

Educational Level and Infant Mortality in Scheduled Tribes Population in Surguja District, Chhattisgarh

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Abstract: This study aims to assess the status of infant mortality in the Scheduled Tribes population in the Surguja district and to compare the IMRs of Scheduled Tribes with that of Scheduled Castes and other Castes. The present study is based on the primary data. The study is based on 2691 individual mothers selected from 38 villages of 19 development blocks in Surguja district. Two types of schedules have been prepared for the data collection. The first one is based on information about the family, whereas the second one is based on that of an individual woman who has given birth to children within five years before the survey date or whose issues have died. In the Surguja district, IMR found among illiterate mothers is 77.4 per thousand, whereas that of literate mothers is 54.9 per thousand. The study reveals that the educational level is a main factor influencing the IMR.

Keywords: mortality, education, society, family

Mortality forms a basic component in population studies. To determine mortality in any region, the age structure makes the most significant demographic factor. The age-specific mortality is found to be higher for infants and old. However, infant mortality plays a key role in determining the mortality of any region.

Any region's infant mortality rate (IMR) makes a sensitive index in determining the region's development. The Geographers take a keen interest in infant mortality studies because it reflects the socioeconomic development of the region, in addition to its demographic significance. It is found that the mortality rate declines with the increase in age. It is the highest for infants. It gradually decreases with the age of persons due to several factors. The factors influencing mortality can

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be classified into two broad categories, i.e., first, the biological factors and second, the ecological ones.

Mother's education has a stronger negative relationship with infant mortality than any other socioeconomic variable. Education is directly associated with the mother's beliefs and attitudes concerning child health care. Educated mothers are more aware of their children's needs and remain attentive to many problems requiring immediate medical action. Moreover, education is also correlated with many other indicators of the level of life, which are believed to have a direct link with infant and child mortality. Higher education is indicative of lower fertility. With fewer children, the desire of parents for child survival becomes stronger. More investment in children's food, medical care and education is possible. Furthermore, the mortality arising from many births can be avoided by reducing the number of births (Das, 1988, p. 94).

Education makes a significant contribution to the development of any human group. The lack of education in a conservative society is the main reason for its economic backwardness. The demographers think that IMR reduces due to the rise in education level. In turn, the Infant mortality rate also decreases. A high negative correlation is found between the level of education and IMR worldwide. The investigation in United Nations (1961), and the Mysore population study, support the concept that there is a reduction in the IMR with the increase in the educational level of the populace.

Education also eliminates the social and psychological disparities among the people. Education is fundamental to individuals' and groups' social, economic and cultural progress. Apart from this, Education affects the birth rate, death rate, age of marriage, migration and economic patterns. Education is an indispensable index for population geography's social, economic and cultural progress. Education affects the mortality rate directly and indirectly. Education leads a person to progress by making him or her decent, intelligent and thoughtful. An educated person is careful toward his family welfare and is more aware of the standard of living. In contrast, illiterates remain orthodox, fatalistic and conservative regarding health and family planning measures. Thus, the IMR among illiterates is higher.

Education is related to many basic indicators of living standards, which are inverse to the mortality rate. (Gandotra and Das, 1988). Hobcraft (1983) explained that spreading education increases the child's survival rate. It works in three ways: first, through good health and personal care; second, by optimum use of health services and third, by improving the quality of children. The mothers' and fathers' educations are important in reducing the death of Infants. Education, especially the father's education, closely related to economic activity, affects the family income in

many studies (Lahari & Acharya, 1999). At the same time, a mother's education affects the family's health in terms of maternal care which reduces IMR considerably.

Research Questions

Physical isolation of the area is a limited scope to access the basic facilities like education and medical services. Geographically, the Bastar plateau in the south and Surguja Upland in the north are parts of the Chhattisgarh state (Vital Statistics, 2011). These areas have a high IMR compared to the state's average IMR of 61 per thousand. The Surguja district is part of the Surguja Upland, which has hilly terrain, forest cover, and inadequate availability of transport, health and educational facilities. The Surguja district has a high IMR of 71.3 per thousand, which includes an early mortality rate (22.2 per thousand), a Neonatal mortality rate (33.7 per thousand) and a postneonatal mortality rate (37.3 per thousand). In terms of IMR, it ranks fourth position in the state. The district has the highest IMR, more than the national average IMR of 57 per thousand and 61 per thousand of the state's average IMR. The literacy rate also affects the mortality rate. The mortality rate is inversely related to the level of education of parents. The district has a low literacy rate of 54.8 per cent. In addition, the mothers of the district have a very low literacy rate of 28.2 per cent of the total mothers, which directly or indirectly affects the IMR of the district. Economically, the district is very backwards compared to other Chhattisgarh Plain districts. The economic condition of the people has also influenced the IMR of the Surguja district. What is the status of rural IMR among the Scheduled tribe's population in the Surguja district? What are the reasons for high rural IMR in the district? What are the spatial differences of rural IMR in the Scheduled tribe population with other casts population of the district? How does the parents' educational level affect the IMR in the district? The tribal population is more concentrated in the district's hilly and forested areas. At the same time, access to medical and educational services is challenging for the people of the Surguja district.

