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# Financial Autonomy and Access to Internet among Women can Reduce Child Mortality in India: Evidence from NFHS- 5 data

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**ABSTRACT**

As per UNICEF report (2021), in 2020 alone 5 million children died before reaching their fifth birthday. There are large inequalities in an incidence of neonatal, infant and child mortality in states and region of India. NFHS-5 data shows that Kerala has lower incidence of it whereas Uttar Pradesh and Bihar state have higher incidence of child mortality. Women those stay in rural area with poor socio-economic background, with lower household assets and less health care access have higher incidence of child mortality. Th logit regression model shows that the child mortality among women is positively co-related with rural area, underweight women, age at birth below eighteen years, cooking fuel as wood, no toilet facility in house, women and husband illiterate, Scheduled Caste, and poorer wealth quantile. The child mortality is negatively co-related with female child, television and radio at home, scheduled tribe, listen radio and watch television. Therefore, government must focus on quality education of women.

If government increases the women's education from secondary school to higher secondary school and high school to college then child mortality will decline from 15 per cent to 23 per cent respectively. Access to continuous internet facility to women may reduce the child mortality more than 80 percent in India. Women must be provided technical skills for different jobs. All pregnant women must be made compulsory to complete antenatal visits and deliver the baby in hospitals. Role of NGO's and health experts and government officials is important in this direction. All such efforts will help to achieve the 2030 Millennium Development Goals related to reduction of child mortality.

***Keywords: Health care, Nutrition, Technology***

## INTRODUCTION

In 2020, alone 5 million children died before reaching their fifth birthday. Half of those deaths, 2.4 million occurred among newborns. These deaths were preventable (UNICEF 2021). Neonatal morbidity and mortality are major global public health challenges. The vast majority (up to 98.5%) of neonatal deaths occur in developing countries. As overall infant and child mortality falls, neonatal mortality represents an increasing proportion with recent estimates showing that neonatal mortality now accounts for more than 40% of the overall under-5 child mortality, an increase from 37% in 1990. It is therefore clear that strategies to reduce neonatal mortality are essential in reaching the Millennium Development Goal 4 to reduce child mortality (Tran H.T. et.al 2012).

In the poor households, young girls are forced to get marry. Education of female is most important as it effects on future generations health and education but women those got married before 18 do not have physical as well as intellectual maturity. The households' responsibilities and childbearing, rearing farm work and outside work are the tasks for women. Women from scheduled case and tribe with low socio-economic background have disadvantage in terms of education and income. At lower age female are asked to help in domestic chores.

They get marry early and help in laws in various activities. They do not understand the self-education and development. In Muslim community, education and health is not given priority among women. Few women from this community do not visit to health care facilities for different health care issues.

They give birth to child at lower age where mother and child is physically weak. Women do not visit for prenatal and deliveries to hospitals. For pre-natal visit, they must visit at least four times and take all medicines and do sonography etc. But daily work and less education it prohibits them to come at health facilities. Similarly, health care facilities are very far in rural area. Male members need to accompany pregnant women. They need to arrange vehicle to reach health care facilities during hospital hours. Roads, distance, animal at home, work are the issues in rural area. In urban area, all health care facilities are overcrowded. Meeting health professionals for prenatal care and delivery is time consuming and expensive task. Most of the pregnant women do not visits again and again for prenatal care and delivery at public health care facilities. Most of the time, they are not attended by the health staff, and they come back at home, or they asked for repetitive visits. They could not be possible due to distance, crowed health

care facilities, less money and pain. It continuously effects on health of mother and child health. Any defects or low weight gain during pregnancy create lifetime problems for child and mother. Women those got marry at early age do not know about the use and availability of contraceptives. They cannot visit health facilities due to lack of time doctor's availability. It ultimately effects on no use of contraceptives and a greater number of children. They end up with less spacing among children. It effects on child weight and overall development. Women often prefer to deliver baby at home. At the last movement, visiting health facility is a difficult task to women. They need to arrange vehicle to health care facility. Women in rural area do not have time to get admit early or before delivery and wait some time at health facilities. After delivery also they want to reach home. The poor women are not accompanying by family members. It effects on the health of women and child. In urban area, all the health care facilities do not admit women early in hospitals. They ask women to come at time and date of delivery. If pregnant women miss the date and time, the other women given the preference. Due to socio-economic factors, pregnant women often miss the deadlines. They start searching the private health facility at the last movement, but it is very expensive task at the last movement. It is a threat to health of mothers and child life. The less educated disadvantaged women have tough time and if she has few children at home then it is hard work for whole family. The newly delivered baby and mother do not get proper food, health care etc. If the child is male, then few arrangements are done by in laws. Male child is physically weak as compared to girl child. If women repeat number of pregnancies with spacing and use of contraceptives, then it effects on her as well as child's health. The poor households do not have physical assets at home. In order to buy the physical assets, credit is not available. Having television and radio at home, certainly increases the health knowledge through watching television and listening radio. Health talk shows, expert opinions and advertisements are playing important role. Newspapers and magazines also help to get some knowledge of health care to mother. Those women stay in rural area do not get time to listen radio, talk show on television, magazines and newspapers.

