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Caste Variation in Reproductive Health of Women: A Case Study of Patna (Bihar, India)

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Abstract – This paper analyses the reproductive health status of women from four prominent scheduled caste of Patna (Bihar) namely the Dusadhs, the Chamars, the Pasis & the Musahars. We preferred to choose these scheduled castes because, being clear about the impact of socio-economic status on the reproductive health we preferred to concentrate our case study to lower castes having lower socio-economic status and thus analyzing results sincerely based on caste factor. A Reproductive Health Index (RHI) is computed from a series of reproductive health indicators (contraceptive use, birth order, birth interval, antenatal care and skilled assistance at delivery) for the caste groups (based on H.H. Risley's classification). Multivariate regression analysis is carried out to understand the impact of demographic and socioeconomic characteristics on reproductive health.

In addition to analyzing the Government of India & the Government of Bihar reports on the related subject we do collected data(s) through door-to-door survey among a random representative sample of the subjects belonging to the same socio-economic status. A Performa of questionnaire was used to measure the reproductive fitness of the members.

It was also found that the group/caste which had relatively better educational, Social & Economical status had better reproductive health profile as adjudged by contraceptive used, place of child deliveries, antenatal care and consumption of vitamin/iron pills during pregnancy.

Keywords : Mendelian Population, Mendelian Trait, Reproductive Health of Women, Scheduled Caste Women

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INTRODUCTION

In India, caste plays a major role in the life of the people, influencing the socio-economic activities and in regulating their health status. Thomas Matthai (1996) shows that, because of differential literacy rate and economic status there is a difference in their health status. In caste-based Indian society, women of lower castes such as Scheduled Caste and Scheduled tribes suffers the most, as they are hit by double discrimination, First, due to patriarchal nature of the society and secondly, the such women, owing to their socio-economic conditions, also suffers social deprivation. Both these factors are detrimental to the health status of the women, especially their reproductive health.

Given this, this paper examines the caste variation in reproductive health of women. The SC women fulfill multiple productive functions in addition to bearing children and performing household chores. Ironically, despite the agricultural innovations, it has not benefited rural women, who still have to perform the conventional household work and at the same time be engaged in agricultural and construction works. Women are obliged to resume work even before they have fully recovered from the process of childbirth. Lactation or breast feeding has a significant positive impact on the health of infants and is the best nutrition source. The importance of breast-feeding for healthy child growth and development is widely recognized. Globally the World Health Organization recommends exclusive breastfeeding for the first six months to achieve optimal growth, development and health. Breastfeeding also has a vital contribution to make to reducing inequalities in health as identified in the Acheson Report . In the last decade maternal nutrition during pregnancy and lactation received increasing attention. Obviously, it is essential for good reproductive performance and maintenance of her own health that a mother's diet should be with adequate protein and calories. In manycases related to these SC women, majority of births occur without the help of a skilled assistant. Home deliveries in the absence of skilled professionals/attendants have been associated with adverse infant and maternal outcome. Little work has been done on reproductive health of these women,. Reproductive health problems of different scheduled caste communities

located at various stages of development are full of obscurities and very little scientific information is available due to lack of systematic and comprehensive research investigations. The present investigation was undertaken to study the reproductive health profile of the scheduled caste women of Patna (Bihar).

For evaluating the reproductive fitness of a population, various parameters affecting the reproductive performance of its members are studied which essentially include age of spouses at marriage, active fertile age, waiting period, age at first parenthood as well as fertility, sterility, mortality and child survival per mother, the education & socio-economic status of the group. Finally, on the basis of fertility and mortality rate, selection intensity of the population is determined.

PROFILE OF THE POPULATION SELECTED FOR THIS STUDY:

The locality of the present survey, the District of Patna in the State of Bihar (India), is one of the oldest continuously inhabitated regions in the world. The modern city of Patna is situated on the southern bank of the Holy River Ganga. The city is approximately 35 km long and 16-18 km wide . About 15.48 percent (7.30 lakh) of the total population in the district is represented by Scheduled Castes, the second highest population of Scheduled castes at the district level in the State after Gaya. According to the Census Report (2001), the four predominant Scheduled Castes (in term of population) in the district of Patna are Dusadh (2.77 lakh), Chamar (1.99 lakh), Pasi (0.93 lakh) and Musahar (0.93 lakh) which together form more than 90 percent 0f the total Scheduled Caste population.

