and IMR for male is higher than female. The table shows that except Orissa, Jharkhand and Chhattisgarh in all remaining EAG states female infant mortality is higher than male infant mortality. Sex differential in child mortality shows that except in Orissa girl children suffer substantially higher mortality than male. Table also reflects that except in Orissa and Chhattisgarh girls suffers higher mortality from birth to five years of age compared to boys.

Table 5 describes the life expectancy at birth (LEB) during time period 2001-2051 in EAG states as well as India sex wise. It is observed that LEB for female is higher than males almost in all selected states. At national level during 2001, the difference in LEB of male and female was observed about 2 years and favorable to female and this difference will increase up to 3.5 years in 2051. Results reveal that till 2051, the difference in male and female LEB will be 4.5 years showing improvement in health condition of women. However results slightly reflect for UP, Bihar and Madhya Pradesh in year 2001 and 2011; means during this period male LEB surpasses the female LEB.

RESULTS FOR MARRIAGE SQUEEZE

Now this section deals with analysis of marriage squeeze.

Table 6 presents the various sex ratio indices for measuring the marriage squeeze in selected states. In this table there are five sex ratio based indicators. The first one is simple sex ratio (Males per 100 Females) based on total population of male and female. From table we found that in 2001 sex ratio were 107 males per 100 females in India. Among all EAG states UP consist of highest sex ratio (111 males per 100 females) in 2000, means it had faced high male squeeze during 2000. However Uttaranchal, Jharkhand, Orissa and Chhattisgarh were on balanced situation. Analysis reveals that UP will be no improvement in situation till 2051 implying UP will face high excess of males till 2051. There are several other states like Bihar, Rajasthan and MP which will join UP till 2051. However remaining other states will achieve almost balanced SRB till 2051.

The second indicator which is a sex ratio based on only marriageable (15-49 age group) population of male and female. From table it is clear that in 2001 there was highest male marriage squeeze in UP. Also table indicates that till 2051 almost all selected states will face the male marriage squeeze except Jharkhand and Chhattisgarh. UP, Bihar and MP will face highest male marriage squeeze with sex ratio 115, 114 and 112 respectively. The next indicator considers that all marriages will take place between 15-54 age groups. On the basis of this indicator table shows that the states like UP, Bihar, MP and Rajasthan were facing male marriage squeeze while in remaining states there were no crises in 2001. The situation will be almost same till 2051 in UP, Bihar, MP and Rajasthan.

It is seen that marriages are concentrated only over the few ages which is assumed as peak marriageable ages or prime age for marriage. Prime marriage age vary from region to region. Thus because of this reason here we have considered two indicators for marriage squeeze by considering the different prime age at marriage.

The fourth indicator of marriage squeeze assumes that prime marriageable age for female is 15-29 years and for male it is 20-34. Result shows that in India there was 5 percent shortage of male during 2001 in prime marriageable age group. Also from table it is clear that in 2001 all states were passing through male marriage squeeze. In 2001 among all selected states UP takes place as a state which was suffering through highest (128 males per 100 females) male marriage squeeze and Rajasthan takes place as a second highest having (116 males per 100 females) male marriage squeeze. Also in 2051, we found that there will be strong male marriage squeeze in EAG states except UP, MP, Bihar and Rajasthan. Uttaranchal, Chhattisgarh, Jharkhand and Orissa will attained almost balanced situation till 2051 in marriage market.

The last index of marriage squeeze based on sex ratio, in which prime marriageable age for female is 20-34 and for male it is 25-39. Taking into the consideration of the last index, we notice that all considered states were passing through male marriage squeeze in 2001. Analyzing the table we can see that in 2051 there will be high male marriage squeeze with highest value (119 males per 100 females) in UP. Bihar, Rajasthan and MP will also face high male marriage squeeze with index value approximately as 117,115 and 116 respectively.

Considering the last indicator we can conclude that in 2001 UP, Bihar, Rajasthan and MP have faced the very intense male marriage squeeze. The remaining all states also experience the male marriage squeeze but not very intense.

