Parental Education and Infant Mortality Rate in Surguja District, Chhattisgarh

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***Abstract*—A country's social development, educational advancement, and political maturity depend on its citizens' education levels. The basic principle of social and economic progress at all levels is the education of the individual, society, and country. In addition, economic patterns, migration, marriage age, birth and death rates, and education all have an impact. Although there is disagreement about the extent of this association worldwide, parents' educational attainment, especially mothers', has been linked to lower Infant mortality rates. Our goal was to calculate the overall reductions in under-5 mortality associated with higher levels of maternal and paternal education across age groups. Primary data served as the base for this research. The objective of this research is to examine the district's rural infant mortality rate and educational attainment. Research shows that lower infant mortality rates in rural Chhattisgarh are strongly correlated with higher parental literacy, especially among mothers. Higher infant mortality is a result of poor institutional delivery rates and restricted access to healthcare, which are made worse by educational differences, according to geographic analysis of districts like Surguja. In geography, population growth is an essential measure of social, economic, and cultural advancement. Educated is ambitious towards the present and future of his family and is more aware of his standard of living, on the contrary, in ignorance, blind faith for tune-keeping, conservatism and indifference to adopt family planning, family welfare and medical facilities, due to which the infant mortality rates directly and indirectly Infant mortality rate is 77.4 per thousand where as in literate female it is 54.9 per thousand. The level of education is therefore a major factor influencing the infant mortality rate. The study concludes that differences in maternal education, household financial status, and access to skilled birth attendance are the main causes of regional disparities. This suggests that specific health and education interventions in underdeveloped districts are essential to meeting Sustainable Development Goal targets.**

***Index Terms*—Parental, Education, Infant Mortality Rate, Society, Family.**

I. INTRODUCTION

The infant mortality rate is still a problem in Chhattisgarh's tribal-dominated Surguja district. Although the IMR in Chhattisgarh has decreased from 79 per 1,000 live births in 2000 to about 38 per 1,000 in 2020, there are still differences across the state. Education is widely acknowledged as a social vaccine against child mortality, especially for women. There is a clear link between low education and high infant mortality in Surguja, where the female literacy rate has always fallen short of the national norm (about 50.32% in recent district profiles). In the context of Surguja, this research examines the effects of education on maternal behaviour, healthcare-seeking behaviours, and newborn outcomes. The number of infant deaths under 1 year of age per 1,000 live births in a given year is measured by the infant mortality rate. With a national average of 25 in 2023, India's IMR decreased from 127 in 1990 to 23.3 in 2024, indicating notable success in lowering child mortality. Improved access to nutrition and healthcare is one way to reduce this rate. Preterm birth, low birth weight, congenital disabilities, infections, starvation, and a lack of specialised care are among the major causes. As of 2022, India's rural areas continuously exhibit a higher IMR (29) than urban areas (18). This rural disadvantage is attributed to differences in access to clean cooking fuel, sanitation, and medical facilities. Education increases the possibility that moms will seek modern medical care, such as expert birth

attendance, and empowers them to overcome traditional taboos. There is a quantifiable decrease in infant mortality risk for each additional year of maternal education. The IMR in Chhattisgarh is still higher than the national average (around 38 in 2020). A district-level analysis is crucial for policymaking, as tribal-dominated districts like Surguja frequently face specific geographic barriers to healthcare and education. Any human group's development is greatly aided by education. A conservative society's economic backwardness stems from a lack of education.

According to the country's demographers, this degree of education is the reason why the rate of increase in education is higher. Demographers believe that as education levels rise, there are changes in the physical, mental, social, economic, and demographic spheres. In the end, the child's death rate only declines. Globally, there is a strong negative association between the infant death rate and academic level. The population research on Mysore State conducted by the United States in 1961 lends credence to the idea that the death rate among schoolchildren is declining. Additionally, education eradicates the social and psychological distinctions between individuals, education, and society at all levels, which are the cornerstones of social, economic, and cultural advancement. Aside from this, other factors include habitat, economic trends, marriage age, mortality, and education. In geography, the population is a crucial indicator of social, economic, and cultural advancement. Both directly and indirectly, education teaches about the death rate. Education can inspire a person by making them intelligent and thought-provoking. In contrast to ignorance, faith, fortune-keeping, conservation, and indifference to adopting family planning, family welfare, medical facilities, etc., education is ambitious for his family's present and future. It is more aware of this standard of living. Education motivates man by making him decent, intelligent, and well-intentioned. According to Gandotra and Das (1988), there is a direct correlation between the newborn mortality rate and several fundamental indices of living standards, including education. According to Hobbycraft (1993), the rate of child survival rises as education spreads. It operates in three ways: first, by promoting good health and self-care; second, by ensuring that health resources are used fairly; and third, by enhancing the quality of children. Both parents' education is crucial to lowering the child's mortality rate. The father's education is crucial because it directly affects the business, which in turn influences the family's earnings. Achyut, Lahari, and Acharya (1999) found that numerous studies have examined the relationship between income and interest in health facilities, couple information, and deaths during the first week of pregnancy.