A preliminary survey was conducted in different villages/urban mohallas in the various Developmental Blocks of Patna district (Bihar) to locate the presence of four dominant Scheduled Castes (the Dusadh, the Chamar, the Pasi and the Musahar communities) residing therein. The villages/mohallas thus identified were numbered and 48 of them (in 17 Blocks) were randomly selected for intensive survey and collection of data on the two parameters of study, the quantification of the reproductive performances of the four predominant Scheduled caste populations as well as the analysis of the prevalence of certain biogenetic (Mendelian) traits in them.

More than 1000 pesons, each of Dusadh and Pasi communities, were surveyed while the number of persons surveyed in each of Chamar and Musahars populations remained limited to 700-800 owing to their shy nature, poor participation and non-cooperation in survey work.

The term “Scheduled castes” stands for the population of such people from among the “Depressed classes” who have been explicitly recognized by the Constitution of India as per Presidential Orders issued under the provisions of Articles 341 of the Constitution.

Ninety percent of the Secheduled Castes are rural based and provide substantial support to Indian agriculture. The occupational structure of the Scheduled Caste work force is, by and large, made up of the following components:

1. Landless agricultural labourers,
2. Cultivators with small holdings,
3. Small commodity in producers or artisans, and
4. Workers in industries related with their traditional crafts (such as leather tanning, shoe making etc.)

Among the total Scheduled Caste population in Bihar (13 million), the Chamars have the highest population (4.09 million). The Dusadh community follows them closely (4.02 million). According to the census, there are 23 such caste groups in Bihar that are considered under the Scheduled Caste category (Census of India, 2001).

Here it becomes necessary to state that if we talk in context of the Education &Socio-economic status of the four talked castes in Patna. “Dusad(s0)” are at the top of ladder among these four while “Mushar(s0” are at the lowest.

METHODOLOGY:

In the present work, the populations of four predominant Scheduled Castes of Patna district (Bihar) were surveyed and the data on their reproductive fitness were collected by using a proforma of questionnaire on different aspects of their reproductive fitness. The data were collected through a door-to door survey and interview from the women of age ≥ 45 years, i.e., from those have completed their family. Sterile spouses, and those practicing family planning at any stage in their reproductive life were not included in the data. Age of respondents was also verified from the senior members of the family or neighbourhood or by the year of any natural (such as flood, drought, earth-quake) or socio-political event (such as imposition of emergency, Indo-Pak war, Indo-China war, Year of Independence).

The mode, median, range, standard deviation and standard error were also derived and the populations were statistically compared using the Students’ t-test and χ^2-test.

The undernoted parameters were used in the estimation of the various aspects of reproductive

fitness of the four endogenous Scheduled Caste populations:

1. Fertility Rate

Fertility is one of the most important aspects to determine the reproductive fitness of a population. Among the various parameters used to measure/evaluate the fertility of any population, the simplest and the most common is based on birth rate.

In the present study, the mean number of full-term live-births per mother of age ≥ 45 years was calculated to determine the total fertility rate of a population ('live' is distinct from 'total births' which include stillbirths also). It gave an estimate of the average number of children born per mother throughout her reproductive age. The fertility of the population was derived by dividing the value by total number of mothers of age ≥ 45 years.

$$\text{Fertility Rate} = \frac{\text{Total No. of live births}}{\text{Total No. of mothers of age} \geq 45 \text{ years}}$$

Further, age of mother has an important being upon her fertility. In women, the fertility period starts with the onset of menarche and it cease with menopause. In India, the fertility starts at the age of about 16 years and ends at about 45 years (Srivastava and Sinha, 1987; Singh and Sinha, 1987). The rate of fertility may however vary in different age groups during the period of fertility. Age specific fertility rates for women (of age ≥ 45 years) were therefore calculated to determine the number of children born to them at different intervals of their reproductive age. Summation of the age specific fertility rates further provided the measure of total fertility rate.