Table 7 represents the mate availability index (males per 100 females) for males in selected states for the time period 2001-2051, assuming that all marriages takes place within age groups 15-54 and age gap between spouses is five years. Since several available literatures point out that most of the marriages in India are taking place during ages 20-34, so our main focus here will be to see the availability of mates for males in this age range. Study reveals that there were high female marriage squeeze in India as well as in all EAG states in year 2011. Considering the age group 20-24, we found that during 2001 Uttaranchal was facing highest female marriage squeeze (86 males per 100 females). However at national level there was around only 4 percent shortage of males for females. But when we move over year 2021, we noticed that there will be high male marriage squeeze in age group 20-34 in all states; after this age range there will be again crises of males for females. It may be because female have life expectancy high than the male, means their survival chances are high so they can stay for a long time in marriage market. Also we assess that during 205, India as well as all considered states will face high level of marriage squeeze in age range 20-34.

SUMMARY AND CONCLUSIONS

It is already mentioned that rapid decline in fertility and mortality results in to imbalance in the male and female population of marriageable ages. In Indian society added factor is son preference resulting in to sex ratio at birth much favorable to male children. As most of the EAG states have strong preference for male child and hence experiencing skewed sex ratio at birth so there are chances of marriage squeeze. The analysis reveals that though there is son preference in all states but its intensity is high in Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh. The son preference has resulted in to skewed sex ratio only in above four states. The first indicator of marriage squeeze reveals that during 2001-2011 except Orissa, Uttaranchal and Chhattisgarh all other states were facing the male marriage squeeze implying more males in marriageable ages than females. There will be no problem in states like Uttaranchal, Jharkhand, Orissa and Chhattisgarh in marriageable ages. The serious problem will be in Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh.

The cohorts which will be in marriageable ages are already born so it is not possible to change that situation. In order to avoid the problem of male marriage squeeze beyond 2051 these states need to take strict measures to stop sex determination test and subsequent female feticides.

LIMITATIONS

The broad objective of the paper is to study the situation of marriage squeeze in present and future. For this study we are taking the total population of different age group. The phenomena of marriage squeeze can be better studied by considering the age-sex distribution by marital status also by including first and remarriage rate. Here the analysis is restricted to only total population.

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TABLE (1): PERCENTAGE OF CURRENTLY MARRIED WOMEN WHO HAVE DESIRE FOR MORE CHILDREN AND USING ANY CONTRACEPTIVE METHOD ACCORDING TO THE SEX COMPOSITION OF FAMILY SIZE

States	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
Number of living children	Percentage of Women with desire for more children								
One Child									
No son	74.4	66.6	66.1	67.0	79.3	72.4	79.6	68.1	81.6
One son	32.1	30.2	29.0	29.1	27.9	26.9	32.4	26.7	33.7
Two Children									
No son	68.2	58.7	57.5	56.7	68.8	72.8	71.0	58.0	75.9
Two son	4.6	7.8	4.9	5.9	2.8	4.9	5.0	5.3	3.9
Three Children									
No son	64.2	52.6	55.7	64.7	82.5	78.8	73.3	68.4	57.6
Three son	0.8	1.3	1.6	0.8	0.8	0.5	0.6	1.0	0.7
Number of living children	Percentage of women using contraception								
One Child									
No son	4.4	3.9	1.5	1.8	2.5	3.2	4.2	2.8	3.5
One son	14.2	13.8	7.6	8.8	9.3	10.9	16.7	9.7	11.2
Two Children									
No son	10.8	4.5	2.1	2.4	2.8	5.1	9.4	4.2	6.2
Two son	49.6	37.0	41.7	41.2	45.7	40.2	47.9	41.1	57.7
Three Children									
No son	10.5	3.2	0.9	2.3	4.3	5.3	13.4	4.3	5.2
Three son	25.3	25.1	32.5	27.6	28.6	30.2	28.3	32.7	21.3

Data sources: National Family Health Surveys-3.

TABLE (2): SEX DISCRIMINATION IN TREATMENT IN INDIA AND EAG STATES

States	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
	Median duration of Exclusive breastfeeding (in months)								
Male(M)	2.1	2.3	0.9	1.6	0.5	3.4	2.1	6.1	0.6
Female(F)	1.9	2.4	0.6	1.0	0.6	2.4	2.6	5.3	1.5
Ratio(M/F)	1.1	1.0	1.5	1.6	0.8	1.4	0.8	1.2	0.4
No vaccination (%)									
Male(M)	4.3	2.7	4.2	3.2	3.8	5.8	12.9	0.8	5.6
Female(F)	6.0	2.7	10.3	7.7	6.3	3.2	10.1	4.2	12.4
Ratio(M/F)	0.7	1.0	0.4	0.4	0.6	1.8	1.3	0.2	0.5

Data sources: National Family Health Surveys-3.