II. OBJECTIVES

The present research's objectives are

- To evaluate the infant mortality rate among the rural population of the Surguja district.
- To examine whether education levels affect the infant mortality rate.

III. DATA AND METHODOLOGY

The study that is being presented is based on primary data. Two villages were randomly selected from each of the district's 19 development blocks for this study. The data has been compiled using two different kinds of schedules. Only the 2891 women in the village who had given birth within the previous five years or whose newborn had passed away were included in the first family and second individual data. Data on infant mortality and the educational attainment of these moms were gathered.

IV. LITERATURE REVIEW

Numerous studies have shown a positive correlation between education and people's health (Ross & Wu, 1995; Ross & Mirowsky, 1999; Arendt, 2005; Lleras-Muney, 2005; Chandola et al., 2006; Knesebeck et al., 2006; Clark & Royer, 2010; Cutler & Lleras-Muney, 2010; Brunello et al., 2011; Fonseca & Zheng, 2011; Cutler et al., 2014). In addition to its economic advantages, education is said to positively affect social engagement, which is crucial for creating communities that are safer, healthier, and more cohesive. Individuals can better access resources to maintain and improve their own and their family's health by using the knowledge and skills they have gained through education (Higgins et al., 2008). Even after adjusting for confounding variables, including family history, income, and work characteristics, the direct correlation between education and health is still strong and significant. Education improves people's human,

social, and cultural capital, which is linked to better health outcomes (Vikram et al., 2012). In addition to having greater knowledge and skills, educated people hold a privileged position that earns them respect from medical professionals and helps families make better use of the healthcare system (Gittelsohn et al., 2011). Research on the association between education and health has garnered significant attention in the fields of public health and demography in emerging nations like India. Numerous studies (Caldwell 1979, 1994; Caldwell & McDonald 1982; Rao et al. 1997; Desai & Alva 1998; Das & Dey 2003; Khasakhala 2003; Kravdal 2004; Gakidou et al. 2010; Papageorgiou & Stoytcheva 2011; Saikia et al. 2013). Some research has examined the relationship between parental education and infant mortality in India and other countries, within the broader framework of education and child health. Parental education has been shown to reduce infant mortality and to be associated with family socioeconomic circumstances and certain behavioural changes. Research conducted in India (using various national-level datasets, such as the NFHS) has shown a clear causal link between infant mortality and maternal education (Desai & Alva, 1998; NIMS et al., 2012; Papageorgiou & Stoytcheva, 2011). Some potential pathways to establish the correlation have been proposed in studies examining the causal relationship between parental education and IMR. The following are some of the frequently given explanations: (i) An educated mother can provide better care for her children because she is likely to know more about the nutrition and hygiene of the infants, including how to wash and feed them, how to taqake better care of sick children, how to get immunisations, etc. (Caldwell 1979; Mondal et al. 2009); (ii) because educated mothers have more autonomy in making health care decisions, they are also more likely to transport their kids to contemporary facilities for treatment (Caldwell et al. 1983); (iii) mothers with higher levels of education use health care services that effectively prevent fatal childhood diseases (e.g., antenatal care) more than mothers with little or no education (Govindasamy & Ramesh 1997); (iv) educated mothers are more likely to give birth to healthier babies who typically have better chances of survival than non-literate mothers because they ensure a healthy environment, nutritious food, and have better knowledge about reproductive health at conception; (v) Parents with greater education may find better jobs and earn more money, allowing them to spend more on their kids' health and nutrition (Cutler & Lleras-Muney 2006; Braveman et al. 2011); (vi) Parents with higher levels of education have stronger social networks that provide them with information, guidance, and contacts that improve their capacity to identify the severity of a disease, seek treatment, and locate high-quality healthcare for their children (Vikram et al. 2012); and (vii) parents with higher levels of education have a privileged position that commands respect from medical professionals, which enables them to make better use of the health system (Gittelsohn et al. 2011). Even after adjusting for confounding socioeconomic characteristics associated with education, the data reviewed here demonstrate that parental education—especially the mother's—reduces infant mortality. However, the research on this topic currently available in India has focused only on the effects of the mother's education, ignoring other significant factors closely related to education, such as the father's education, the mother's media exposure, and the mother's socioeconomic empowerment. In a similar vein, few studies have looked at the more general factors that contribute to interstate and interregional differences in infant mortality in India (Das & Dey, 2003; Saikia et al., 2013), and no study has been published that particularly looks at how parental education affects IMR at the regional and subnational levels. This work is a methodical extension in this area.