$$\text{Age-specific Fertility Rate} = \frac{\text{Total No. of live births in certain age-group of mothers}}{\text{Total No. of mothers of age} \geq 45 \text{ years}}$$

1. Mortality Rate

Mortality, besides fertility and migration, is one of the three essential components for determining the rate of mortality. Lower the rate of mortality, higher is the growth of a population; and higher the rate of mortality, lower is the growth of a population. Mortality was calculated separately as well as cumulatively for each sex. Pre-natal deaths (death before birth, i.e., reproductive wastage) however could be not ascertained due to the ignorance of mothers. The factors like Gross Mortality Rate, Gross pre-adolescent (non-accidental) Mortality, Infant mortality rate, Adolescent mortality rate, age specific mortality rate, were studied.

2. Secondary Sex Ratio (SSR)

The sex-ratio of a population is expressed as the ratio of females to males at the time of their birth (Mc Kusick, 1978) and is expressed as number of female per 1000 males. This ratio is used to study the sex-structure of a population (Bhendo and Kanitkar, 1978). The sex-ratio can further be divided into primary and secondary sex-ratios. The former is the proportion of females to males at the time of zygote formation (just after fertilization). Its calculation however is impossible. On the other hand, secondary sex ratio is the ratio of females to males at time of birth, for which the relevant data can be easily obtained.

In the present work, for obtaining secondary sex-ratio, the total number of live births was taken into account, and the number of girls per thousand boys at the time of birth was calculated. Sex-ratios, in different parity orders, were also determined.

3. Selection Intensity

Selection intensity is defined as an index of elimination of a population during the 'struggle for existence'. In other words, it stands for the intensity with which the process of selection operates in a population causing the elimination of its certain part before the latter's attainment of sexual maturity. It provides a composite picture of the reproductive fitness of a population, and is used to compare the reproductive fitness of different populations. The calculation of index of selections, as proposed by Crow (1958), is based upon two components, the childhood mortality (post-natal deaths, I_m) and the differential fertility of survivors (I_f). Higher the index value, greater is the elimination rate and conversely, a lesser value is suggestive of a higher survival rate.

OUR OBSERVATIONS:

a) Age at Marriage

The scheduled castes are socially, economically and educationally most backward section of society. As a consequence of this, the child marriages were more prevalent among them in comparison to other castes. With the spread of education and improvement in socio-economic condition, the practice of child marriage is now showing a gradual declining tendency. Early marriages, however, help to measure the reproductive fitness of any population in society because it permits bearing of the child almost immediately after the onset of puberty.

In the present study, an attempt has been made to ascertain the age at marriage (or at first marriage) of males and females among the four endogamous populations. 305 couples of Dusadhs, 285 couples of Chamars, 318 couples of Pasis and 192 couples

of Musahars were randomely approached to register their age at marriage or at first marriage. Many failed to recall it because they were married at very early age. In such eventuality, their age at marriage was ascertained by contacting the elderly members of the family/neighbourhood and then it was verified by the year of any natural and/or socio-political event of the locality.

The obsevation, showing a complete picture of the frequency distribution of the frequency distribution of age of spouses at marriage, appeared to be of normal in almost all the populations. In males, most of marriages took place when they belonged to the age-group of 13-20 years. In females, most of it occurred when they belonged to the age-group of 7-18 years.

Except a very small proportion that marries in the age group of 5-6 years among Chamars (2.81%) and Musahars (0.52%), a sizeable number of females married in the age group of 7-8years. This proportion is as high as 16.04% among Pasis in comparison to the Chamars (11.23%), the Musahars (4.69%) and Dusadhs (3.93%). In all four populations, however, the maximum number of females married between the age-group of 9-16 years. This proportion is as high as 89.07% among the Musahars, 76.75% among the Dusadhs, 72.65% among the Pasis and 67.01% among the Chamars.

When the mean age at marriage was compared, the Musahars appear to marry earlier (X ± SE = 12.06±0.22) than the Pasis (X ± SE = 12.29±0.18), the Chamars (X ± SE = 13.03±0.05) and the Dusadhs (X ± SE = 13.99±0.19). Dusadhs therefore appear to marry a bit late. The range of age at marriage among the females in Chamars was comparatively narrow (SD = 1.19 years) in comparision to Dusadhs (SD = 4.81 years), Pasis (SD = 4.49 years) and Musahars (SD = 4.38 years).