TABLE (3): SEX RATIO AT BIRTH (MALES PER 100 FEMALES) PRESENT AND PROJECTED FUTURE LEVELS

Years	2001	2006	2011	2016	2021	2031	2036	2041	2051
India	111	111	111	111	111	111	111	111	111
Uttar Pradesh	115	115	115	115	115	115	115	115	115
Bihar	112	112	112	112	112	112	112	112	112
Rajasthan	114	114	114	114	114	114	114	114	114
Madhya Pradesh	110	110	110	110	110	110	110	110	110
Uttaranchal	110	110	110	110	110	110	110	110	110
Jharkhand	104	104	104	104	104	104	104	104	104
Orissa	108	108	108	108	108	108	108	108	108
Chhattisgarh	103	103	103	103	103	103	103	103	103

Data sources: Expert Committee Report, 2006

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TABLE (4): SEX DIFFERENTIAL IN MORTALITY RATES IN SELECTED EAG STATES

Regions	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
Infant mortality rate (per 1000)									
Male(M)	56.3	80.9	59.7	70.5	80.9	77.2	75	86.6	54.5
Female(F)	57.7	85.2	70.8	75.2	82.8	76.1	59.4	74.7	55.1
Ratio(M/F)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Child mortality (per 1000)									
Male(M)	14.2	21.7	24.5	18.5	24.7	36.7	31.1	23.1	13.8
Female(F)	22.9	43.2	40.4	26.2	32.6	40.7	26.5	31.0	18.8
Ratio(M/F)	0.62	0.50	0.61	0.71	0.76	0.90	1.17	0.75	0.73
Under-five mortality (per 1000)									
Male(M)	69.7	100.9	82.7	87.7	103.6	111.1	103.7	107.7	67.6
Female(F)	79.2	124.7	108.3	99.4	112.7	113.7	84.4	103.3	72.9
Ratio(M/F)	0.88	0.81	0.76	0.88	0.92	0.98	1.23	1.04	0.93

Data sources: National Family Health Surveys-3

TABLE (5): SEX DIFFERENTIALS IN LIFE EXPECTANCY AT BIRTH IN PRESENT AND PROJECTED FUTURE LEVEL FOR THE PERIOD 2001-2051

States/Year	2001	2011	2021	2031	2041	2051
India						
Male	61.8	65.8	68.8	70.8	72.4	73.3
Female	63.5	67.5	70.5	72.9	74.9	76.7
Uttar Pradesh						
Male	59.6	64.1	67.6	70.0	72.0	73.8
Female	58.7	63.7	68.5	72.0	74.7	76.9
Bihar						
Male	61.6	65.6	68.6	70.6	72.2	73.5
Female	59.7	63.7	67.7	70.7	73.1	75.1
Rajasthan						
Male	60.7	64.7	68.2	70.2	71.8	73.1
Female	61.8	65.8	69.3	72.0	74.2	76.0
Madhya Pradesh						
Male	57.2	62.2	66.2	68.9	71.1	73.1
Female	56.9	60.9	64.9	68.9	71.6	73.8
Uttaranchal						
Male	62.0	66.0	68.5	70.5	72.1	73.4
Female	66.0	69.5	72.2	74.4	76.2	77.8
Jharkhand						
Male	62.2	66.2	68.7	70.7	72.3	73.6
Female	62.7	66.7	70.2	72.6	74.6	76.4
Orissa						
Male	58.6	62.6	66.6	69.1	70.9	72.5
Female	58.7	63.7	68.5	72.0	74.7	76.9
Chhattisgarh						
Male	62.0	66.0	68.5	70.5	72.1	73.4
Female	65.2	69.2	71.9	74.1	75.9	77.2