Having a refrigerator at home is an advantage for family to keep the milk and vegetables fresh. They get regular vitamins and protein stock. It helps women and children to maintain good health. The vehicle such as bicycle and scooter provide mobility to household members with and surrounding villages. Car is very

helpful to visit nearest health care facilities urgently. Households in the rural area have domestic animals, they collect the dung and prepare cakes of it. They use it as cooking fuel. Few households have biogas plants, they use dung in it. Few households use straw grass and agriculture crop residuals for cooking. Such source create pollution in house. All members of family get affected by such fuel. Very few households use Kerosene for cooking because Central government reduced subsidy on it. Households are using LPG as fresh cooking fuel. It does not create pollution in house. The poor households do not get regular income to buy the gas cylinder. Poor people in rural area go out for toilet as open defection. After providing subsidy for building toilet poor do not able to build it. They do not have continuous water supply in toilet therefore they use pit toilet. But flush toilet is important for health of mother and children. Women prepare food at morning, carry drinking water and go to work at self-farm or others farm. Whole day, they work in farm and return home at evening. At evening, they come home and prepare food for family. The educated women work in bank, post offices, school. They are skilled workers and doing jobs. Few women are involved in selling various items. They have their own shops. Few women sale agricultural commodities in different markets. The child mortality with agriculture workers is higher as compared to women working in different jobs. Few women use mobile phone, but it is only used for calling. They depend on family members for buying commodities. Very few women are using mobile phone for financial transactions or pay bills. The banks are located far away from house. They do not have time from household chores to visit bank regularly. Most of the time, they do not know different formalities as fill the slips to withdraw money.

The major objective of study is to find the incidence of neonatal, infant and child mortality in urban and rural area in India. There is an inequality in neonatal, infant and child mortality in different states. The infant and child mortality are affected by mothers' education, health status of mother in rural and urban area. The physical asset holding is also affecting on infant mortality in different states in India. Access to mobile, employment opportunities, age group is also affecting on neonatal, infant, child mortality. Mothers' nature of job also affecting on the neonatal, infant and child mortality in different states in India. The last objective of study is to find the effect of increase in education and internet access in telephone and its effect on neonatal, infant and child mortality in India.

## DATA AND METHODOLOGY

We have collected secondary data from National Family Health Survey (NFHS-5) survey. It is readily available at Ministry of Health and Family Welfare, Government of India. Such NFHS was done in the period of 2019-21. Such data provides the health status of the ever-married women across India. Women were interviewed based on stratified sample method. We have used simple percent method to classify women those had incidence of neonatal, infant and child mortality.

We used the log it regression method to find the co-relationship with number of socio-economic and demographic variables. We analysed secondary data into SPSS@23 and STATA software.

**Economic model:**

We have developed the economic model for child health and health status of women.

$$\sum_{t=1}^{i} \quad Cnic = \sum \quad (R, S, TD, A, W, A, ME, HA, C, TE, TF, F, NMc, ABFu, MAS, , CG, PV, Nsw) \qquad (1)$$

Neonatal, infant and child mortality is related to religion, sex of child, type of delivery, levels of anaemia, wealth index, age of women, mothers education, household assets, caste background, type of employment, type of toilet, fuel use, mass media coverage, access to bank, number of children, mothers age, use of contraceptives, prenatal visits, nutritional status of women

We have categorised the variables in detail as follows.

$$\sum_{t=1}^{i} \quad R = \sum \quad (H, M, C, S, B, Jo, Je, Pa, Nr) \qquad (2)$$

Religion is related to Hindu, Muslim, Christian, Sikh, Buddhist, Jain, Jewish, Parsi, No religion.

$$\sum_{t=1}^{i} \quad S = \sum \quad M, F \qquad (3)$$

Sex is categorised as Male and female.

$$\sum_{t=1}^{i} \quad TD = \sum \quad Hd, RwHd, Pvhd, Ce \qquad (4)$$

Type of delivery is known as of home delivery, public hospital, private hospital, caesarean,

$$\sum_{t=1}^{i} \quad A = \sum \quad (Ca, Ma, Mi, Na) \qquad (5)$$

Levels of anaemia categorised as severe, moderate, mild and no anaemia among women.

$$\sum_{t=1}^{i} \quad W = \sum \quad (Pt, Pr, Me, Re, Rt) \qquad (6)$$

Wealth of Index, divided as Poorest, poorer, middle, richer and richest

$$\sum_{t=1}^{i} \quad A = \sum \quad (Ft, Tt, Tf, Ff) \qquad (7)$$

Age of women categorised as 15-24, 25-34,35-44 and 44-49.

$$\sum_{t=1}^{i} \quad ME = \sum \quad f(Il, Pe, Se, He) \qquad (8)$$

Mothers Education divided as illiterate, primary, secondary and higher education.

$$\sum_{t=1}^{i} \quad Ha = \sum \quad (E, R, T, R, B, S, C) \qquad (9)$$

Household assets are electricity at home, Radio, Television, Refrigerator, Bicycle, Scooter, and Car

$$\sum_{t=1}^{i} \quad C = \sum \quad (Sc, St, Obc, Nc) \qquad (10)$$

Caste background is categorised as scheduled caste, scheduled tribe, Other backward caste and no caste.

$$\sum_{t=1}^{i} \quad Te = \sum \quad (Ay, Se, Oe) \qquad (11)$$

Type of employment function is as all year employed, seasonal employed, occasional employed.