V. THE STUDY AREA

The Surguja district, located in the northern part of Chhattisgarh, is primarily rural (90%) and home to several Scheduled Tribes, including the Pando and Hill Korwa groups. It is located between latitudes 23°37'25" to 24°6'17" north and longitudes 81°34'40" to 84°4'40" east. This territory is roughly 5,732 square kilometres (2,213 sq mi) in size, measuring 244.62 kilometres (152.00 mi) long east to west and 67.37 kilometres (41.86 mi) broad north to south. Surguja district's hills include unusual "pat formations"—highlands with little tablelands. The district's main areas include the Mainpat, Jarangpat, Jonkapat, Jamirapat, and Lahsunpat. The area is higher than 600 meters (2,000 feet) on average. The hilly terrain of northwest Surguja can be divided into three distinct steps as one moves westward: the first, from Shrinagar

on the east to the lowlands of Patna and Kharsawan; the second, from there to the uplands surrounding Sonhat; and the third, beyond Sonhat, to a height of 1,033 meters (3,389 feet). The Rihand and its tributaries pass across the low basin of Central Surguja.The parent rocks of the Gondwana System, comprising sedimentary rocks, are the source of red and yellow soils. This soil is mostly found in the blocks of Pratappur, central Surajpur, south Ambikapur, and east Sitapur. Widespread iron diffusion is the cause of the red colour, whereas ferric oxide hydration causes the soil to turn yellow. In East Ramanujganj, North Ambikapur, and Surajpur, as well as along the banks of the Rihand, Kanhar, and Hasdeo rivers and their principal tributaries, there is thin, gravelly, sandy, porous, and light-colored alluvium that is typically transported from elsewhere. The plateau portions of Samri and Sitapur tehsils, comprising the Shankargargh, Kusmi, Sitapur, Batoli, and Mainpat blocks, as well as the Jamirapat, Lahsunpat, and Jonkpat blocks, have well-developed laterite soils. The Hasdeo, Rihand, and Kanhar rivers are the three river basins in the Suguja district. There are 150 people per square kilometre (390 people per square mile) in the district.[4] Its population grew by 19.74% between 2001 and 2011.[4] Surguja has a literacy rate of 61.16% and a sex ratio of 976 females for every 1000 males. The total literacy rate is roughly 60.01%, with a significant gender gap (Male: 69.53%, Female: 50.32%). Recent reports indicate a Neonatal Mortality Rate (NNMR) of 32.4 and an IMR of 44.3 in the district. The district faces bottlenecks in emergency obstetric care, with First Referral Units scoring low on the availability of specialists (25.7%) and blood bank facilities (34.6%).