When t-difference values were compared, the difference was significant between all the pairs of populations except between the Musahars and the Pasis.

The information gathered during the survey regarding the difference of age among husbands and wives at the time of their marriage showed that the minimum difference was of only two years, and its frequency was highest (7.29%) among the Musahars, followed by Chamars (2.11%), and only 0.33% among the Dusadhs .

b) Active Fertile Age

Iin the present work, the reproductive age of the subjects in four populations was not determined from the age at their marriages, rather it was calculated from their age at the time of the birth of their first child. It was reported that spouses started living together, and the women conceived as soon as they became fit for it physiologically. Thus, in these four populations active fertile age was found equal to 45 years minus their age at the time of their first live born.

The observation obtained show that majority (more than 60%) of the women enjoyed an active fertile age of about 27-29 years in all the populations, which begins at their age-group of 18-20 years.

The mean of such age was approximately 27 years in all the populations. When compared with each other, none of the population pairs differed for mean of the difference in their active fertile age.

c) Waiting Period

The period between mother's age at marriage and her age at the birth of her first live-born child is called waiting period. In the present study, very few of the mothers had less than 3 years as waiting period; only 2.92% among Chamars, 8.11% among Musahars, 11.29% among Pasis, but slightly higher among Dusadhs (15.92%).

Waiting period of 4-6years is in as much as 38.41% of Dusadhs, 38.38% of Musahars, 26.45% among Pasis and 20.44% among Chamars. Many mothers had to wait as long as 7-9 years for attaining motherhood. The frequency of such mothers was approximately of the same magnitude among Pasis (33.90%), Musahars (32.43%), Dusadhs (31.83%) and Chamars (31.39%). Thus 83.78% mothers and Musahars, 82.58% among Pasis, 78.89% among Dusadhs, and 78.47% among Chamars had to wait from 4-12 years to have their first child. A sizeable number of mothers even had to wait for more than 12 years to become mothers (18.61% in Chamars, 8.11%in Musahars, 6.13% among Pasis and 5.19% among Dusadhs).

d) Age at first-Parenthood

The observation obtained shows that in all populations, a sizeable portion of female attained motherhood when they belonged to the age-group of 15-16 years. This proportion is as high as 13.51% among the Musahars, 10.00% among the Pasis, 7.61% among the Dusadhs and 5.4% among the Chamars. The age-group of 15-16 years is a time just before which menarche sets in Indian women (Deka, 1976; Lall and Sinha, 1978; Sinha and Sinha, 1980; Srivastava an Sinha, 1985; Sinha and Sinha, 1987).

e) Variations in fertility rates

The general rate of fertility among the four endogamous populations of scheduled castes appeared to be normal. According to the present data, the number of live-born children per mother was very high in all the populations, which ranged upto 11 births among the Pasis and the Musahars,

upto 10 births among Chamars and upto 9 births among the Dusadhs. Most of the mothers had three to seven live borns, and they alone constituted 71.9% among Chamars, 67.48% among Dusadhs, 64.34% among Musahars and 64.20% among Pasis. The mode number, however, was 6 among the Chamars and 5 among the remaining ones.A very small number of women had only one live-born; such women constitute 10% among Pasis, 7.30% among Chamars, 7.27% among Dusadhs and only 5.95% among Musahars. In very rare cases, women with 8 or more number of children born to them were met with. The mean number of children born to the Chamar, the Dusadh and the Musahar women was found to be 5, whereas 4 to Pasis. A mean value of 4-6 live births per mother have also been reported earlier among various Indian populations (Raina, 1969; Basu and Gupta, 1978; Rao, 1980).

f) Sterility

As far as the sterility (both primary and secondary) is concerned, the four populations differed among themselves. The frequency of primary sterility (i.e., never pregnant-women) was found to be highest among the Dusadhs (5.25%) followed by Chamars (3.85%) and Musahars (3.64%) and Pasis (2.51%).