$$\sum_{t=1}^{i} \quad Tf = \sum \quad (Ft, Pt, Nt, Ot) \qquad (12)$$

Type of toilet in house is as flush toilet, pit toilet, no toilet and other toilet facility.

$$\sum_{t=1}^{i} \quad F = \sum \quad (E, Lg, Bi, Te, Cc, W, Sg, Ac, Ad) \qquad (13)$$

Fuel use is household is divided as electricity, LPG, Biogass, Kerosene, Coal, Carcoal, Wood, straw grass, Agricultural crop and Animal dung.

$$\sum_{t=1}^{i} \quad Mmc = \sum \quad (Rn, Lr, Wt, Ump) \qquad (14)$$

Mass media coverage is identified as read newspaper, listen radio, watch television, use mobile phone

$$\sum_{t=1}^{i} \quad Abfu = \sum \quad (Ab, Ut, Nmft) \qquad (15)$$

Access to bank is categorised as account in bank, use internet, use mobile phone for financial transaction,

$$\sum_{t=1}^{i} \quad Mas = \sum \quad (Be, Ee, Tr, Tn, Ty, Te, Ate) \qquad (16)$$

Mothers age at birth is divided as childbirth below 18, 18-23, 24-29, 30-35 and 35 above.

$$\sum_{t=1}^{i} \quad Cu = \sum \quad (Mc, Tc, Ns, Wc, Lwc, Wnmc) \qquad (17)$$

Use of contraceptives is classified as modern contraceptive use, traditional contraceptives, no use of contraceptives, no intent to use contraceptives, never had sex, want child, latter want child, want no more children.

$$\sum_{t=1}^{i} \quad Pv = \sum \quad (Cpu, Pvd) \qquad (18)$$

Prenatal visits are a defined as prenatal visit, prenatal visits through doctor.

$$\sum_{t=1}^{i} \quad Nsw = \sum \quad (U, N, O1, O2, O3, O4) \qquad (19)$$

Nutritional status of women is related to underweight, normal, Obese 1, Obese 2, Obese 3, Obese 4.

## LITERATURE REVIEW

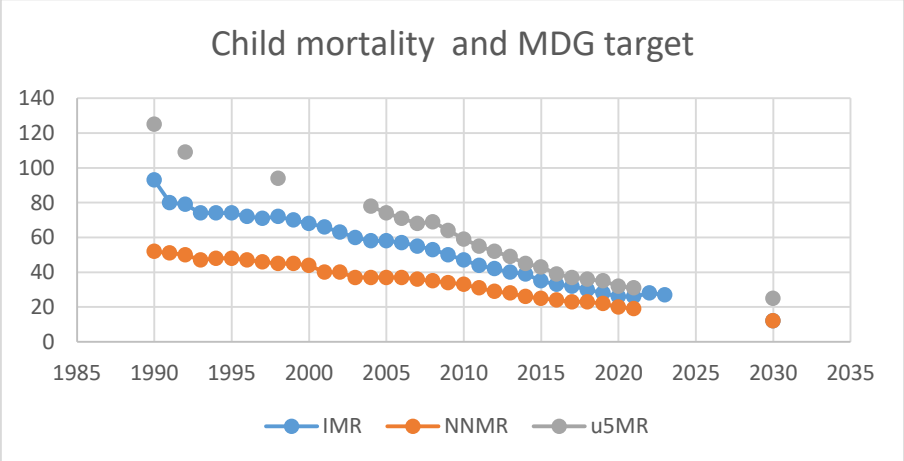
We have referred number of research papers and books to define the neonatal, infant and child mortality. The mortality among children is related to socio-economic, demographic, and medical related reasons across the world. We tried to find few socio-economic reasons with child mortality in India.

### Definition of mortality among children:

We have defined neonatal, infant and child mortality in the following literature review.

Infant mortality was defined as death during the first year of life. Neonatal and post neonatal mortality were defined as infant deaths within and after the first 28 days of life, respectively. Causes of death were categorized into 11 groups such as: congenital anomalies, birth asphyxia, other neonatal morbidities (non-asphyxia), sudden infant death syndrome (SIDS), infections, cardiovascular and pulmonary causes, endocrine and metabolic disorders, neuromuscular disorders, malignant neoplasms, external causes of deaths, and other causes (Villamor et.al 2014). Preterm birth complications were common among neonatal deaths; however, infectious diseases contributed to mortality in 62% of those preterm births, providing multiple possible targets for life-saving interventions. The current burden of disease estimates would likely underestimate multiple contributors, many of which could be important targets for intervention. Such findings offer a new perspective on strategic child mortality prevention by highlighting pathways, such as lower respiratory tract infection and sepsis, which are common across many underlying cause categories and are potential targets for prevention (Taylor et.al 2020).

Graph 1 Child mortality in India (per 1000 live births)



Neonatal mortality rate in 2008 was 35 per 1000 birth. The infant mortality rate was 53 per 1000 live birth. The Under-five mortality was 69 in 2008 in India. In 2015, the neonatal mortality rate is observed as 25 per 1000 birth. The IMR in the same year was 35 per 1000 live birth in India. Under five mortality rates in 2015 was 43 per 1000 birth. In 2000, the neonatal mortality was 20 per 1000 birth. The infant mortality rate was 26 per 1000 birth. The under-five mortality rate was 32 in 2020 per 1000 live birth. We compare the figures from 2008 with 2020 then we can say that neonatal mortality rate, Infant mortality rate and under mortality rate become half. It is good progress India received. But still the infant, neonatal and under five mortality is higher.