In light of the above statements and research questions of the rural IMR of the Scheduled tribe's population in the Surguja district, the present paper has the following objectives to meet.

Research Objectives

The present study is based on the following objectives

- (1) The present study assesses infant mortality status in the Scheduled Tribes population in the Surguja district.
- (2) To compare IMRs of Scheduled tribes with that of Scheduled Castes and other Castes.
- (3) To analyse the impact of the level of education on the Infant mortality rate.

Sources of Data and Methodology

The present study is based on the primary data. The district has 1774 villages and 19 Community development blocks. Each block has many villages, between 90 to 120. Randomly, 2 per cent of villages were selected from each CD block of the Surguja district in 2010-11. In the present study, two villages from each of the 19 Development blocks of the Surguja district have been chosen by random sampling. The study is based on 2691 individual mothers selected from 38 villages of Surguja district (Fig. 1). It includes 1707 Scheduled tribes, 173 Scheduled Caste and 811 other backward classes. Scheduled tribes comprise Gond (429), Orao (439), Kawar (317), Bhuihar (159), Majhwar (87), Nagesia (73), and Korwa (63). On the other hand, the Scheduled caste includes Ghasia (61) and Satnami (53), while other backward class consists of Ahir (250), Panika (155) and Rajwar (134).

No information was collected from the houses, which are locked. Two types of schedules have been prepared for the data collection. The first one is based on information about the family, whereas the second one is based on that of an individual woman who has given birth to children within five years before the survey date or whose issues have died. Thus, the collected information relates to the infant death, the level of the mother's education and their determinants.

Figure 1



Study Area

The Surguja district of Chhattisgarh state, India, is between longitudes 82°35' E to 84°51' E and latitudes 22°37'22"N to 24°16'17" N. The headquarter of the district is Ambikapur. The states adjacent to the district are Uttar Pradesh in the North and Jharkhand in the east. Raigarh and Korba's districts are in the south, Jashpur district in the east, and Korias district in the west. As per the Census of India, the district's population was 23,59,886 in 2011. The gender ratio is 978 females per 1000 males. The literacy percentage of the district is 54.8%. The district's landscape is mixed with uneven lands, deep forests, hilly areas and arid terrains. The total area of the district is 15,731 sq km. The district has five subdivisions, nine tahsils and 19 development blocks. The urban population is merely 7% of the district's total population. Ambikapur City is the centre of administration.

The district has a population with the Scheduled Tribes in the majority (54.6%), whereas the Scheduled Castes (4.8%) in the minority. The Tribes of Pando and Korwa clans still dwell in the forests. They dwell in the deep forests unexposed to modern civilisations; they are backwards- tethered with conservatism, bonded with religions, social traditions and caste system, unaware of the modern education system. Because of uneven land, the district's transportation facility is uncomfortable, leading to costly medical facilities. Illiteracy and poverty are prevailing in the district.

The rock beds in Surguja district are of Archaean, Gondwana, Lameta and Deccan Lava types. Given the landform structures, the district is fraught with several hills, plateaus etc., forming Tablelands, locally called PATs. The landforms in the eastern and northeastern regions are high-even, mainly the plateaus of Mainpat, Jarangpat, Jamirpat and Lahsunpat. In the central region, the narrow valleys of rivers—Rihand, Kanhar, Hasdeo, Gopad, Banas and Mand exist, often causing cold waves with the fall of temperature down to 3°C in January. Alluvial soil deposits are found on the banks of big and broad rivers.

Results and Discussion

Infant Mortality Rate (IMR)

The infant mortality rate (IMR) relates to the child-deaths within the first year of their age. It is a ratio between the number of infant deaths within one year of age and the total number of children born that year.

Infant deaths have several reasons. Demographers have categorised them into two major classes— Endogenous and Exogenous causes. Endogenous causes are biological, like underweight infants during their birth. The level of mortality is very high in the first few hours, days and weeks of life. The reasons for infant deaths at the

earlier and later stages of infancy differ to a certain extent; hence in a study of infant mortality, factors which affect fetal and neonatal deaths are primarily endogenous, while those which affect post-neo-natal deaths are primarily exogenous. The endogenous factors to the formation of the fetus in the womb are, therefore, mainly biological. Among the biological factors affecting fetal and neonatal infant mortality rates, the important ones are the mother's age, the birth order, the period of spacing between births, prematurity, weight at birth and the fact of multiple births. Exogenous causes—social, cultural, economic and environmental factors—affect infant mortality, especially during the post-neo-natal period. Post-neo-natal deaths are, therefore, mainly due to various epidemics caused by communicable diseases, both of the digestive systems, such as diarrhoea and enteritis and of the respiratory system, such as bronchitis and pneumonia, as well as by faulty feeding patterns and poor hygiene. The underlying environmental factors include crowding and congested surroundings, lack of proper sunshine and fresh air, etc. (Bhende & Kanitkar). The Exogenous causes relate to ecology – the environmental pollution leading to diseases like pneumonia, the major cause of fever reporting the highest IMR (23.1 per thousand) second cause of higher IMR is diarrhoea (12.6 per thousand). The cause of underweight childbirth leads to IMR (7.4 per thousand).