VI. DISCUSSION

6.1. The Education Level of Mother and Infant Mortality Rate

One significant aspect influencing neonatal mortality is educational attainment. Infant mortality rates are also impacted by a mother's level of education, whether or not she is giving birth. The findings of numerous national studies indicate an inverse relationship between a mother's level of education and the infant mortality rate. Infant mortality is lower among educated women than among ignorant women. The main cause for this is that mothers who are aware of the significance of child welfare and the duty to raise children with care tend to use health facilities more. Only educated mothers and women can benefit from the government-run family assistance program and other facilities; untrained mothers and women continue to be denied access to these resources owing to ignorance. Because educated women take better care of their children's health and increase their life expectancy, the infant mortality rate among women is higher than that of women with higher levels of education (Khan, 1991). Mothers' education is crucial in determining their health. Maternity education has changed family structures, with long-term effects on longevity rates. Because she is more aware of the child's health and the circumstances surrounding the illness, the educated mother seeks medical attention as soon as possible. To save money on food, healthcare, and education, educated mothers prefer to have fewer children (Gondotra and Das, 1988). Compared to an uneducated mother, an educated mother is better able to care for herself and her unborn child throughout pregnancy. The newborn mortality rate is gradually declining as mothers' educational attainment increases. One of the most significant factors influencing schooling mortality is educational attainment. The infant mortality rate is typically lower among educated females. The infant mortality rate in an illiterate community is increased by ignorance, indecision, conservatism, fortune-keeping, and a lack of utilisation of family welfare, family planning, and medical services. Compared to uneducated women, educated women have a lower death rate. The main reason for this is that educated women recognise the value of child welfare and health, as well as their duty to raise children. Compared to women with higher levels of education, primary school-aged women had a higher child mortality rate.

Table 1, Surguja District: Academic Level of Mother and Infant Mortality Rate

Educational level	Number of Mothers	Live birth	Mortality	Rate (Per thousand)
Bachelor's and 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 Only	171	246	16	65.0
Literate	758	1055	58	55.0
Illiterate	1933	2844	220	77.4
Total	2691	3899	278	71.3

Source: Field Survey

Just 28.2% of women in the Surguja District are educated, while 6.4% have only an elementary education. 8.7% of women have completed primary school. 8.81% of women are educated up to the secondary level, while 3.7% are educated at the high school and upper secondary levels. The percentage of women with a degree or above is 0.6%. The highest percentage of female (mother) literacy among the caste groups is 37.0% in the scheduled castes, 32.8% in the OBC categories, and 25.1% in the scheduled tribes. The

Satnami castes have 35.8% of the most educated women among the scheduled castes. The Teli caste has the highest percentage of educated women among OBCs (77.8%), while the Lohar caste has the lowest (8.6%). The Uraon caste has the highest percentage of educated women in scheduled tribes (4.7%), followed by the Kanwar caste (33.4%) and the Korwa caste (3.2%).

Table 2, Surguja District: Caste-wise Mother Literacy

Caste	Mother		
	Number	Literacy	Per cent
Gond	461	82	17.8
Uraon	439	183	41.7
Kanwar	317	106	33.4
Bhuinhar	159	15	9.4
Majhwar	87	3	3.4
Nagesia	73	13	17.8
Korwa	63	2	3.2
Agaria	36	4	11.1
Khairwar	22	7	31.8
Other	50	13	26.0
ST	1707	428	25.1
Ghsia	61	11	18.0
Satnami	53	19	35.8
Other	59	34	57.6
SC	173	64	37.0
Ahir	250	52	20.8
Panika	155	58	37.4
Rajwar	134	37	27.6
Koira	35	7	20.0
Teli	36	28	77.8
Kumhar	35	6	17.1

Lohar	35	3	8.6
Other	131	75	57.3
OBC	811	266	32.8
Total	2691	758	28.2

Source: Field Survey

In the Surguja district, the infant mortality rate is 25.6 per thousand for literate women and 36.9 per thousand for illiterate women. Up until primary school, the infant mortality rate among literate females is 32.5. There are 30.5 literate women per thousand, 24.5 in middle school, and 12.2 in high school. As a result, the infant mortality rate has gradually decreased with increasing education levels. The infant mortality rate in the Surguja district is 78.2 per thousand for illiterate women, 56.6 for those from scheduled castes, and 79.4 per thousand for those from other backward classes. The infant mortality rate for literate women is comparatively lower than that of illiterate women in every caste district. The infant mortality rate in the Gonds is 26.5 per thousand for literate mothers, 58.3 per thousand for illiterate women, and 85.4 per thousand for illiterate women. The infant mortality rate in Kanwar is 89.7 per thousand for literate women and 114.8 per thousand for illiterate women.