The Millenium Development Goals (MDG) 2030 states that the neonatal mortality rate could be 12 per 1000 live birth. Infant Mortality Rate (IMR) estimated as 12 per live birth and Under five Mortality Rate stated as 25 per 1000 live birth for India. Above figure states that the target can be achievable.

**Child Mortality in India:**

We have presented the state wise incidence of different types of mortality among children. They are as follows.

**Table 1 State wise incidence of mortality rate (Per cent)**

| | Neonatal mortality | | | Infant mortality | | | Child mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| States | Urban | rural | Total | urban | rural | Total | Urban | Rural | Total |
| Jammu & Kashmir | 0.72 | 0.76 | 0.75 | 0.74 | 0.71 | 0.71 | 0.36 | 0.67 | 0.62 |
| Himachal Pradesh | 0.44 | 1.25 | 1.11 | 0.40 | 1.03 | 0.93 | 0.24 | 1.15 | 1.00 |
| Punjab | 4.22 | 2.25 | 2.57 | 3.32 | 1.54 | 1.82 | 3.47 | 1.51 | 1.83 |
| Chandigarh | 0.29 | 0.00 | 0.05 | 0.34 | 0.00 | 0.05 | 0.48 | 0.00 | 0.08 |
| Uttarakhand | 1.53 | 1.67 | 1.65 | 1.23 | 1.69 | 1.61 | 1.84 | 1.49 | 1.54 |
| Haryana | 4.29 | 2.80 | 3.04 | 4.82 | 3.18 | 3.44 | 3.63 | 2.38 | 2.58 |
| Nct Of Delhi | 5.33 | 0.07 | 0.92 | 6.48 | 0.07 | 1.09 | 6.15 | 0.01 | 1.01 |
| Rajasthan | 5.41 | 5.85 | 5.78 | 5.89 | 6.00 | 5.98 | 4.59 | 4.92 | 4.87 |
| Uttar Pradesh | 16.82 | 19.98 | 19.46 | 17.53 | 20.06 | 19.66 | 16.96 | 16.44 | 16.53 |
| Bihar | 5.71 | 11.65 | 10.68 | 4.76 | 10.57 | 9.65 | 5.15 | 10.87 | 9.94 |
| Sikkim | 0.08 | 0.14 | 0.13 | 0.03 | 0.22 | 0.19 | 0.12 | 0.15 | 0.14 |
| Arunachal Pradesh | 0.80 | 0.59 | 0.62 | 1.44 | 1.04 | 1.10 | 2.19 | 2.30 | 2.28 |
| Nagaland | 0.52 | 0.45 | 0.46 | 1.57 | 1.09 | 1.17 | 0.88 | 1.53 | 1.42 |
| Manipur | 0.60 | 0.64 | 0.63 | 0.74 | 0.81 | 0.80 | 0.92 | 0.79 | 0.81 |
| Mizoram | 0.70 | 0.10 | 0.20 | 2.00 | 0.61 | 0.83 | 1.24 | 0.32 | 0.47 |
| Tripura | 0.67 | 1.00 | 0.95 | 0.95 | 1.16 | 1.13 | 0.32 | 1.08 | 0.96 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Meghalaya | 0.60 | 1.66 | 1.49 | 0.98 | 2.85 | 2.55 | 0.40 | 2.93 | 2.52 |
| Assam | 1.76 | 4.14 | 3.76 | 1.81 | 4.00 | 3.65 | 2.27 | 4.64 | 4.26 |
| West Bengal | 3.23 | 2.43 | 2.56 | 2.70 | 2.29 | 2.35 | 3.59 | 2.64 | 2.80 |
| Jharkhand | 3.59 | 5.57 | 5.25 | 3.84 | 4.59 | 4.47 | 3.91 | 5.64 | 5.36 |
| Odisha | 2.98 | 5.28 | 4.91 | 2.43 | 4.92 | 4.52 | 2.35 | 4.56 | 4.20 |
| Chhattisgarh | 3.11 | 4.29 | 4.10 | 2.39 | 4.30 | 4.00 | 3.03 | 5.23 | 4.87 |
| Madhya Pradesh | 9.34 | 9.54 | 9.51 | 8.78 | 11.18 | 10.80 | 8.66 | 10.27 | 10.01 |
| Gujarat | 4.79 | 4.00 | 4.13 | 4.05 | 3.99 | 4.00 | 4.91 | 3.83 | 4.01 |
| Dadra & Nagar Haveli and Daman & Diu | 0.52 | 0.14 | 0.20 | 0.43 | 0.10 | 0.16 | 0.56 | 0.11 | 0.18 |
| Maharashtra | 5.00 | 3.07 | 3.38 | 3.96 | 2.59 | 2.81 | 4.79 | 2.77 | 3.10 |
| Andhra Pradesh | 2.14 | 1.68 | 1.76 | 2.21 | 1.28 | 1.43 | 1.80 | 1.56 | 1.60 |
| Karnataka | 3.91 | 2.70 | 2.90 | 3.29 | 2.67 | 2.77 | 3.27 | 2.56 | 2.68 |
| Goa | 0.11 | 0.02 | 0.03 | 0.18 | 0.01 | 0.04 | 0.16 | 0.02 | 0.05 |
| Lakshadweep | 0.07 | 0.01 | 0.02 | 0.03 | 0.01 | 0.01 | 0.08 | 0.01 | 0.02 |
| Kerala | 0.59 | 0.22 | 0.28 | 0.71 | 0.24 | 0.31 | 1.08 | 0.26 | 0.40 |
| Tamil Nadu | 4.52 | 1.84 | 2.27 | 4.48 | 1.83 | 2.25 | 4.67 | 2.06 | 2.49 |
| Puducherry | 0.90 | 0.03 | 0.17 | 0.80 | 0.06 | 0.18 | 1.00 | 0.06 | 0.22 |
| Andaman & Nicobar Islands | 0.11 | 0.10 | 0.10 | 0.15 | 0.13 | 0.13 | 0.16 | 0.21 | 0.20 |
| Telangana | 4.53 | 4.05 | 4.13 | 4.36 | 3.15 | 3.34 | 4.71 | 4.92 | 4.89 |
| Ladakh | 0.05 | 0.03 | 0.04 | 0.18 | 0.03 | 0.06 | 0.08 | 0.09 | 0.09 |