The IMR (71.3 per thousand) in Surguja district is higher than that of the entire India (57.0 per thousand) as well as that of Chhattisgarh state (61.0 per thousand). The baby boys of the district have more IMR (72.0 per thousand) than baby girls (65.4 per thousand). There have been consistent reports of sex differences in infant mortality in developed countries. Some studies showed that girls suffer excess mortality in societies like India (Das Gupta, 1990), whereas others reported the reverse (Miller et al., 1992). The IMR has been found in different blocks of the district. The highest IMR is noted for Udaipur Block (108.5 per thousand), that before it is for Batauli Block (102.5 per thousand). The lowest IMR is noted for the Kusmi block (34.7 per thousand). The higher IMR for above mentioned two blocks can be attributed to the higher population of tribes (70.6%) dwelling in these blocks. The major reasons for higher IMR obviously can be ascribed to prevailing superstitions, conservatism, the modus vivendi, traditions and rituals.

In the district, perinatal MR is 22.3 per thousand, Neonatal MR is 33.9 per thousand, and postneonatal MR is 37.4 per thousand are found. IMR is the highest in January (9.7 per thousand), whereas it is the lowest in February (2.3 per thousand).

The IMR is more in tribes (74.3 per thousand) than Scheduled cast (54.9 per thousand). The highest IMR is found in the tribe of blacksmiths (360.0 per thousand), and the lowest is found in the Bhuihartribe (19.5 per thousand). The major causes of IMR are Pneumonia (23.1 per thousand), Diarrhea (12.6 per thousand) and low weight of birth (7.4 per thousand) in the Surguja district. The

maximum IMR has been recorded in the January (9.7 per thousand) and May (9.4 per thousand) months. May is the hottest month, and January is the coldest month in the district. Due to this reason, IMR is high in these two months of the year. The scheduled tribe population has the highest IMR with 74.3 per thousand, followed by Other backward classes (71.3 Per thousand) and Scheduled caste (54.9 per thousand). The IMR among the scheduled tribe population has the maximum found in the Kavar tribe, with 82.7 per thousand, followed by Orav (74.6 per thousand) and Gond (68.9 per thousand). Satnami caste has observed the highest IMR of 62.5 per thousand in the Scheduled caste population and Ahir (78.3 per thousand), Panika (58.8 per thousand), and Rajwar (52.2 per thousand) in other backward classes.

Spatial Pattern of Infant Mortality in Surguja District

In Surguja District, the Infant Mortality Rate (IMR) is 71.3 per thousand. The IMR, however, is different for all 19 development blocks of Surguja district. The highest IMR (195.0 per thousand) is found in the Udaipur block, whereas the lowest (34.7 per thousand) is noted in the Kusmi block. Based on IMR, the blocks of the Surguja district are divided into three areas, as given below (Fig. 2, 3, 4):

1. Area of high infant mortality rate (HIMR): >70 infants per thousand.
2. Area of relatively medium infant mortality rate (RMIMR): 50-70 infants per thousand.
3. Area of relatively low infant mortality rate (RLIMR): < 50 infants per thousand.