g) Mortality with respect to the age of mothers

In all the four populations the frequency of gross mortality and post-natal deaths (GPND, were high among the mothers below 20 years of age and also of those above 35 years of age, but low between the age-group of 25-35 years. Though the women were physiologically mature to conceive before 20 years of age, they still seemed to be physically immature to reproduce; hence pregnancy before 20 years of age was found very much risky.

h) Child survival per mother

The actual rate of the fertility is determined by the number of the surviving children. Once the rate of fertility and mortality was ascertained, the number of surviving children per mother was determined. Although the number of surviving children per mother was comparatively low due to high rate of mortality in them. The mean number of surviving children per mother was 3.87 among the Dusadhs, 3.57 among the Chamars, 3.54 among the Pasis and 3.35 among the Musahars. Comparatively higher rate of survival among the Dusadhs was mainly due to the high rate of fertility in them. Though the rate of fertility was also high among the Musahars, the number of surviving children per mother in them was lowest due to high rate of mortality.

CONCLUSION:

Given the above facts & observations we concluded that

1. The mean age at marriage in males varies from about 16 years (lowest) among the Chamars and Musahars to about 19 years (highest) among the Dusadhs; in females, it is still lower but slightly more closer among the four castes, lowest (about 12 years) among the Musahars and highest (about 14 years) among the Dusadhs;

2. The mean value of difference in age between spouses is highest among the Dusadhs (5.59 years) and lowest among the Musahars (4.55 years);

3. The active fertile age is about 27 years in all the populations;

4. The mean waiting period is highest among the Chamars (8.63 years) and lowest among the Dusadhs (5.72 years);

5. The mean age of motherhood and fatherhood is approximately 19 years and 24 years in all the four populations except among the Musahars in which paternity age is shorter by a couple of years (22 years);

6. The mean number of live births per mother of completed family is appreciably high among the Dusadhs (5.06) than among the three other populations; the Musahars have the least (4.34);

7. The age of mothers has been found to affect the fertility rate. The teen aged mothers and those above 35 years of age showed a reduced rate of fertility. The maximum fertility occurs between 20 to 23 years among the Pasis, the Dusadhs and the Chamars but slightly earlier (16 to 19 years) among the Musahars;

8. The frequency of the sterile women is quite high among the Dusadhs (5.25%) and lowest among the Pasis (2.51%);

9. The frequency of gross mortality is highest among the Musahars (33.68%) and lowest among the Pasis (18.51%) and it is almost of the same magnitude among the males and females within a population;

10. The number of dead children per mother is unfortunately very high (upto 6 children) in all the populations; the mean death per mother is highest among the Musahars (1.70%) and lowest among the Pasis

(0.80%). Post-natal deaths are also highest among the Musahars (31%) and lowest among the Pasis (16.95%);

11. The infant mortality rate is also highest among the Musahars (13.58%) but of lower magnitude among the Pasis and the Dusadhs (7% and 9%, respectively). Similarly, the adolescent mortality is highest among the Musahars (17.43%) and lowest among the Pasis (7.50%);

12. The frequency of age specific mortality is high among the children of age group upto one year and the value decreases with the gradual increase in their age in all the populations;

13. The frequency of child mortality is high among the mothers of age below 20 years and above 35 years in all the four Scheduled Castes;

14. The average number of surviving children (of age >15 years) per mother (of age ≥ 45 years) is highest among the Dusadhs (3.87%) and lowest among the Musahars (3.35%);

15. The secondary sex ratio (number of girls per 1000 boys) is highest among the Musahars (1015) and the lowest among the Chamars (824). The sex ratio has been found to increase with increase in mother's age;

16. The frequency of twin-births is very low; being highest among the Pasis (0.82%) and lowest among the Dusadhs (0.21%);