Uttar Pradesh has high incidence of neonatal (19.44 per cent), infant mortality (19.66 per cent) and child mortality (16.53 per cent) incidence. In Bihar, neonatal mortality (10.68 per cent) and infant mortality (9.65 per cent) is higher. The 9.94 per cent under five mortality is found in Bihar. An early marriage, lack of quality health care, infections, low literacy among women are the major reasons of high neonatal, infant and child mortality in this state. In Kerala, neonatal mortality is only 0.28 percent. The infant mortality is 0.31 percent and under five mortality is 0.40 per cent. In Maharashtra, neonatal mortality is 3.38 percent. The infant mortality is 2.81 per cent. The under-five mortality rate is 3.10 percent. Kerala health care model is accepted as best model for health care. The major reasons of infant and child mortality are infectious diseases including pneumonia, diarrhoea, malaria, pre-term birth complications, birth as phyxia and trauma and congenital anomalies in different countries and states.

**Religion of households and mortality among children:**

Religion plays an important role as far as the health of mother and child is concerned. Muslim community have multiple marriage system. They do not keep equal spacing among children. The women do not visit for prenatal care to doctor. It affects the health of the mother and child. Hindu community have a greater number of children and number of women are also more. Therefore, the incidence of mortality is also higher.

**Table 2 Religion of ever married women (Percent)**

| Religion | Neonatal Mortality | | | Infant Mortality | | | Child Mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Hindu | 76.45 | 83.15 | 82.09 | 73.41 | 80.63 | 79.49 | 75.7 | 79.72 | 79.07 |
| Muslim | 17.12 | 9.42 | 10.67 | 16.89 | 9.2 | 10.42 | 15.64 | 8.69 | 9.82 |
| Christian | 3.34 | 4.02 | 3.91 | 6.66 | 6.76 | 6.75 | 4.95 | 7.62 | 7.21 |
| Sikh | 2.05 | 1.89 | 1.92 | 1.75 | 1.4 | 1.46 | 1.76 | 1.26 | 1.34 |
| Buddhist | 0.34 | 0.52 | 0.49 | 0.55 | 0.63 | 1.61 | 0.68 | 0.80 | 0.78 |
| Jain | 0.13 | 0.03 | 0.05 | 0.25 | 0.03 | 0.07 | 0.12 | 0.01 | 0.03 |
| Jewish | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parsi | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| No religion | 0.02 | 0.02 | 0.02 | 0.00 | 0.05 | 0.04 | 0.08 | 0.03 | 0.04 |

Source: Calculated from data

Incidence of neonatal mortality was 76.45 per cent in urban area in Hindu. But in urban area such incidence was 83.15 per cent. Neonatal mortality among Muslim in urban area was (17.12 per cent) more than the urban area (9.42 percent). Infant mortality in rural India was (80.63 per cent) but in urban India, it was (73.41 per cent) more. The incidence of child mortality in rural area (79.72 per cent). In urban area, child mortality was 75.7 per cent. This study finds that the Hindu–Muslim gap in childhood survival probabilities is diminishing due to a greater decline within Hindu inequalities. The progress in the set of Hindu advantage factors identified in this study (i.e., having fewer higher order births, rise in mother's education and mass media exposure, diminishing son preference, rise in household head's age and education, improving wealth status, reducing household size) is the major contributor explaining the convergence in Hindu–Muslim child survival chances in India (Ganguly et.al. 2022)

**Gender of the child and mortality in urban and rural area:**

Male child is biologically weaker than female. Female child is robust and can easily fight to infection. But male child required continuous medical care after

birth. If the male child has low birth weight and health is not in good condition, then the chance of mortality is higher.