Figure 2

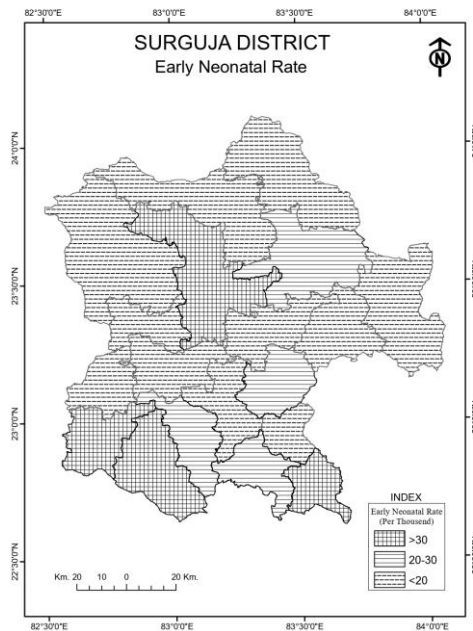


Figure 3

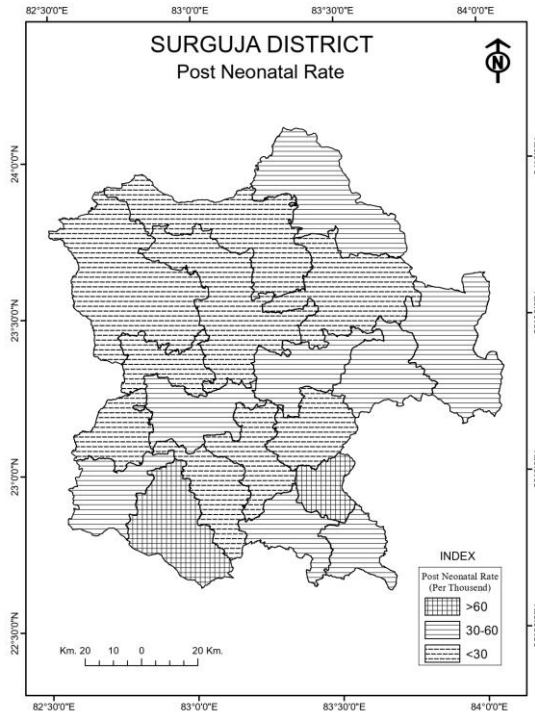
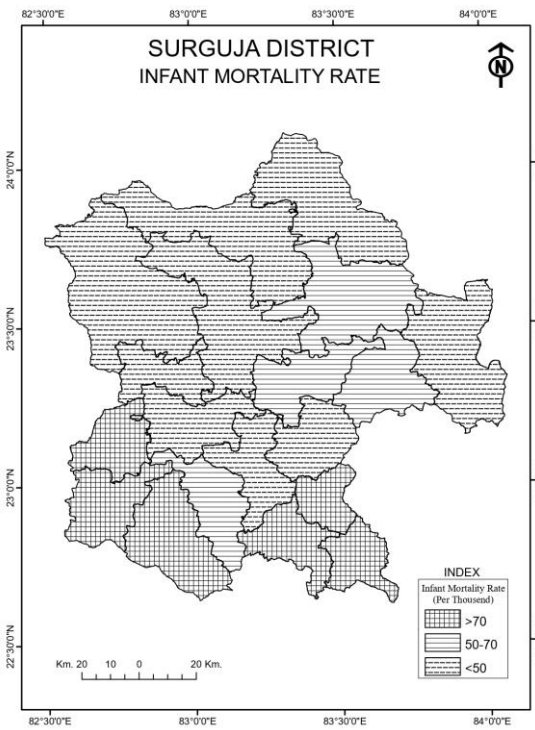


Figure 4



High Infant Mortality Rate (HIMR) Areas

The regions marked with HIMR in Surguja district include six development blocks- Udaipur, Batauli, Premnagar, Mainpat, Sitapur and Ramanujnagar. These areas have uneven lands situated at heights more than 900m from the sea level. Due to the uneven landscape, these regions face the scarcities of basic amenities of transport, medical and education. In turn, these regions witness more than 70 per thousand infant mortality. The highest mortality rate of about 195.0 per thousand is found in the Udaipur block, with an early neonatal mortality rate of 77.4 per thousand. The blocks of Batauli, Premnagar, Mainpat and Sitapur, and Ramanujnagar have IMR of 112.5, 100.3, 99.1 and 82.7 per thousand, respectively. The high early neonatal mortality rates in Sitapur and Premnagar blocks are 38.8 and 32.4 per thousand. Whereas neonatal mortality rates of 99.1, 56.6, 55.0 and 43.9 per thousand are noted in the blocks of Udaipur, Mainpat, Premnagar and Sitapur and Ramanujnagar (Fig. 2&4). The HIMR makes the marriage age of women less than 18 years. Only 49% of householders are found literate.

The mother's lower average marriage age and the smaller gap between birth cause a higher infant mortality rate. The 89.3% of women involved in obstetrics are mere unskilled assistants. The farming in these regions could be better due to unevenness caused by infertile land, resulting in the average family income below Rs. 20,000/- per annum. Thus the inhabitants of these areas are traditionally orthodox due to illiteracy, backwardness and superstitions.

Medium Infant Mortality Rates (RMIMR) Areas

The four development blocks- Shankargarh, Balrampur, Lakhanpur and Rajpur, fall in the regions of RMIMR of Surguja district. The average height of these regions is 600 m above sea level. These regions are interstitially plateaus and basins. These regions are parts of the Surguja basin and Jarangpat plateau. The IMR of 50-70 per thousand is noted, making the area of RMIMR. The literacy rate below 40% is found in these areas. Among these areas, IMR ranges from 52.6-68-6 per thousand. It is in Shankargarh block 68.6, Rajpur block 52.6 and Balrampur block 67.7 per thousand. The early neonatal mortality rate (ENMR) is highest in Lakhanpur Block at 26.9, Rajpur Block at 15.8, Balrampur Block at 20.3, and Shankargarh Block at 19.6 per thousand. The neonatal infant mortality rate (NIMR) is highest in Balrampur Block at 54.1, Rajpur Block at 15.8, Lakhanpur Block at 37.6 and Shankargarh Block at 19.6 per thousand. The higher infant mortality rate in these regions is ascribed to low marriage age (17.1 Years), low literacy rate (50.3%), low family income (Rs. 18,926.00 per/annum), and poorer obstetrician facilities 91% of child delivery are performed by unskilled Assistants, neighbours and relatives.

