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A STUDY OF THE PHENOMENON OF DEMOGRAPHIC TRANSITION AMONG THE LADIYA OF MADHYA PRADESH, INDIA

ABSTRACT: Relationship between fertility and mortality has been studied among the Ladiya of Pathariya Jat village of Sagar district, Madhya Pradesh. The study reveals a marked positive relationship between the women's fertility and the number of infant deaths. Mothers' fertility is found to be higher in the families where high infant deaths occurred. The present study suggests that higher fertility of the Ladiya mothers (women) may compensate the loss of children due to high infant mortality.

KEY WORDS: Fertility – Mortality – The Ladiya

INTRODUCTION

The relationship between fertility and mortality has been called the "demographic transition" (Brown, Wray 1974). In all societies, high levels of infant and child mortality have an impact on the fertility levels. The relationship operates through biological and social mechanisms. Likewise, high levels of fertility – operating through a similar bio-social mechanism – contribute to maintaining high levels of infant and child mortality (Ruzicka, Kane 1987). It is apparent from the studies conducted by many authors (Woodbury 1926, De Jong 1972, Brown, Wray 1974, Frisancho *et al.* 1976, Krishan 1976, Basu 1989, and many others) that the higher the mortality, the fertility will increase in order to compensate the loss due to mortality. In view of the above an attempt has been made in the present study to examine the relationship between the fertility of the Ladiya mothers and infant mortality among their offspring on the basis of a sample from the Ladiya population group of Sagar district, Madhya Pradesh.

MATERIAL AND METHODS

As the Ladiya are sparsely distributed in different villages of Sagar district in Madhya Pradesh, a Ladiya dominant village (Pathariya Jat) was deliberately chosen for the sake of the present study. All the Ladiya households in the village were covered during the survey. The village Pathariya Jat is situated between 23° 48' north latitude and 78° 47' east longitude. The data were collected in the month of September 1998 using structured schedules. The sample consists of 188 ever pregnant Ladiya women.

Though the primary occupation of the people in rural Madhya Pradesh is agriculture, only a small proportion of the Ladiya were found to be engaged in cultivation in Pathariya Jat. This is because of the small land holding by this population. They depend mainly on daily labour and masonry for their subsistence economy.

RESULTS

Mortality information of the offspring of the ever pregnant Ladiya women is shown in *Table 1*. It reveals that 3.92% of all offspring died within their intrauterine period of life and 10.98% of all live-born offspring died before the age of one year. Whereas, the mean of live birth is 5.28 among them. Considering the number of pregnancies of the mothers as regressor (i.e. X) and the number of infant deaths among their offspring as regressand (i.e. Y) the correlation coefficient between number of pregnancies of the mothers and the number of infant deaths is found to be +0.4599. This suggests that there exists marked positive relationship between the fertility of the Ladiya women and the number of infant mortality.

Infant mortality according to different number of pregnancies can be seen in *Table 2*. It reveals that the rate of infant mortality increases as the number of pregnancies increases. But the incidence of infant mortality is found to be abnormally high (i.e. 51.85%) among the mothers beyond 12 and more pregnancies. This difference from the general trend may be due to the small sample size. When Chi² test is performed, it is found that there exists significant association between the fertility of the mothers in different categories and respective infant deaths ($\chi^2_{4df} = 32.46$, $p < 0.001$). However, when the binomial test for equality of proportion is applied, it is seen that there are significant differences between the

TABLE 1. Mortality records.

Number of ever pregnant mothers	188
Total number of pregnancies	1020
Total number of livebirths	993
Number of abortions	20
Number of stillbirths	20
Reproductive wastage	40
Number of infant deaths	109
Mean of live births	5.28
Prenatal mortality (in %)	3.92
Infant mortality (in %)	10.98

TABLE 2. Infant mortality according to different number of pregnancies.

No. of pregnancies	No. of mothers	Infant mortality rate (in %) of the offspring
1-3	56	7.38
4-6	66	8.71
7-9	46	9.22
10-12	18	14.44
12+	2	51.85

TABLE 3. Binomial test for equality of proportion between the mothers of different number of pregnancies in respect of infant mortality.

Pair by number of pregnancies compared	Infant mortality		
	T ₁	T ₂	Inference
1-3 vs 4-6	.0133	.0295	Not significant
1-3 vs 7-9	.0184	.0299	Not significant
1-3 vs 10-12	.0706	.0381	Not significant
1-3 vs 12+	.4447	.0758	Significant
4-6 vs 7-9	.0051	.0223	Not significant
4-6 vs 10-12	.0573	.0289	Not significant
4-6 vs 12+	.4314	.0656	Significant
7-9 vs 10-12	.0522	.0284	Not significant
7-9 vs 12+	.4263	.0656	Significant
10-12 vs 12+	.3741	.0810	Significant

TABLE 4. Mean live births of the mothers in families according to different number of infant deaths.

Families with different number of infant deaths	Number of families	Mean number of pregnancies per mother
0-1	40	5.47 ± 0.45
2-3	13	7.69 ± 0.64
4 and above	7	10.00 ± 1.07

t values: 0-1 vs 2-3 = 2.84* (d.f. = 51)
 0-1 vs 4 and above = 3.90** (d.f. = 45)
 2-3 vs 4 and above = 1.85 (d.f. = 18)
 * Significant at .01 level of probability
 ** Significant at .001 level of probability

pregnancies number 12 and more and another number of pregnancies (i.e. 1-3, 4-6, 7-9 and 10-12) in respect of infant mortality (Table 3).

In Table 4 fertility of the mothers (in term of mean number of pregnancies per mother) in families with different number of infant deaths has been presented. For this purpose 60 mothers were chosen from 60 different families. All these mothers completed fertility. It appears that fertility of the mothers is considerably high in the families where high infant deaths occurred. However, when mothers' fertility is compared, applying t-test, it is found that there exist significant differences in most of the cases.

DISCUSSION

The Ladiya of the present study represent the first stage of demographic transition, characterised by a high level of fertility and infant mortality (110 per 1000 live births). Mary Cross and Mackintosh (1954) opined that women having their fifth or more pregnancies tend to have a higher perinatal death rate than primigravidae. It appears from the present investigation that offspring mortality (prenatal + infant) rates are comparatively low in lower number of pregnancies, which are high among the mothers with higher number of pregnancies (offspring mortality rates are 11.72%, 12.38%, 12.74%, 17.10% and 53.57% for pregnancies

number 1-3, 4-6, 7-9, 10-12 and 12 + respectively). Thus, these findings corroborate the view of Mary Cross and Mackintosh (1954). Similarly, high levels of infant mortality among the mothers with higher fertility corroborate the earlier suggestions made by many authors.

It is to be noted that in the state of Madhya Pradesh the socio-economic development is relatively low when compared to most of the states of India (Kulkarni, Kumar 1991). Infant mortality rate in this state continues to be higher than in many other states (Gupta 1998). Living conditions of the Ladiya in Pathariya Jat are deplorable, characterised with marked poverty, lack of sewage and housing which consists mostly of one or two dwelling rooms per household. The Ladiya mothers in the present study are found to opt for frequent child bearing in order to make up the loss, despite the consequent risk of their own health as well as survival. The theory of demographic transition which is based on the experience of today's low birth rate (in industrialised) countries holds that the trends in birth rate and family size in a population are determined by the trends of economic production (Misra 1982). It is apparent from the present investigation that the Ladiya couples are motivated for keeping the level of fertility high in order to cope with the high level of infant mortality due to low level of socio-economic development.

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