**Table 3 Sex of the child who had mortality (Percent)**

| Sex | Region | Male | Female |
|---|---|---|---|
| Neonatal Mortality | Urban | 56.19 | 43.81 |
| | Rural | 54.74 | 45.26 |
| | Total | 54.98 | 45.02 |
| Infant Mortality | Urban | 46.94 | 53.06 |
| | Rural | 53.06 | 46.94 |
| | Total | 53.1 | 46.9 |
| Child Mortality | Urban | 54.39 | 45.61 |
| | Rural | 53.8 | 46.2 |
| | Total | 53.89 | 46.11 |

Source: As per table 1

Incidence of neonatal mortality in urban area among male was 56.19 per cent. The incidence of neonatal mortality among boys was (54.74 percent) high. Infant mortality was 53.06 percent for male, but it was 46.94 per cent for female. Child mortality in urban area for male was 54.39 percent. But it was 45.61 percent for female. In the rural area, the child mortality was 53.8 percent.

**Delivery of women and health status of children:**

Women required health facility for safe delivery. As the number of safe deliveries are increasing for the public and private health care facilities, the number of home deliveries are also declining. The rich households visit private health care facilities and do caesareans. But in public health care facilities, the decision of caesarean delivery is not taken immediately. Caesarean delivery helps the survival of mother and child.

**Table 4 Type of delivery of women (Percent)**

| Sex | Region | Home Delivery | Delivery in Public hospital | Delivery in Private hospital | Cesarean type delivery |
|---|---|---|---|---|---|
| Neonatal mortality | Urban | 1.58 | 10.53 | 6.36 | 5.36 |
| | Rural | 3.61 | 13.52 | 3.93 | 3.13 |
| | Total | 3.28 | 13.03 | 4.32 | 3.49 |
| Infant mortality | Urban | 4.88 | 4.18 | 4.88 | 4.18 |
| | Rural | 3.52 | 11.43 | 2.91 | 2.24 |
| | Total | 3.17 | 11.21 | 3.22 | 2.55 |
| Child mortality | Urban | 1.64 | 7.62 | 4.59 | 3.99 |
| | Rural | 2.69 | 9.5 | 2.58 | 2.43 |
| | Total | 2.52 | 9.2 | 2.91 | 2.69 |

Source: As per table 1

Wealth index decides the living standard of households. The poor households do not afford the health care cost associated with children. The rich can afford health

care for children. But it differs in urban and rural areas. One factor that might explain the different effect of household wealth on mortality between the rural and the semi-urban area is that when looking at the distribution of housing characteristics and asset ownership in the present study area, more pronounced differences were seen in the semi-urban population, while the rural population appeared more homogeneous. Community goods such as electricity and piped water were not available in the rural area and differed markedly between semi-urban quintiles. In a sensitivity analysis in the semi-urban population, including electricity and piped water as substitutes for the more complex construct household wealth, strong but non-significant effects were found. The rural population was very homogeneous, especially with regards to housing materials and most household assets. This might have prevented adequate distribution of households into wealth quintiles (Schoeps et al. 2014)

**Table 5 Wealth index and women who had experienced infant and child mortality (Percent)**

| Wealth quantile | Region | Poorest | Poorer | Middle | Richer | Richest |
|---|---|---|---|---|---|---|
| Neonatal | Urban | 6.93 | 11.75 | 21.16 | 29.15 | 31.01 |
| | Rural | 35.94 | 28.21 | 19.06 | 11.66 | 5.12 |
| | Total | 31.23 | 25.54 | 19.4 | 14.5 | 9.33 |
| Infant Mortality | Urban | 7.74 | 13.82 | 21.49 | 28.68 | 28.28 |
| | Rural | 40.6 | 27.47 | 17.29 | 10.21 | 4.43 |
| | Total | 35.38 | 25.3 | 17.96 | 13.14 | 8.22 |
| Child Mortality | Urban | 6.78 | 12.05 | 21.31 | 32.28 | 27.57 |
| | Rural | 40.95 | 27.38 | 17.48 | 9.85 | 5.12 |
| | Total | 35.37 | 24.88 | 18.18 | 13.52 | 8.05 |

Source: As per table 1

In the rural area, the incidence of neonatal mortality among poorest was 35.94 percent. The Poorest category, have the 28.21 percent incidence of neonatal mortality. The richest have 31.01 percent incidence of neonatal mortality. As far as infant mortality is concerned then, in rural area has (40.6 per cent) high incidence of it in poorest women. Among middle wealth index, the infant mortality was 21.49 per cent in urban area. Among the richer wealth index, the urban area has 28.68 per cent. The richest category, the infant mortality in rural area is 28.28 percent. The child mortality is 49.95 percent in rural area among poorest households. Among poorer in rural area, it is only 27.38 per cent. The

child mortality among richer in urban area is 32.28 per cent. Child mortality in poorest wealth index is higher in India.

**Age of women at the time childbirth and mortality:**

At a lower age the women's body is not fully equipped to give birth to a child. But at a lower age pregnancy may cause a dangerous mark to the health of mother and child. As the age of women increases, body does not support the healthy babies at birth. As the child becomes older. The weak child has more chance of death.