Relatively Low Infant Mortality Rates (RLIMR) Areas

The nine development blocks of the Surguja district that fall under RLIMR are: These are Ambikapur, Pratappur, Kusami, Surajpur, Bhaiyathan, Lundra, Ramanujganj (Ramchandrapur), Odagi and Vadrarnagar. These areas are parts of basins of the main rivers- Surguja, Rihand and Kanhar basins making the land fertile. The average height above 450m from sea level is noted for these areas. The three main rivers- Rihand, Mahan and Kanhar flow through this region. The IMR of less than 50 per thousand in this region is relatively the least. It is highest in Ambikapur block (48.5 per thousand). Two blocks of Pratappur and Kusami have IMRs 43.5 and 34.7 per thousand, falling second and third in the ranking. Notably, the postneonatal mortality rate is also relatively low in Pratappur and Kusami blocks (Fig. 3). The average family income of these areas is Rs. 22,071.00 per annum, greater than those of the other two areas. The average age of marriage in these areas is greater than 18 years. In addition, about 13% of women deliver babies through doctors and skilled assistants; thus, these areas have better living conditions, better family income, better medical facilities and less infant mortality rates.

The Educational Level of Mothers and Infant Mortality Rate

Parents' educational levels form one of the most important social variables influencing mortality. However, most of the studies in this field give more significance to the educational level of mothers than that of fathers. As Jain (1985) rightly pointed out, adult women's literacy is a proxy for women's autonomy. It has been shown to affect infant mortality primarily through its association with indicators of better medical care at the birth of the child and perhaps during the prenatal period and secondarily through its association with indicators of preventive and curative medical care during the postnatal period. Thus, the deciding factors in reducing the level of infant mortality in rural areas are the educational level of the mothers and the time they devote to the care of infants who are constantly exposed to health risks, ever present in primitive and insanitary surroundings and that poorly educated mothers are less able to respond effectively to the threats presented by the physical environment. (Kumary, 1991, p. 58).

The relationships between a mother's educational level and infant and child mortality have received much attention recently. The median relative risks associated with a mother with little education contrasted with a mother with seven or more years of education. (Hobcraft et al., 1983).

A powerful case for the importance of maternal education as a determinant of child mortality has been made recently by Caldwell (1979). He concluded that maternal education was the most important single determinant of mortality in childhood.

The mother's educational level was the strongest, most effective single-factor determinant of infant, neonatal and postneonatal mortality (Ruzicka, 1983).

A mother's education level is the most important factor affecting infant mortality. It affects infant mortality rates (IMR) tremendously. The national-level IMR studies have confirmed the negative correlation between the IMR and the mother's educational levels; the lower IMR is found in educated mothers because of their better understanding of the importance of infant welfare, hygiene and child care. They avail of various government launched child care programs better than illiterate mothers. Due to a lack of education, illiterate mothers must know the available childcare facilities. Thus, IMR is found to be more related to illiterate mothers than that to educated mothers. The life expectancy of educated mothers' infants is more than that of illiterate mothers. Education of parents, especially of fathers, usually correlates strongly with the occupation and, therefore, with household income. (Khan, 1991)

The mother's level of education plays an important role in determining her family's health. Maternity care education radically changes her family's structure, for it influences the IMR in the long term. An educated mother knows better about prevalent diseases -epidemic, endemic or pandemic. She responds promptly to incoming as well as existing diseases. Moreover, she plans for an optimum number of children so that she gives appropriate care to their education, food, and hygiene and provides proper prenatal care to the infants (Gandotra and Das, 1988). The educated mother thus can take proper care of the fetus, which eventually causes a reduction in the IMR.

In an uneducated society, the infant mortality rate usually increases due to ignorance, indecision, fortune-keeping, traditional and scarce usage of family planning measures, family welfare and medical facilities. In the case of literate women, the death rate is lower than that of illiterate women. The root cause is that literate women understand the importance of child welfare, health and child-rearing responsibility. The children's deaths are noted more for primary school-educated mothers than that for highly educated ones.

Table 1

Surguja District: Educational Level of Mother and Infant Mortality Rate

Educational level	Number of mothers	Live births	Mortality	Rate (per thousand)
Graduate&above	16	21	0	0.0
Higher Secondary	40	51	0	0.0
High School	60	82	2	24.4
Middle	238	327	19	58.1
Primary	233	328	21	64.0
Literate Without	171	246	16	65.0

Educational level	Number of mothers	Live births	Mortality	Rate (per thousand)
Educational Level				
Literate	758	1055	58	55.0
Illiterate	1933	2844	220	77.4
Total	2691	3899	278	71.3

Source: Field Survey, 2010-11

The spectrum of mother's education in the Surguja district shows a total literacy of 28.2% which include 6.4% below primary level, 8.7% primary school level, 8.8% middle school level, 3.7% high school and higher secondary level and only 0.6% graduate and post graduated level.

According to the castes of Indian society, the education level of women; the highest 37.0% of women of Scheduled Caste (SC) are educated, then 32.8% of women of the other backward class (OBC), the lowest 25.10% of women of the Scheduled Tribes (ST) are educated in the district. The highest literacy in SC women is in the Satnami caste (35.8%), in OBC women is in the Teli caste (77.8%), whereas the lowest among OBC women is in the Lohar caste (8.6%). Literacy among ST women is found to be the highest (41.7%) in the Uraon caste, (33.4%) in the Kanwar caste, and the lowest (3.2%) in the Korwa caste women (Table 2).