6.2. Academic Level of Father and Infant Mortality Rate

The infant mortality rate is also influenced by the mother's and father's educational background. Because of the father's education, the baby's upbringing receives greater care. The highly educated man additionally considers family planning and the mother's health. The infant mortality rate is impacted by the fact that more children are born into illiterate families. Thus, the infant mortality rate is indirectly impacted by schooling. Numerous studies have found a negative correlation between couple education and death within the first week of the couple's education, as well as improvements in income and health facilities (Achyut, Lahiri, and Acharya, 1999). Mother's education is a good predictor of social and economic conditions that directly affect child mortality, whereas there is considerable disagreement regarding the relationship between father's education and mortality (Hubbchraft, 1993; Desai & Avi, 1998).

Table 3, Surguja District: Academic Level of Father and Infant Mortality Rate

Educational level	Number of Mothers	Live birth	Mortality	Rate (Per thousand)
Bachelor's 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

In the Surguja district, 56.8% of fathers are literate. Of them, 10.4% are illiterate, 14.6% have completed elementary school, 15.5% have completed middle school, 6.8% have completed high school, 6.2% have completed higher secondary education, and 2.7% have earned a bachelor's degree or higher. The infant mortality rate in the Surguja district is 60.2 (per thousand) for literate fathers and 85.2 (per thousand) for illiterate fathers. The infant mortality rate is 80.1 per thousand for only literate fathers, 75.0 per thousand for fathers with only a primary education, 63.7 per thousand for bachelors at the medium level, and 19.2 per thousand for fathers with more education. The infant mortality rate has steadily declined as education levels have increased. The infant mortality rate is 40.3 per thousand for illiterate fathers, 38.8 per

thousand for solely literate fathers, and 36.6 per thousand for elementary school fathers. The infant mortality rate is halved at the high school level. The infant mortality rate for illiterate fathers is 43.4 for males and 37.1 for girls per thousand; at the high school level, it steadily drops to 15.4 and 16.4 per thousand.

Table 4, Surguja District: Caste-wise Father Literacy

Caste	Father		
	Number	Literacy	Per cent
Gond	461	238	51.6
Uraon	439	297	67.7
Kanwar	317	183	57.7
Bhuinhar	159	55	34.6
Majhwar	87	21	24.1
Nagesia	73	34	46.6
Korwa	63	13	20.6
Agaria	36	14	38.9
Khairwar	22	11	50.0
Other	50	23	46.0
ST	1707	889	52.1
Ghsia	61	42	68.9
Satnami	53	36	67.9
Other	59	42	71.2
SC	173	120	69.4
Ahir	250	115	46.0
Panika	155	102	65.8
Rajwar	134	100	74.6
Koira	35	14	40.0
Teli	36	34	94.4
Kumhar	35	21	60.0
Lohar	35	12	34.3
Other	131	108	82.4
OBC	811	506	62.4
Total	2691	1515	56.3

Source: Field Survey

In the Surguja district, literate fathers make up 52.1% of scheduled tribes, 69.4% of scheduled castes, and 62.4% of other backward categories. The Uraon caste has the highest percentage of educated fathers among scheduled tribes (67.7%), while the Korwa have the lowest (20.61%), followed by the Kanwar (57.3%), Gond (51.6%), Khairwar (50%), and Nagesia (46.6%). The Ghasia and Satnami scheduled castes have literacy rates of 68.9% and 67.9%, respectively. In the same way, the most literate father in the other backward class is 94.4%, and the least literate father in the Lohar is 34.3%. The father's literacy rate is 74.6% in Rajwar, 65.8% in Panika, 60% in Kumhar, 46% in Ahir, and 40% in Koira. The infant mortality rate for illiterate fathers in Surguja district is 81.7 per thousand for scheduled tribes, 40.0 per thousand for scheduled castes, and 101.3 per thousand for other backward classes. The infant mortality rate for illiterate fathers among the Gonds' scheduled tribes is 76.7 per thousand. The rate of literate fathers is 98.2 per thousand in Uraon, 65.2 per thousand in Kanwar, and 99.6 per thousand in Kanwar. Ahir's infant mortality rate in the other backward classes is 99.5 per thousand for illiterate fathers, only 69.0 for literate fathers, 76.0 for primary school, 50.0 for middle school, and 37.0 for high school. In Panika, the infant mortality rate is 63.3 per thousand for illiterate fathers, 56.3 per

thousand for literate fathers, 41.7 per thousand for just literate fathers in Rajwar, and 57.7 and 71.4 per thousand for primary and middle level fathers, respectively.