**Table 6 Age of the women and mortality among children ((Per cent)**

| Age group | Region | 15-24 | 25-34 | 35-44 | 44-49 |
|---|---|---|---|---|---|
| Neonatal mortality | Urban | 5.46 | 30.96 | 41.13 | 22.45 |
| | Rural | 8.13 | 32.4 | 38.51 | 20.97 |
| | Total | 7.69 | 32.17 | 38.93 | 21.21 |
| Infant mortality | Urban | 5.99 | 27.63 | 40.77 | 25.61 |
| | Rural | 6.97 | 29.18 | 39.57 | 24.28 |
| | Total | 6.81 | 28.93 | 39.76 | 24.49 |
| Child mortality | Urban | 4.23 | 22.03 | 38.95 | 34.8 |
| | Rural | 8.13 | 20.58 | 40.15 | 31.61 |
| | Total | 5.43 | 21.65 | 39.95 | 32.97 |

Source: As per table 1

As far as age of the women is concerned then women with 35-44 age group in urban area had (41.13 per cent) high neonatal mortality. In the rural area, the neonatal mortality is 38.51 per cent in same age group. Infant mortality in the in 35-44 age group women have 40.77 per cent in urban area. The child mortality in rural area in 35-44 age group is (40.15 per cent) higher in India. Child mortality is found 32.97 per cent among women with 44-49 age group in India.

**Mother's education and mortality among children**:

Highly educated mother, understand health status of child. She can afford to take the child to a health care facility frequently. But less educated women can' t visit to health care facility. She cannot talk doctor and provide or update status of the child's health. The chance of mortality increases with less education. It might also be noted that very low infant and child mortality levels have been achieved in some societies where levels of female education are high, health inputs moderate and incomes per head low to moderate. Mothers and other people involved break with tradition or become less 'fatalistic' about illness and adopt many of the alternatives in childcare and therapeutics that have become available

in the rapidly changing society. An educated mother is more capable of manipulating the modern world. She is more likely to be listened to by doctors and nurses. She can demand their attention even when their reluctance to do anything more would completely rebuff an illiterate. She is more likely to know where the right facilities are and to regard them as part of her world and to regard their use as a right and not a boon. An education of women greatly changes the traditional balance of familial relationships with profound effects on childcare. The women play major roles in family decision-making in traditional societies, and that as long as males are seen to make decisions, they are frequently relieved to be able to consult their women- folk. An educated father has not the same effect as educating mothers is provided by the fact of uniquely low child mortality when the mother is better educated than the father. The education of a girl is more likely to convert her maternal indulgence, which is well attested, into maternal protective action, governed by a feeling that, even if the old would not expect it (at least of an uneducated woman), the school, and the great community or culture that it represents, would. She is more likely to feel personal responsibility. Thus, child mortality was shown here to be lower amongst those who had ever practiced birth control and has been shown elsewhere to be far lower among those who have actually achieved a small family. A woman with schooling is more likely to challenge her mother-in-law, and the mother-in- law is much less likely to fight the challenge. More generally, the younger woman will assert the wisdom of the school against the wisdom of the old. She is more likely to attempt to communicate with her husband, and her husband is less likely to reject the attempt. With the strengthening of the spousal link, she is more likely to succeed in crystallizing out from the matrix of the extended family something more akin emotionally, and perhaps even residentially, to the nuclear family. In all these changes the initiative taken by the woman is usually more important than that taken by the man. Ultimately, the family may even move towards child-centeredness, with all that such a development means reducing child mortality. The traditional family assumes that males get more and better food than females, that the old receive a superior share to the young, that babies are weaned cheaply, and that quite small children struggle from a position of extreme disadvantage for a share in the food. It also assumes that greater expenses can be borne to heal the old rather than the young and that greater trouble is warranted. A young wife and mother with some schooling is likely to move towards reducing all these differences, thus lowering child mortality and perhaps reducing it relatively to

adult mortality and improving female child mortality faster than male. There is at least one factor that operates in the opposite direction. Well-educated mothers are the ones most likely to work in occupations where they must be completely separated from their children, and consequently are almost certain to leave their children in the care of much less well-educated relatives or nursemaids. This is mitigated by the fact that they retain overall control of decision-making and resource allocation (Caldwell 1979).

**Table 7 Mothers education with children related mortality (Per cent)**

| Mothers' education | Region | illiterate | Primary education | Secondary education | Higher education |
|---|---|---|---|---|---|
| Neonatal mortality | Urban | 31.72 | 15.83 | 42.55 | 9.9 |
| | Rural | 49.72 | 16.93 | 30.23 | 3.14 |
| | Total | 46.79 | 16.75 | 32.23 | 4.24 |
| Infant mortality | Urban | 36.2 | 16.43 | 39.18 | 8.2 |
| | Rural | 53.34 | 16.94 | 27.11 | 2.61 |
| | Total | 50.62 | 16.85 | 29.03 | 3.5 |
| Child mortality | Urban | 37.95 | 15.52 | 37.95 | 8.58 |
| | Rural | 56.89 | 16.47 | 24.1 | 2.54 |
| | Total | 53.8 | 16.31 | 26.36 | 3.53 |

Source: As per table 1

The neonatal mortality among women with no education is (49.72 per cent) high in rural area. At the same time, women with no education in urban area have 42.55 per cent of infant mortality. Infant mortality is 53.34 per cent with no education among women in rural area. In urban area, women with secondary education, the incidence of infant mortality is 42.55 percent. Child mortality in rural area with illiterate women is 56.89 per cent. The women with secondary education, in urban area is observed as 37.95 per cent. Female literacy plays a critical role on the overall growth and development of society. It has been proved from research that children who are taken care of by literate mothers get all round development in every aspect of their life (Batool et.al 2020)

**Household assets and mortality among children:**

Household assets provide information and access to services related to the health of children and lectures from experts. Radio provides information on health issues through experts. Regular news and talk shows are an advantage for rural households. Many programs and news on television help households to become aware about health. Refrigerators help households to get a nutritional diet. Refrigerators guarantee to preserve milk, fruits, medicines, vegetables for longer

periods. They certainly help households to get a balanced diet regularly. It helps women and children to build good health and avoid illness. Bicycle provides the mobility to households in villages and city. They easily buy vegetables or carry fodder to animals on bicycles. Scooters are used to riding to nearby villages or city it is used for shopping and visit to relatives. It is the mobility which is provided by the scooter to family members. A car with a family certainly helps households to move from one village to another or one city to another city. It is an asset which provides mobility on 24*7 basis. There is less or rare chance that having car at home and child died due to illness. The car is a status symbol and rich people can afford it at home.