Data sources: Expert Committee Report, 2006

TABLE (6): SEX RATIOS (MALES PER 100 FEMALES) OF TOTAL POPULATION IN MARRIAGEABLE AGES IN SOME SELECTED STATES

Sex Ratio Indices	States								
	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Uttaranchal	Jharkhand	Orissa	Chhattisgarh
2001									
Total M/F	107.2	111.4	108.8	108.6	108.8	103.9	106.3	102.8	101.1
Total M(15-49)/F(15-49)	107.3	110.4	106.4	109.1	110.6	101.1	106.4	102.7	102.2
Total M(15-54)/F(15-54)	107.6	110.7	106.9	109.2	110.7	101.4	107.0	103.1	102.2
Total M(20-34)/F(15-29)	95.0	127.9	118.4	124.0	122.4	118.6	117.4	107.9	110.9
Total M (25-39)/F(20-34)	93.7	117.8	108.8	118.2	117.4	111.6	110.8	108.3	107.4
2011									
Total M/F	107.4	112.4	110.0	109.8	109.5	103.8	105.8	103.5	100.7
Total M(15-49)/F(15-49)	107.3	112.0	108.9	109.8	110.5	103.0	106.1	101.6	101.9
Total M(15-54)/F(15-54)	107.4	111.9	108.8	109.8	110.6	102.7	106.3	102.2	102.0
Total M(20-34)/F(15-29)	100.2	138.9	140.4	131.8	131.0	117.7	128.7	110.9	118.5
Total M (25-39)/F(20-34)	96.0	141.8	137.3	132.9	132.8	122.4	129.4	111.7	118.7
2021									
Total M/F	107.5	113.1	110.9	110.5	109.9	103.9	105.3	103.7	100.4
Total M(15-49)/F(15-49)	108.3	113.7	111.1	107.9	110.8	105.3	106.2	103.0	101.8
Total M(15-54)/F(15-54)	107.5	112.7	110.0	110.3	110.2	104.3	105.5	102.5	101.3
Total M(20-34)/F(15-29)	108.7	118.2	114.4	113.7	113.0	109.5	103.5	100.5	101.6
Total M (25-39)/F(20-34)	104.6	126.9	129.4	123.5	122.6	110.1	118.6	106.3	112.2
2031									
Total M/F	107.3	113.4	111.3	110.8	110.0	104.0	104.6	103.4	99.9
Total M(15-49)/F(15-49)	109.7	115.3	113.7	107.6	111.6	107.2	106.4	105.4	102.0
Total M(15-54)/F(15-54)	109.2	115.1	113.1	112.2	111.5	106.4	106.2	104.5	101.7
Total M(20-34)/F(15-29)	106.3	126.2	120.0	119.7	117.7	117.2	107.9	109.3	104.0
Total M (25-39)/F(20-34)	108.4	120.1	114.2	114.9	114.1	113.4	103.3	103.8	101.7
2041									
Total M/F	107.1	113.4	111.5	110.8	110.0	104.1	104.0	102.9	99.5
Total M(15-49)/F(15-49)	109.4	114.8	112.9	107.0	110.7	107.4	104.9	106.8	101.2
Total M(15-54)/F(15-54)	109.3	114.8	113.2	112.5	111.0	107.1	105.2	106.0	101.2
Total M(20-34)/F(15-29)	108.4	123.6	122.7	119.6	117.2	109.3	110.8	108.2	105.6
Total M (25-39)/F(20-34)	104.8	127.6	126.7	123.9	120.6	113.4	115.6	113.0	108.8
2051									
Total M/F	107.0	113.1	111.4	110.6	110.0	104.2	103.3	102.4	99.0
Total M(15-49)/F(15-49)	110.2	115.8	114.0	106.8	111.6	107.5	104.9	107.3	101.2
Total M(15-54)/F(15-54)	109.5	114.9	113.1	112.8	111.0	107.2	104.5	106.8	100.9
Total M(20-34)/F(15-29)	113.8	115.4	112.1	111.8	110.4	107.1	101.8	102.6	99.6
Total M (25-39)/F(20-34)	111.7	118.8	116.8	114.8	113.4	106.9	105.1	104.0	101.7

Data sources: Expert Committee Report, 2006

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TABLE (7): MATE AVAILABILITY INDEX (MALES PER 100 FEMALES) IN DIFFERENT MARRIAGEABLE AGE GROUP IN SELECTED STATES

