Demographic and Socioeconomic Correlates of Infant Health in a Primitive Tribe of Chhattisgarh

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Abstract

The study aims to explore the socioeconomic and demographic correlates of infant health in 'Kamars' a primitive tribe of Raipur district in Chhattisgarh. A cross sectional survey with PPS sampling procedure was carried out in the study area. Information on all live births of ever married women (fertility history), demographic, socio-economic data and maternal and child health care was collected through structured scheduled. The total populations 3338 of 731 households were surveyed in 32 villages by trained investigators in 2006.The correlation analysis was used to estimate the association of demographic and socioeconomic characteristics with infant mortality.

The average age at first birth was 18.2 years. Most of Kamar tribe women are illiterate (92%), and almost all deliveries (96.9%) are conducted at home and about half of these (48.7%) are assisted by untrained personnel. Maternal age (R= -0.603) and education (R= -0.702) have substantial negative effect on infant mortality. The study showed an evident association of demographic & socioeconomic factors with infant mortality. The poor health delivery care systems remain an important barrier in rural setting due to lack of means of transport and distance to medical facilities. Social, cultural, economic and environmental factors also affect infant health, especially during the post-neonatal period.

Introduction

Infant and child survival is important parameters of health and development which are influenced by the socio-economic development and quality of life of population. It is also an outcome indicator of the utilization and effectiveness healthcare services. Worldwide about 8 million infants die annually before their first birthday (Population Reference Bureau, 2006). Each year, 10.7 million children under the age of five years die, out of them 4 million die during the first month of life. In the less developed countries, this account for 98 percent of reported neonatal deaths (Zupan, 2005). Vital indicators in India like crude birth rate (25.4), fertility rate (3.1) and infant mortality rate (61.47) has remained high as compared to developed countries and many developing countries (Sample Registration Bulletin, 2001). In India infant mortality rate is 68 (rural 74, urban 43), and in state Madhya Pradesh it is 88 (rural 94, urban 54). According to census 2001, 20.3% population of Madhya Pradesh and 31.8% of Chhattiagarh was tribal population. Studies on various primitive tribes of the state have shown high crude birth rate, total fertility rate and infant mortality rates (WHO, 2003; Census of India, 2001; Tiwari, 1984).

The infant mortality rate steadily declined from 26.0 per 1,000 live births in 1960 to 6.9 per 1,000 live births in 2000. But M.P/ Chhattisgarh states has been facing great problem in reducing it due to poor socioeconomic conditions. Socio-economic and environmental factors such as education, income, occupation, sanitation, supply of potable water, safe cooking fuel, type of house, crowding, separate room as kitchen

etc and maternal and child health care factors affects utilization of maternal and child health services. The study aims to examine the socioeconomic status and delivery care practices and there effect on infant mortality in Kamar – primitive tribe.

Material and Methods

A survey was carried out in 32 villages of Kamar tribes scattered throughout in three blocks namely Gariaband, Chhura, and Mainpur of Raipur district, Chhattisgarh. Villages were selected through Probability Proportion to Size (PPS) sampling procedure. Over all 731 households were surveyed in these villages covering a population of 3,338.

The data was collected by trained investigators through structured scheduled in year 2006. The present study is based on a sample of 565 eligible Kamar women. Ever married women (including divorced, separated, widowed) in the age group 15-49 years from samples household were interviewed. Institutional ethics committee approved the study and written consent was obtained from the respondents. In case of illiterates, consent was obtained in the form of thumbing.

Statistical Analysis

The correlation analysis was applied to estimate the relation between socioeconomic (maternal education, mothers work status, crowding) and demographic (mothers age, multiple birth, birth order and sex of child) characteristics on infant health.

Spearman's rank correlation coefficients were used to examine the relationships between demographic and socioeconomic characteristics of infant deaths. Data was analyzed with SPSS 10.0 -PC software package. For this, the values of variables x and y are separately ranked from 1 to n in increasing order of magnitude. Rank correlation is the ordinary product-moment correlation coefficient between ranks of x and ranks of y but the formula simplifies to the following.



where d = (rank of y – rank of x) and the summation is over all n pairs of observations.

Results

1. Demographic and socioeconomic status

About 42.4% of Kamar population was below 15 years of age, 54.5% in 15-59 years of age and 3.1% above 60 years of age. The child and old dependency ratio is calculated to be 78% and 6% respectively. Table-1 shows the socioeconomic status of the tribe, majority of families were nuclear families. Lower educational level of tribal women was observed as it 97% are illiterate. About two percent women were educated up to primary level while only negligible (1.1%) were high school or higher educated. Mean age at marriage was 16.7 years and 17.4 years for women and men respectively. More than fourty percent women engaged in bamboo work and 30% in agriculture work. The average size of household was 4.6 persons per household and sex ratio estimated 954 female per thousand male.