6.3. Academic Level of the Women and Their Husband and Infant Mortality Rate

A woman's and her husband's higher level of education lowers the infant mortality rate. In contrast to an ignorant woman and her uneducated husband, the educated woman and her educated husband adhere to regulations throughout pregnancy and, after learning about official facilities and programs, diseases, nutritional needs, and precautions during and after childbirth. Consequently, a woman's and her husband's educational attainment significantly impacts the infant mortality rate. The infant mortality rate and the academic levels of the woman and her husband show a stronger negative correlation.

Table 5, Surguja District: Academic level of women and their husbands, and infant mortality rate

Academic level of Husband/female		Graduate and above	Higher secondary	High School	Middle	Primary	Literate	Illiterate	Total
Graduate and above	Number of couples	9	3	4	0	0	16	0	16
	Live birth	10	5	6	0	0	21	0	21
	Infant mortality	0	0	0	0	0	0	0	0
	Rate	0	0	0	0	0	0	0	0
Higher secondary	Number of couples	7	24	8	1	0	40	0	40
	Live birth	8	30	12	1	0	51	0	51
	Infant mortality	0	0	0	0	0	0	0	0
	Rate	0	0	0	0	0	0	0	0
High School	Number of couples	15	28	8	6	3	60	0	60
	Live birth	21	37	11	10	3	82	0	82
	Infant mortality	0	1	0	1	0	2	0	2
	Rate	0	27.0	0	100.0	0.0	24.4	0	24.4
Middle	Number of couples	25	51	47	86	18	227	11	238
	Live birth	36	68	58	121	25	308	19	327
	Infant mortality	2	0	2	9	3	16	3	19
	Rate	55.6	0.0	34.5	74.4	120.0	51.9	157.9	58.1
Primary	Number of couples	8	21	38	84	53	204	29	233
	Live birth	14	31	59	115	69	288	40	328
	Infant mortality	0	0	2	5	4	11	10	21
	Rate	0.0	0.0	33.9	43.5	58.0	38.2	250.0	64.0
Literate	Number of couples	1	13	11	35	104	164	7	171
	Live birth	3	16	12	53	150	234	12	246
	Infant mortality	0	1	0	3	7	11	5	16
	Rate	0.0	62.5	0.0	56.6	46.7	47.0	416.7	65.0
Illiterate	Number of couples	9	26	68	205	298	804	1129	1933
	Live birth	12	36	94	297	738	1177	1667	2844
	Infant mortality	0	3	5	20	62	90	130	220
	Rate	0.0	83.3	53.2	67.3	84.0	76.5	78.0	77.4

Total	Number of couples	74	166	184	417	1255	2096	1176	3272
	Live birth	104	223	252	597	1397	2573	1738	3899
	Infant mortality	2	5	9	38	115	169	148	278
	Rate	19.2	22.4	35.7	63.7	82.3	65.7	85.2	71.3

Source: field survey

The infant mortality rate for illiterate couples in the Surguja district is 78.0 per thousand. In addition to literacy, the education level affects the infant mortality rate. At primary school, the infant death rate is 58.0 per thousand. At the elementary level, the infant mortality rate for a husband who is illiterate and a wife who is educated is 84.0 per thousand. In contrast, the rate is 250.0 per thousand when the wife is illiterate, and the husband has only an elementary education. In India, a wife's academic standing typically reflects her husband's level of education. The educated woman typically does not marry a less-educated man, but the less-educated man typically marries a woman who is less educated than he is. As a result, the husband's educational background does not necessarily reflect the wife's academic standing (Khan, 1995). The infant mortality rate is 157.9 per thousand for an illiterate wife and a middle-educated husband, whereas it is 67.3 per thousand for an illiterate husband and a middle-educated wife. Further information about infant mortality can be obtained from the husband and wife's educational background. For a literate mother and an illiterate husband, the infant mortality rate was 76.5 per thousand. It is crucial to remember that the husband and wife influence the child's death rate.

6.4. Block-wise, a couple of academic levels and the infant mortality rate

In the Surguja district, Udaipur has the greatest infant death rate among illiterate couples (219.9 per thousand), while Ramchandrapur has the lowest rate (13.2 per thousand). Similarly, the percentage of illiterate couples is 144.6 per thousand in Sitapur, 134.6 per thousand in Batauli, 114.9 per thousand in Ramanujnagar, and 108.3 per thousand in Mainpath. The highest infant death rate (666.7 per thousand illiterate mothers and literate fathers) is seen in the Udaipur block. For example, the infant mortality rate in Batauli is 100.0 per thousand for literate and elementary educated females and 111.1 per thousand for middle-level educated females and illiterate fathers. For example, the infant death rate is 88.9 per thousand in primary school and 142.9 per thousand in a block with solely literate female and illiterate fathers.