Figure 1 illustrates the Mean age (X) at marriage among males (In years) and shows that it was highest among Dusadh while lowest among Musahars. In terms of females, too, the trend was same as shown in Figure 2. Figure 3: Mean age differences (X) of spouses at the time of their marriage (in years) again shows the same trend. Mean active fertile age in females (in years) was found to be almost same in all the four castes, as shown in Figure 4. Figure 5 illustrates the Mean waiting period in mothers (in Years), it was found to be the highest in Chamars while lowest in Dusadhs. Mean age at first motherhood (in years) is illustrated in Figure 6 which shows that it is almost same for all the above talked four castes. But, on the other hand Mean age at the First Fatherhood (in years) was found to be the highest among Pasis & lowest among Musahars as shown in Figure 7. Mean number of children born per mother (Figure 8) was found to be highest among Dusadhs and lowest among Pasis. Figure 9 illustrates the Gross Mortality Rate (GMR) in the populations (%) and shows it to be highest among Musahars while lowest among Chamars. Mean number of children dead per mother was found to be highest among Musahars and lowest among Pasis as Figure 10 illustrates. Gross post-natal pre-adolescent mortality rate (%), Figure v11, was again highest among Musahars and lowest among Pasis. Mean No. of surviving children per mother of completed family, as shown in Figure 12, illustrates it to be highest among Dusadhs while it being lowest among Musahars. Figure 13 which represents the Secondary Sex Ratio (SSR) shows it to be highest among Musahars while lowest among Chamars. Figure 14 representing the Values of selection Intensity (I) illustrates it to be highest for Musahars and it to be lowest among Dusadhs.

The value of selection intensity (calculated from the fecundity and mortality rates and variance thereof) is highest among the Musahars (0.97) and the lowest among the Dusadhs (0.52). The Musahar population can therefore be considered as 'least fit' and the Dusadh population appear to be 'most fit' among the populations compared; the Pasis and the Chamars are in intermediate positions between the Musahars and the Dusadhs. **Hence, hereby we truthfully satisfy the norm, Caste Variation in Reproductive Health of Women.**

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GRAPHS

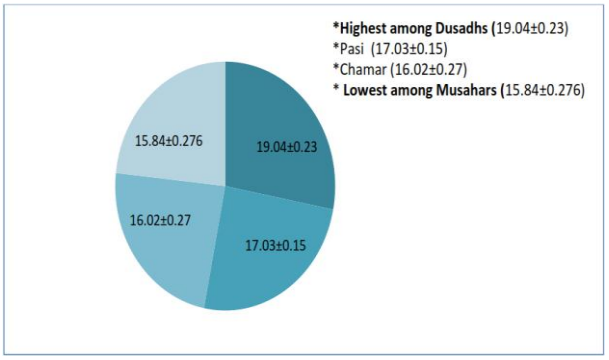

Fig 1: Mean age (X) at marriage among males (In years)

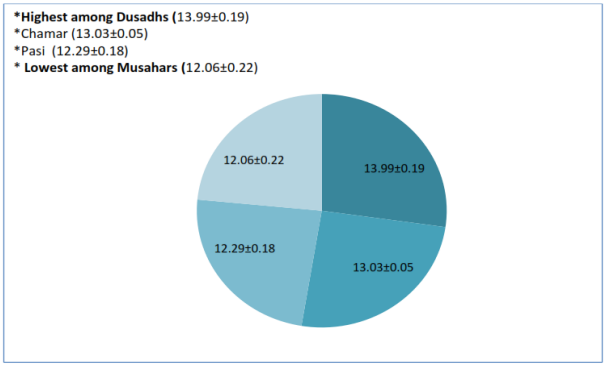

Fig 2: Mean age(X) at marriage among females (In years)

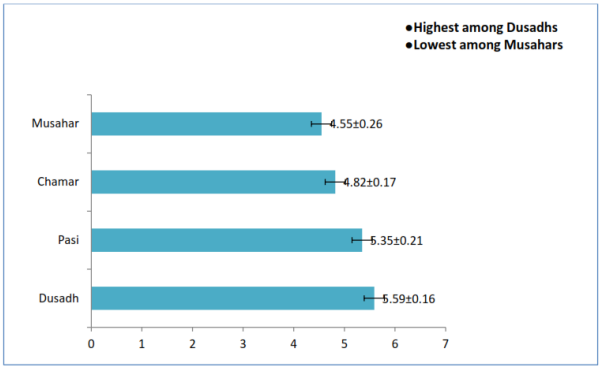

Fig. 3: Mean age differences (X) of spouses at the time of their marriage (in years)