Table 1: Distribution of Socioeconomic Status of study population

Characteristics of household	
Nuclear	86 %
Joint	14 %
Average household size	4.6 persons
Average age at marriage women	16.7yrs
Average age at marriage men	17.4yrs
Sex Ratio (female/ thousand male)	954
Source of drinking water	
Well	16 %
Hand pump	67 %
Stream/River	17 %
Characteristics of women	
Education	
Illiterate	97 %
Literate up to primary	1.9 %
Literate up to secondary	1.1 %
Occupation	
Bamboo work	41 %
Agriculture	30 %
Laborers	29 %

2. Correlation between demographic variables and infant mortality

Table-2 shows that about half of the children born to women aged 20-29 years died during infancy period. Younger mothers (below 20 years) assimilate about quarter infant death due to teenage pregnancy complications. About 96.9% home deliveries and 48.7% were assistance by untrained personnel in study population. Birth order was also affect to probability of infant survival. Likelihood of male child survival was lowered than to female child. Correlation coefficients between demographic variables and proportion of infant mortality were estimated to study the relationship. Among variables, mother's age at the time of childbirth association significantly negative (R= -0.603) with infant mortality. Child birth order was also correlated negatively (R= -0.492).

Table 2: Distribution of Demographic Variables and Correlation Analysis

Variables	Category	Proportion of Infant mortality	Correlation Coefficient(R)
Infant mortality	Child dead within first year of life	0.110	
Demographic Variables			
Mother's Age			
<20	Mother's age less than 20 years	0.032	
20-29	Mother's age 20-29 years	0.045	- 0.603
30-39	Mother's age 30-39 years	0.021	
40^{+}	Mother's age 40 or above years	0.012	
Multiple Births			
Yes	Child born multiple	0.007	0.091
No	Child born single	0.103	
Birth Order			
1	Child's birth order 1	0.019	
2-3	Child's birth order 2 or 3	0.038	- 0.492
4-5	Child's birth order 4or5	0.028	
6+	Child's birth order 6or above	0.023	
Sex			
Male	Child is boy	0.059	0.132
Female	Child is a girl	0.051	

Number of Live Births: Number of children included in the analysis 1676

Table 3: Distribution of Socioeconomic Variables and Correlation Analysis

Predictor Variables	Proportion of Infant mortality	Correlation Coefficient (R)
Socioeconomic Variables		
Maternal Education		
Illiterate	0.092	
Literate up to primary	0.013	
Literate up to secondary and above	0.005	- 0.702
Mother's Work Status		
Bamboo Work	0.046	
Agriculture	0.033	
Laborers	0.031	- 0.221
Crowding		
Yes (>3 persons/room)	0.049	
No <3 persons/room)	0.061	0.197

3. Correlation between Socioeconomic variables and infant mortality

Table-3 shows the results of correlation analysis for infant health. It can be observed from table that illiterate women have higher infant deaths. Among socioeconomic variables, maternal education (R= -0.702) has substantial negative effect on infant death. To understand the association of women's work with infant survival, women occupation was divided into three categories. Women occupation did not show any significant association with child deaths (R= -0.221). Household crowding indicator also illustrated a poor association with infant survival (R= 0.197).

Discussion

The level of infant and child survival is one of the key indicators of the improvement of the quality of life and population stabilization. It has generally been assumed that factors that affect fetal and neo-natal death are primarily endogenous (i.e. biological or demographic), while those which affect post-neonatal deaths are primarily exogenous (i.e. socioeconomic). Findings of survey show that maternal age playing significant role in infant survival. A clear implication of the finding is that reduction in teenage child bearing would lower infant mortality. Maternal education is associated substantially negatively with probability of dying in various ways: lower age at marriage, poor economic status, health choice problem and emphasis on child quality. Caldwell (1979) argued that maternal education of women plays an important role in determining child survival.

The deliveries which take place at homes and assisted by untrained persons, likely to be more unsafe and unhygienic, which often result in delivery-related complications leading to maternal and neonatal morbidity and mortality (Nandan and Mitra, 1996). Majority of delivery among Kamars take place at home 98% and only 1.1% at health Institutions. Longer birth interval between two births significantly enhances the chances of infant and child survival. Infant mortality was considerably higher among tribes than state and national average. Reduction of infant mortality has been on high priority for improving the health situation of the population. Since 2000, when the National Population Policy (National Population Policy, 2000) was initiated, enormous efforts are made to reduce infant mortality to less than 30 by 2010, but weak health care delivery systems remain an important barrier in rural setting.

Conclusion

Demographic and socioeconomic characteristics have a substantial negative effect on infant mortality. Primitive tribes have poor socioeconomic status, and their unique ways of understanding illness and health care. Communities can play an important role in this effort by encouraging pregnant women to seek prenatal care in the first trimester, which will ensure a better birth outcome. Efforts should be also made to increase the age at marriage, awareness of maternal and child health for reducing the infant mortality and improve demographic and socioeconomic conditions of tribal families for reducing the infant mortality.

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