VII. THE MECHANISM OF EDUCATION IN REDUCING THE INFANT MORTALITY RATE

Education reduces infant mortality through several interconnected pathways:

7.1. Improved Health Literacy and Awareness:

Educated mothers are better equipped to recognise the early warning signs of neonatal illnesses such as sepsis, pneumonia, and birth asphyxia, the leading causes of infant death in the region. Education dispels myths surrounding newborn care, such as the harmful practice of discarding colostrum or using unsterilized instruments to cut the umbilical cord, which are still prevalent among certain tribal groups in northern Chhattisgarh.

7.2. Enhanced Utilisation of Maternal Services

Studies consistently show that for every additional year of maternal schooling, child mortality decreases by approximately 3-9%. In Surguja, education is the strongest predictor for: (1) Antenatal Care: Higher literacy leads to more frequent ANC visits and better adherence to Iron-Folic Acid supplementation. (2) Institutional Deliveries: Education shifts the preference from risky home births to institutional deliveries, where trained personnel can manage complications.

7.3. Nutritional Management and Sanitation

Malnutrition and poor hygiene are major contributors to stunting and infant deaths in Surguja. Educated parents are more likely to (i) adhere to WHO guidelines for exclusive breastfeeding. (ii)Introduce appropriate complementary foods with higher dietary diversity. (iii)Utilise improved sanitation facilities, which significantly reduce the risk of diarrheal diseases.

7.4. Challenges Specific to Surguja

Despite the known benefits of education, Surguja faces unique hurdles like

(i)Tribal Vulnerability: Groups like the Pando tribe remain marginalised, with infant mortality rates often 50% higher than those of non-tribal populations.

(ii)Geographical Barriers: The hilly terrain of Surguja limits access to both schools and health centres, making the "delivery" of education and healthcare physically difficult.

(iii)Infrastructure Gaps: A shortage of Community Health Centres and Primary Health Centres (PHCs) (ranging from 19% to 32% below norms) means that even an "educated" mother may find no facility to visit.

7.5. Policy Implications and Recommendations

To effectively leverage education for reducing IMR in Surguja, the following strategies are essential:

7.5.1 Focused Female Literacy Programs:

Targeting adolescent girls in tribal blocks to prevent early marriage and ensure they complete secondary education, which acts as a "stronger shield" against infant death risk.

7.5.2 Social and Behaviour Change Communication:

Using localised education tools to bridge the gap between traditional beliefs and modern medical practices.

7.5.3 Strengthening Health Infrastructure:

Education must be matched by the availability of Special Newborn Care Units and trained specialists to handle birth asphyxia and prematurity.

VIII. CONCLUSION

This article examines the critical relationship between educational attainment and the Infant Mortality Rate (IMR) in the Surguja district of Chhattisgarh, a region characterised by a high tribal population and significant socio-economic challenges. Despite various health interventions, Surguja continues to face infant mortality challenges rooted in traditional practices, geographical isolation, and limited health literacy. This study synthesises current demographic data and educational indicators to argue that female literacy is the primary driver of reductions in infant mortality. By empowering mothers with the knowledge to navigate healthcare systems, understand nutritional requirements, and adopt modern sanitation practices, education bridges the gap between available medical services and their effective utilisation. Parental education and educational attainment affect the infant mortality rate in the Surguja district. Despite this, the infant mortality rate was more affected by the mother's educational attainment. The infant mortality rate can be significantly decreased by raising the parents' educational attainment. Research suggests that extreme poverty, maternal malnutrition, and reliance on untrained traditional birth attendants ("Dais") contribute to high infant death rates. Local myths and practices regarding newborn care can sometimes adversely affect health outcomes, underscoring the need for culturally sensitive educational interventions. Surguja faces a significant "infrastructure gap." Despite the presence of a district hospital and medical college, there is often a shortage of Community Health Centres and Primary Health Centres relative to the population's needs. Educational initiatives must therefore be paired with accessible healthcare to be effective.

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