Table 2

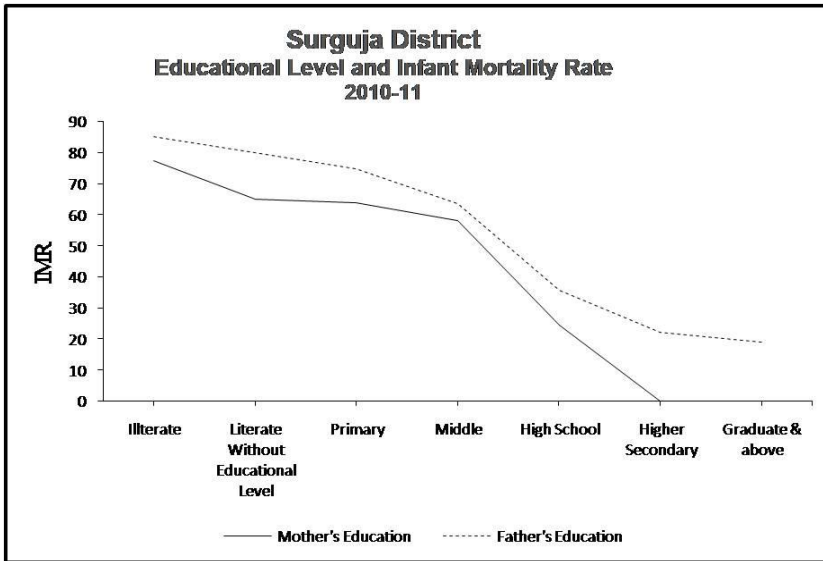
Surguja District: Caste-wise Fathers and Mothers Literacy

Caste	Mothers			Fathers		
	number	literate	per cent	number	literate	per cent
Gond	461	82	17.8	461	238	51.6
Uraon	439	183	41.7	439	297	67.7
Kanwar	317	106	33.4	317	183	57.7
Bhuinhar	159	15	9.4	159	55	34.6
Majhwar	87	3	3.4	87	21	24.1
Nigeria	73	13	17.8	73	34	46.6
Korwa	63	2	3.2	63	13	20.6
Agaria	36	4	11.1	36	14	38.9
Khairwar	22	7	31.8	22	11	50.0
Other	50	13	26.0	50	23	46.0
ST	1707	428	25.1	1707	889	52.1
Ghasia	61	11	18.0	61	42	68.9
Satnami	53	19	35.8	53	36	67.9
Other	59	34	57.6	59	42	71.2
SC	173	64	37.0	173	120	69.4
Ahir	250	52	20.8	250	115	46.0
Panika	155	58	37.4	155	102	65.8
Rajwar	134	37	27.6	134	100	74.6
Koira	35	7	20.0	35	14	40.0
Teli	36	28	77.8	36	34	94.4

Caste	Mothers			Fathers		
	number	literate	per cent	number	literate	per cent
Kumhar	35	6	17.1	35	21	60.0
Lohar	35	3	8.6	35	12	34.3
Other	131	75	57.3	131	108	82.4
OBC	811	266	32.8	811	506	62.4
Total	2691	758	28.2	2691	1515	56.3

Source: Field survey, 2010-11

Figure 5



The infant mortality rate of illiterate and literate mothers has 77.4 and 55.0 per thousand, respectively. The infant mortality rate is reduced with increasing educational levels. Primary school-literate mothers have an IMR of 64.0 per thousand, while the corresponding figure for high school-educated mothers with 24.4 per thousand. The neonatal mortality rate (NMR) related to illiterate and educated mothers are respectively 36.9 and 25.6 per thousand, which shows a decline with education (Table 1). The differential NMR with the level of education shows a considerable decrease in NMR. NMR relates to the levels of women's education – below primary, primary, middle, and higher secondary, respectively per thousand are 32.5, 30.5, 24.5 and 12.5. It indicates the fall in NMR with the increasing level of education. The IMR about illiterate mothers from various classes in the district viz ST, SC and OBC, respectively per thousand, are 78.2, 56.6 and 79.4. These are higher in comparison with those of the counterparts of literate women (Fig. 5). Among the tribes, the IMR concerning literate and illiterate women of the ST-Gond tribe are respectively 26.5 and 58.3 per thousand. In contrast, those of the ST-Kanwar tribe are respectively 89.7 and 114.8 per thousand showing an educational differentiation in IMR.

Educational Level of Father and Infant Mortality Rate

As hypothesised earlier, the father's education also has an inverse relationship with infant mortality in the cultural groups and the total population. Here again, infant mortality declined considerably with the advancement of education. (Kumary, 1991).