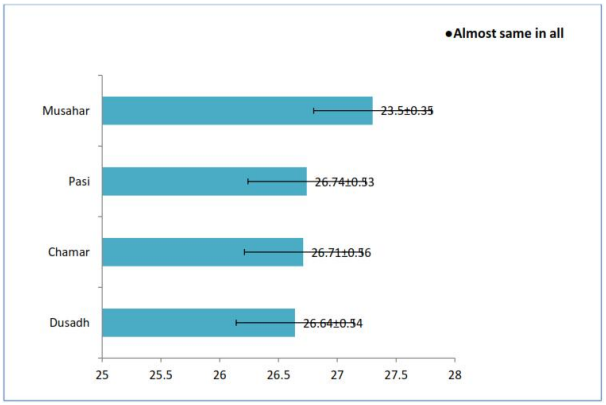

Fig 4: Mean active fertile age in females (in years)

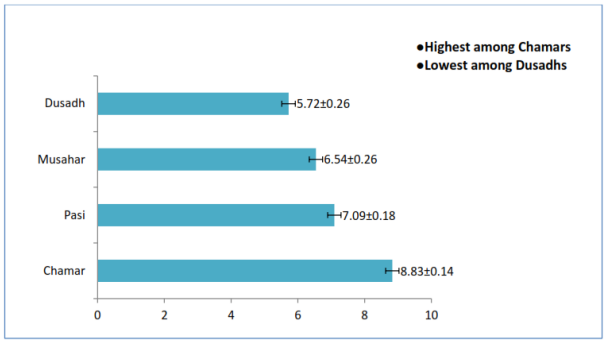

Fig 5: Mean waiting period in mothers (in Years)

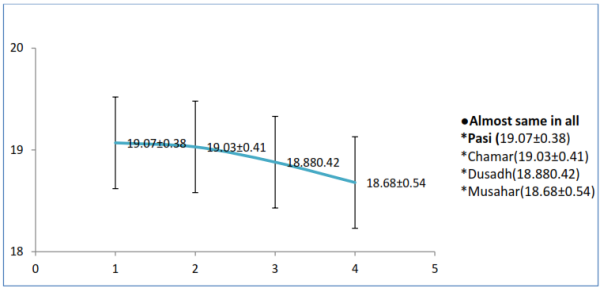

Fig 6: Mean age at first motherhood (in years)

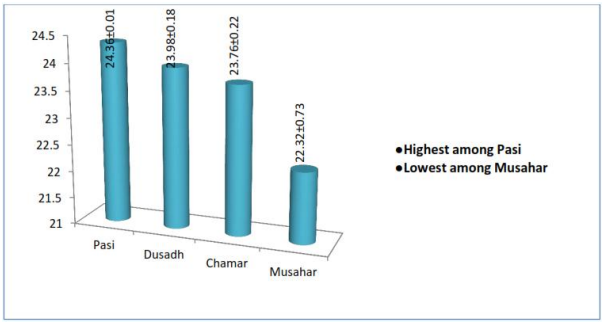

Fig 7: Mean age at first fatherhood (in years)

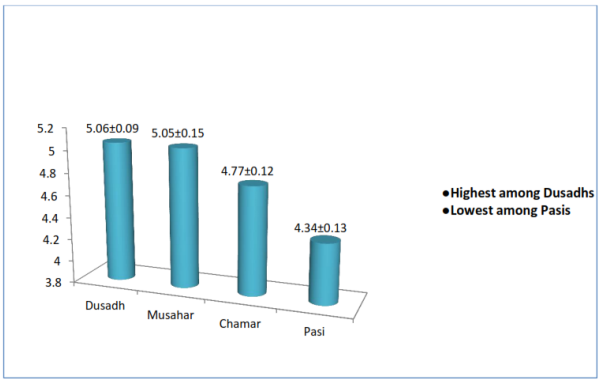

Fig 8: Mean No. of children born per mother

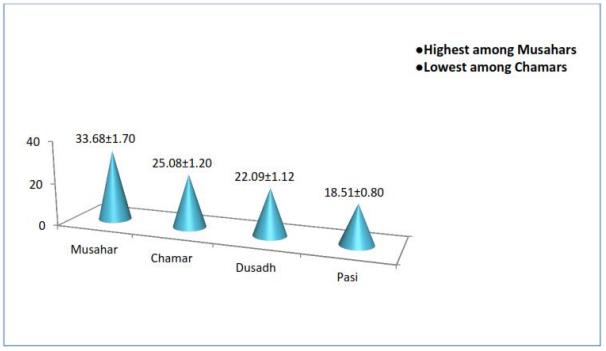

Fig 9: Gross Mortality Rate (GMR) in the populations (%)