Availability Index for males	States								
	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Uttaranchal	Jharkhand	Orissa	Chhattisgarh
2001									
20-24	96.4	93.9	91.3	94.2	97.5	85.9	90.0	89.8	87.8
25-29	95.3	95.0	93.8	94.7	98.2	82.5	94.2	92.0	93.6
30-34	92.9	92.9	90.8	93.2	95.4	84.6	93.5	91.6	93.3
35-39	92.8	92.0	90.1	92.5	93.7	88.2	92.7	92.3	89.9
40-44	91.6	91.9	89.9	90.9	91.1	87.5	91.7	91.3	86.6
45-49	91.5	92.7	90.7	90.5	90.5	87.7	92.4	90.7	86.2
50-54	89.2	92.3	90.5	88.7	89.6	86.3	90.9	88.2	84.9
2011									
20-24	106.8	105.1	100.3	102.9	103.5	108.9	99.5	103.1	98.2
25-29	96.9	93.3	88.6	93.5	95.2	94.6	87.9	90.2	87.3
30-34	96.1	93.8	91.3	93.9	97.3	85.4	89.9	89.6	87.4
35-39	94.7	94.7	93.6	94.1	97.9	81.8	93.9	91.5	92.8
40-44	91.7	92.0	90.2	92.1	94.5	83.3	92.7	90.6	92.0
45-49	90.7	90.6	88.7	90.4	91.8	85.9	91.0	90.2	87.7
50-54	88.0	88.6	87.0	87.3	87.5	83.7	88.6	87.5	82.9
2021									
20-24	112.9	107.0	117.6	116.0	109.0	97.8	120.7	118.0	111.2
25-29	110.8	110.7	106.2	108.8	105.5	113.9	105.2	112.8	100.0
30-34	106.4	104.7	100.2	102.6	103.2	108.3	99.3	102.7	97.7
35-39	96.3	92.9	88.4	93.0	94.8	93.8	87.5	89.7	86.6
40-44	95.0	93.0	90.7	92.9	96.4	84.3	89.1	88.6	86.2
45-49	92.8	93.1	92.2	92.2	96.0	79.9	92.2	89.5	90.7
50-54	88.4	89.0	87.5	88.7	91.2	80.0	89.7	87.1	88.4
2031									
20-24	104.2	105.4	102.3	103.7	102.9	101.7	94.5	102.6	93.6
25-29	102.8	105.8	104.8	103.1	102.9	97.4	95.1	101.0	93.3
30-34	112.5	106.6	117.4	115.6	108.6	97.4	120.4	117.5	110.7
35-39	110.2	110.0	105.9	108.2	105.1	113.1	104.7	112.0	99.3
40-44	105.4	103.8	99.5	101.5	102.4	107.0	98.5	101.6	96.6
45-49	94.6	91.3	87.1	91.2	93.3	91.9	86.1	87.8	84.9
50-54	91.9	90.0	88.1	89.8	93.5	81.2	86.4	85.4	83.2
2041									
20-24	113.5	114.1	112.1	113.9	110.8	110.5	106.6	113.3	102.6
25-29	108.0	108.5	105.1	107.6	105.6	107.3	98.7	107.2	96.8
30-34	103.8	104.9	102.1	103.4	102.6	101.2	94.3	102.2	93.2
35-39	102.3	105.1	104.4	102.6	102.5	96.8	94.7	100.3	92.7
40-44	111.5	105.5	116.6	114.5	107.8	96.3	119.4	116.2	109.6
45-49	108.4	108.1	104.4	106.4	103.6	111.0	103.1	109.9	97.6
50-54	102.3	100.8	96.9	98.5	99.7	103.6	95.8	98.2	93.6
2051									
20-24	113.4	117.2	117.0	116.5	113.7	108.0	108.1	109.9	104.2
25-29	114.8	116.7	116.7	117.0	113.7	109.0	110.2	113.5	105.2
30-34	113.1	113.6	111.8	113.6	110.5	110.1	106.3	112.9	102.3
35-39	107.5	108.0	104.8	107.1	105.3	106.7	98.3	106.6	96.3
40-44	103.0	103.9	101.5	102.6	102.0	100.3	93.6	101.3	92.4
45-49	100.9	103.5	103.1	101.1	101.3	95.3	93.4	98.7	91.3
50-54	108.6	102.8	113.8	111.4	105.5	93.6	116.3	112.7	106.6

Data sources: Expert Committee Report, 2006

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