Father's education and the mother's also influence the infant mortality rate. Due to the father being educated, more attention is given to the infant's upbringing; the highly educated man also meditates on the health of the mother and family planning measures. The fertility rate is higher in illiterate families, and it considerably impacts the infant mortality rate. Thus, education indirectly affects the infant mortality rate. In many studies, there has been an adverse relationship between a couple's education and death in the family. At first, Couple's education enhances knowledge of health, income and health facilities (Achyut et al., 1999). There can be many arguments about the father's education and mortality, but the mother's education is a good indicator of social and economic factors which directly affect infant mortality (Hobcraft, 1983; Desai, 1998).

Table 3

Surguja District: Educational Level of Father and Infant Mortality Rate

Educational level	Number of Mothers	Live birth	Mortality	Rate (per thousand)
Bachelor and above	74	104	2	19.2
Higher Secondary	166	223	5	22.4
High School	184	252	9	35.7
Middle	417	597	38	63.7
Primary	393	573	43	75.0
Literate Only	281	412	33	80.1
Literate	1515	2161	130	60.2
Illiterate	1176	1738	148	85.2
Total	2691	3899	278	71.3

Source: Field Survey, 2010-11

56.8 per cent of fathers are literate in the Surguja district's surveyed family. Out of them, there are only 10.4 per cent only literate, include 14.6 per cent in primary school, 15.5 per cent in middle school and 6.8 per cent in High school, 6.2 per cent in Higher secondary school level, and 2.7 per cent of fathers who have completed graduate and postgraduate degrees.

In the Surguja district, the infant mortality rate with illiterate fathers is 85.2 per thousand, whereas that with literate fathers is 60.2 per thousand. The variation of IMR with the level of fathers' education shows a gradual fall IMR corresponding to only literate fathers, primarily educated fathers, middle school educated fathers,

high school educated fathers, higher secondary school educated fathers and graduate and higher educated fathers, respectively 80.1, 75.1, 63.7, 35.7, 22.4, and 19.3 per thousand (Fig. 5). The neonatal mortality rate in illiterate father is 40.3 per thousand and 38.8 per thousand in literate father. The IMR among the fathers includes the primary level of 36.6 per thousand, while at the high school level, it is reduced to half. The infant mortality rate with illiterate fathers is 43.4 in boys and 37.1 per thousand in girls, gradually decreasing at the high school level to 15.4 and 16.4 per thousand (Table 3).

In Surguja district, literate fathers of scheduled tribes are 52.1%, of scheduled caste with 69.4 per cent and another backward category with 62.4 per cent. The most literate fathers of the Uraon caste in scheduled tribes is 67.7%; on the contrary, that of Korwa is the lowest, i.e., 20.61%, 57.3% in Kanwar, 51.6% in Gond, 50% in Khairwar and 46.6% in Nigaria. In scheduled castes, literate fathers are 68.9% in the Ghasia, 67.9% in the Satnami, whereas, in the other backward castes, the highest is in the Teli caste (94.4%). In contrast, the lowest is in Lohar (34.3%). These are 74.6% in Rajwar, 65.8% in Panika, 60% in Kumhar, 46% in Ahir and 40% in Koira.

In the Surguja district, the infant mortality rate corresponding to illiterate fathers in scheduled tribes is 81.7 per thousand, in scheduled castes is 40.0 per thousand, and in other backward classes is 101.3 per thousand. In the Gond tribe, the infant mortality rate corresponding to illiterate fathers is 76.7 per thousand. Whereas 95.2 per thousand illiterate fathers of Uraon and 65.2 per thousand literate fathers. Kanwar, this rate is 116.4 per thousand, while 99.6 per thousand. The infant mortality rate among the illiterate father of other backward classes is a 99.5 per thousand increase, only literate 69.0 per thousand, in primary 76.0 per thousand, middle level 50.0 per thousand, and this rate decreased at higher secondary 37.0 per thousand. The infant mortality rate for illiterate fathers in Panika is 63.3 per thousand and for literate fathers 56.3 per thousand, and in Rajwar infant mortality rate is only literate fathers 41.7 per thousand, primary 57.7 per thousand and 71.4 per thousand in the middle level (Table 2).

Educational Level of the Woman and her Husband and Infant Mortality Rate

Parents' Education, especially of the father, usually correlates strongly with occupation and household income. Thus, in many cases, the correlation between infant survival in the first week of life and parents' education level largely occurs because of operation on intermediate determinants through the income effects. Parent education also influences attitudes towards health and health-related matters, and income helps materialise the utility of available health facilities. Above all, an educated woman can care for herself and her newborn better than an illiterate woman. (Achyut et al., 1999, p. 246).

The high education level of the women and their husbands reduces the rate of infant mortality. Compared to an illiterate woman and her illiterate husband, the literate woman and her literate husband understand better the Government facilities and programs for pregnancy, delivery and care post-birth period. Therefore, the educational level of spouses influences the infant mortality rate very much. A high negative correlation is found in IMR with the educational levels of both spouses.