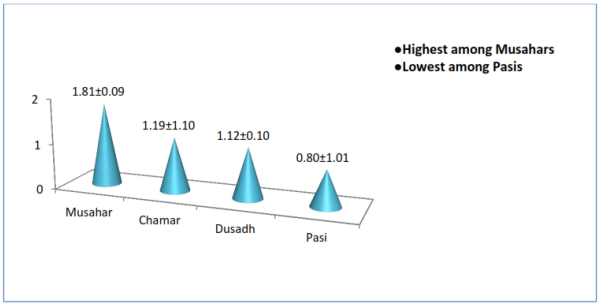

Fig 10: Mean No. of Children dead per mother

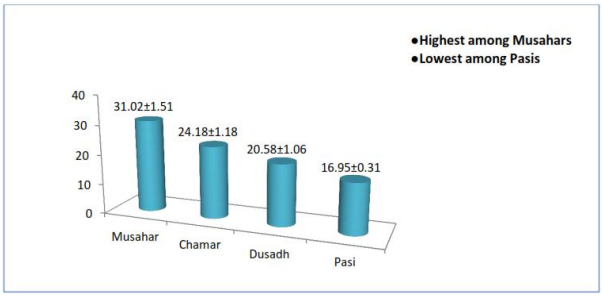

Fig 11: Gross post-natal pre-adolescent mortality rate (%)

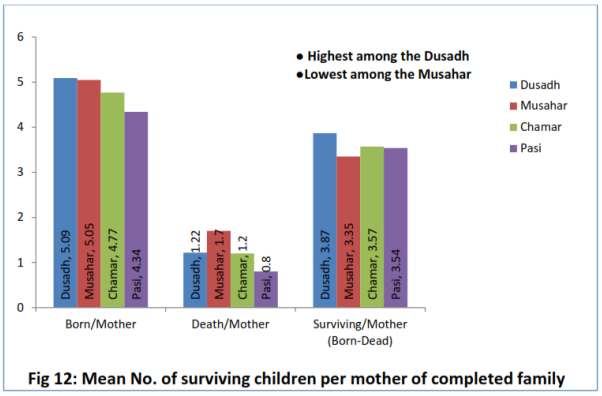

Fig 12: Mean No. of surviving children per mother of completed family

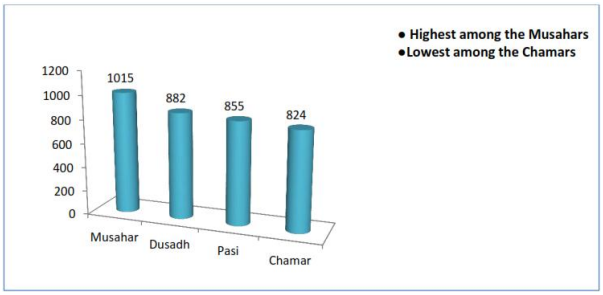

Fig 13: Secondary Sex Ratio (SSR)

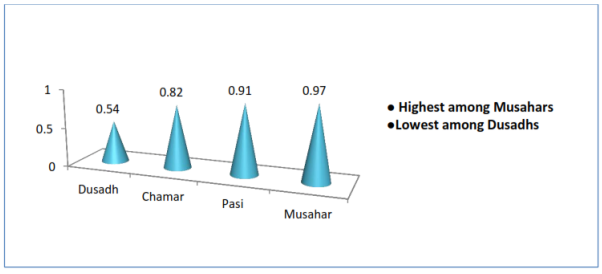

Fig 14: Values of selection Intensity (I)

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