

Secondary Sex Ratio in a Sample of the Ladiya Population of Sagar (Madhya Pradesh)

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INTRODUCTION

Sex ratio, an indicator of relative number of males and females in a population is a basic measure in demography, population biology and epidemiology (Barua, 1983). Secondary sex ratio normally refers the sex ratio of live births in a population.

In man equal numbers of homogametic zygotes would be expected, but vital statistics from different parts of the globe shows that there is a preponderance of male births to female births. Sex ratio can be considered as an important polymorphism which is determined by a simple genetic switch mechanism and subject to selection (Allison, 1977).

There are many factors which are believed to be related to the sex ratio of the liveborn. Allison (1977) opined that sex ratio among births is inversely correlated with parental age. Barua (1983) studied both primary and secondary sex ratio among the Hajong of Meghalaya and reported higher secondary sex ratio among them. Kang and Cho (1962) found that sex ratio decreases with increasing birth order among the Korean population. Similarly, Rakshit (1960) also observed the trend in favour of progressive lowering of sex ratio with increasing birth order among the Purum Kuki of Manipur. Whereas, Mondal's (1993) study among the Tangsa of Arunachal Pradesh depicts no definite relationship between secondary sex ratio and birth order. Keeping the above in view an attempt has been made in the present study to provide certain information on secondary ratio among the Ladiya of Sagar district, Madhya Pradesh.

MATERIAL AND METHODS

For the present study data were collected during September, 1998 on 188 unrelated women belong to the Ladiya residing in Pathariya Jat village of Sagar district, Madhya Pradesh. As the Ladiya are sparsely distributed in different villages of Sagar district a Ladiya predominant village (i.e.

Pathariya Jat) was deliberately chosen and all the Ladiya households in that village were covered during survey. Answers were recorded in the questionnaire by personal interview. The sex ratio is defined in the present study as the number of males per hundred females.

RESULTS AND DISCUSSION

Table 1 shows the secondary sex ratio values among the Ladiya according to order of birth. It reveals that secondary sex ratio is highest in first birth order and lowest in eighth and above birth order. In the second, third and fourth birth orders also secondary sex ratio is found to be considerably high. It reveals that secondary sex ratio decreases as birth order increases. Thus, secondary sex ratio indicates an inverse relation with birth order. Similar type of inverse relationship is also reported among the Purum Kuki of Manipur (Rakshit, 1960) and the Korean population (Kang and Cho, 1962). However, when χ^2 test is performed it is seen that the association between secondary sex ratio and birth order is not significant statistically ($\chi^2=8.92$) among the Ladiya.

It can be recapitulated here that sex ratio

Table 1: Sex ratio according to birth order

Birth order	Live birth	Male	Female	Sex ratio
1	182	113 (62.09)	69 (37.91)	163.77
2	170	93 (54.71)	77 (45.29)	120.78
3	155	87 (56.13)	68 (43.87)	127.94
4	129	73 (56.59)	56 (43.41)	130.36
5	105	54 (51.43)	51 (48.57)	105.88
6	84	44 (52.38)	40 (47.62)	110.00
7	68	32 (47.06)	36 (52.94)	88.89
8+	100	47 (47.00)	53 (53.00)	88.68

Figures in parenthesis indicate percentage values

among births is inversely correlated with parental age (Allison, 1977). In view of this suggestion, an attempt has been made to deal with secondary sex ratio in terms of mother's and father's age and the results are given in table 2 and 3, respectively. It appears that secondary sex ratio is highest

Table 2: Sex ratio according to mother's age

Mother's age (in years)	Live birth	Male	Female	Sex ratio
-20	28	18 (64.29)	10 (35.71)	180.00
21-25	54	35 (64.81)	19 (35.19)	184.21
26-30	146	87 (59.59)	59 (40.41)	147.46
31-35	149	86 (57.72)	63 (42.28)	136.51
36-40	106	61 (57.55)	45 (42.45)	135.55
41-45	106	56 (52.83)	50 (47.17)	112.00
46-50	168	83 (49.40)	85 (50.60)	97.65
51+	236	117 (49.58)	119 (50.42)	98.32

Figures in parenthesis indicate percentage values

Table 3: Sex ratio according to father's age

Father's age (in years)	Live Birth	Male	Female	Sex ratio
-25	29	17 (58.62)	12 (41.38)	141.67
26-30	50	31 (62.00)	19 (38.00)	163.16
31-35	116	69 (59.48)	47 (40.52)	146.81
36-40	122	79 (64.75)	43 (35.25)	183.72
41-45	115	68 (59.13)	47 (40.87)	144.68
46-50	117	67 (57.26)	50 (42.74)	134.00
51-55	121	57 (47.11)	64 (52.89)	89.06
56+	323	155 (47.99)	168 (52.01)	92.26

Figures in parenthesis indicate percentage values

among the mothers belong to 21-25 years age group, while the lowest is in 46-50 years age group. A declining trend of secondary sex ratio is evident as the mother's age increases. Thus, there exists an inverse relation between mother's age and secondary sex ratio (Table 2). Side by side, when the father's age is taken into consideration it is seen that there also exists an inverse relationship between father's age and secondary sex ratio. Highest secondary sex ratio is recorded among the fathers belong to 36-40 years age group, while the lowest is recorded in 51-55 years age group (Table 3). Thus, these findings are in congruence with the view of Allison (1977). However, when the χ^2 values are calculated it is found that association between mother's age and secondary sex ratio is statistically insignificant and ($\chi^2 = 10.1$) But the association between father's age and secondary sex ratio is significant statistically ($\chi^2 = 17.21$).

In fine, it can be said that there is a prepon-

derance of male births to female births among the Ladiya, which resulted in higher secondary sex ratio among them. This might be due to the formation of a higher proportion of functional Y-bearing spermatozoa than X-bearing spermatozoa during fertilization in this population. Birth order, mother's age and father's age all are found to be maintaining an inverse relationship with secondary sex ratio, which buttressed the findings of different authors on this aspect.

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KEY WORDS Live Births. Sex Ratio. The Ladiya.

ABSTRACT The paper deals with the secondary sex ratio among the Ladiya, residing in Pathariya Jat village of Sagar district, Madhya Pradesh. The study reveals a preponderance of male births to female births. Birth order, mother's age and father's age all are found to be maintaining an inverse relationship with the secondary sex ratio. Though the association between father's age and secondary sex ratio ($\chi^2 = 17.21$) is statistically significant association between mother's age and secondary sex ratio ($\chi^2 = 10.1$) as well as birth order and secondary sex ratio ($\chi^2 = 8.92$) is statistically insignificant

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