Table 4

Surguja District: Educational level of Women and their husbands an infant mortality rate

The academic level of the Husband/female		Graduate and above	Higher Secondary	High school	Middle	Primary	Only literate	Literate	Illiterate	Total
Graduate and above	Number of couples	9	3	4	0	0	0	16	0	16
	IMR	0	0	0	0	0	0	0	0	0
Higher Secondary	Number of couples	7	24	8	1	0	0	40	0	40
	IMR	0	0	0	0	0	0	0	0	0
High School	Number of couples	15	28	8	6	3	1	60	0	60
	IMR	0	27.0	0	100.0	0.0	0.0	24.4	0	24.4
Middle	Number of couples	25	51	47	86	18	2	227	11	238
	IMR	55.6	0.0	34.5	74.4	120.0	0.0	51.9	157.9	58.1
Primary	Number of couples	8	21	38	84	53	8	204	29	233
	IMR	0.0	0.0	33.9	43.5	58.0	111.1	38.2	250.0	64.0
Literate	Number of couples	1	13	11	35	104	72	164	7	171
	IMR	0.0	62.5	0.0	56.6	46.7	68.0	47.0	416.7	65.0
Illiterate	Number of couples	9	26	68	205	298	198	804	1129	1933
	IMR	0.0	83.3	53.2	67.3	84.0	84.7	76.5	78.0	77.4
Total	Number of couples	74	166	184	417	1255	281	2096	1176	3272
	IMR	19.2	22.4	35.7	63.7	82.3	80.1	65.7	85.2	71.3

Source: Individual Survey, 2010-11

The infant mortality rate in the Surguja district with illiterate couples is 78.0 per thousand. The Infant mortality rate is influenced by education level. It is 50.0 per thousand for primary-level literate couples; the infant mortality rate in illiterate

husbands and primary literate wives is 83.5 per thousand. Whereas in the husband literate primary level and illiterate wife, it is 416.7 per thousand (Table 4).

In India, the wife's education usually indicates the husband's education. Generally, the man marries a less literate woman than himself, while the educated woman generally does not marry a less educated man than her. Therefore, the husband's educational level does not indicate the wife's educational level, but the wife's literacy level indicates the husband's (Khan, 1991). The infant mortality rate in illiterate wives and middle school-educated husbands is 157.9 per thousand, whereas that of illiterate husbands and middle school-educated wives is 53.9 per thousand. The husband and wife's educational level can further clarify infant mortality. The infant mortality rate in illiterate husbands and literate wives is 76.5 per thousand, but in illiterate women and only illiterate husbands is 166.7 per thousand; it is below the primary level of literate husbands, and the primary level of educated wives is 111.1 per thousand. It is worth noting that the death rate of the infant influences husband and wife.

Literacy in any area affects the IMR, but literacy depends on geographical, demographic and socioeconomic factors. Education level is directly related to the economic condition of the family. The economic status of the farmers of Chhattisgarh Plain is high due to the plain surface and high level of agricultural development. On the other hand, the schools are far from their physical isolation, and the transport facility must also be improved. The soils are unfertile due to uneven land. The economic condition of the farmers could be better. Agriculture is the main occupation in these areas. In this occupation, mostly engaged cultivators and agricultural labourers are given less importance for education. As a result, the literacy rate is low.

The infant mortality rate in illiterate couples in the Surguja district is in Udaipur, with 219.9 per thousand. In illiterate couples, the infant mortality rate is the lowest in Ramchandrapur, at 13.2 per thousand. In the same way, the infant mortality rate in illiterate couples is 144.6 per thousand in Sitapur, 134.6 per thousand in the Batauli, 114.9 per thousand in Ramanujnagar and the Mainpath, 108.3 per thousand. Udaipur block has the highest infant mortality rate of 167.7 per thousand illiterate mothers and literate fathers. The infant mortality rate in illiterate mothers and primary-level educated fathers is 154.6 per thousand. In contrast, the infant mortality rate in only literate mothers and fathers is 150.3 per thousand and the infant mortality rate in educated females at the primary level and only literate fathers is 122.7 per thousand.

In contrast, in illiterate fathers and primarily educated mothers, its rate is 130.9 per thousand. As these, middle-level educated mothers, and illiterate father infant mortality rate is 80.5 per thousand. The infant mortality rate in Batauli blocks

the infant mortality rate in illiterate fathers and literate primary educated mothers is 85.8 per thousand. For this, in Sitapur block, only literate mothers and illiterate fathers are 98.2 per thousand, and primary level mothers and illiterate father infant mortality rate is 88.9 per thousand.

Conclusion

Factors affecting the infant mortality rate in the Surguja district include parents' education and educational level. In the district of Surguja, where uneven land exists, the transportation facilities could be better. Hence, educational facilities are scarce, and this area's infant mortality rate is very high. On the contrary, in the plain areas with fertile agricultural land and with developed transport facilities, relatively IMR is less. However, it is remarkable that early neonatal mortality rates in both areas are not significantly different. In these areas, the neonatal and postneonatal mortality rates are remarkably different. The impact of the mother's education level on IMR is more effective than that of the father's education level because the mother's higher level of education has a twofold benefit. The mother's education level is a proxy for the fathers. By increasing the education level of the mother and father, the infant mortality rate can be reduced more.

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