**Table 8 Household assets at home with mortality among children (Per cent)**

| Household assets | Neonatal mortality | | | Infant mortality | | | Child mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Electricity at home | 96.76 | 92.53 | 93.22 | 96.19 | 91.84 | 94.58 | 96.54 | 92.53 | 93.49 |
| Radio | 4.45 | 3.02 | 3.25 | 4.48 | 3.26 | 3.45 | 4.83 | 2.87 | 3.19 |
| Television | 81.48 | 50.52 | 55.55 | 80.01 | 47.09 | 52.32 | 81.05 | 48.38 | 53.71 |
| Refrigerator | 51.68 | 19.48 | 24.71 | 50.02 | 17.74 | 22.86 | 49.6 | 16.97 | 22.3 |
| Bicycle | 47.82 | 56.2 | 54.84 | 46.02 | 53.98 | 52.71 | 46.81 | 52.75 | 51.78 |
| Scooter | 53.98 | 41.35 | 43.4 | 49.86 | 37.72 | 39.65 | 52.51 | 38.01 | 40.38 |
| Car | 7.78 | 3.37 | 4.09 | 8.2 | 3.31 | 4.08 | 7.66 | 3.33 | 4.04 |

Source: As per table 1

Electricity is there in 96.76 per cent households in urban area but the household had incidence of neonatal mortality. Similarly, the infant mortality is high with households has (96.19 per cent) electricity in urban area. The child mortality is still high in urban households who had electricity (96.54 per cent). Total 4.45 per cent of the urban households had high incidence of infant mortality but they had access to radio. In rural area only 3.26 household had radio, but the infant mortality is found. The 4.83 per cent household had access to radio but child mortality is found. In urban area, 81.48 per cent households had television but neonatal mortality is found in household. In rural area, nearly half of households have television but the infant mortality is found with women. Among 19.48 per cent rural households have refrigerator but neonatal mortality is found in it. Nearly half of the urban households have refrigerator, but the infant mortality is found in the house. Similarly, half of the households in the urban area have refrigerator but child mortality is found in the household. In rural area, 56.20 households have bicycle, but neonatal mortality is found. The 54 percent

households have bicycle in house, but the infant mortality is found in household. Only 47 per cent urban households have bicycle but the women had child mortality. Nearly half of the rural households have scooter, but the women had infant, neonatal and child mortality. Only 7.78 percent households in the urban area had car but women had neonatal mortality. In urban area, 7.66 per cent of the households had car but the incidence of child mortality is observed.

**Caste background of women:**

In India, earlier an untouchables' have the lowest social standing. Another way of categorizing the 83 castes, which is now used in India to direct certain policies, is scheduled castes (SCs), scheduled tribes (STs), other backward classes (all 84 disadvantaged groups) and general castes (non-disadvantaged castes). People who belong to SCs were previously referred to as 85 "untouchables", while the STs are communities of people living in tribal areas (mainly forest). SCs and STs are historically marginalized 86 and disadvantaged social groups and are officially recognized and listed by the Indian Constitution. Caste plays significant role in rural area. Caste has an advantage in terms of child health. No caste or general caste enjoys the status symbols in society. But the schedule tribe and caste enjoy less benefits of for child health. Other back ward caste is a dominant category caste and enjoys good benefits for child health.

**Table 9 Caste background of women and mortality among children**

**(Per cent)**

| Caste | Region | Scheduled caste | Scheduled tribe | Other backward class | no caste |
|---|---|---|---|---|---|
| Neonatal mortality | Urban | 23.54 | 7.32 | 43.53 | 25.62 |
| | Rural | 24.42 | 17.4 | 41.03 | 17.36 |
| | Total | 24.28 | 15.77 | 41.43 | 18.65 |
| Infant mortality | Urban | 23.58 | 11.21 | 40.37 | 25.36 |
| | Rural | 23.33 | 22.96 | 37.54 | 16.17 |
| | Total | 23.37 | 21.09 | 37.99 | 17.47 |
| Child mortality | Urban | 25.56 | 10.57 | 39.66 | 24.11 |
| | Rural | 23.08 | 25.35 | 35.74 | 15.72 |
| | Total | 23.42 | 22.94 | 36.38 | 17.26 |

Source: As per table 1

The incidence of neonatal mortality in OBC caste in urban area was 43.53 per cent. In the rural area, the incidence of neonatal mortality was 41.03 per cent. The incidence of infant mortality in the rural households with no caste was only 16.17 per cent. The infant mortality incidence in urban households is 40.37 per cent

among OBC caste. In the rural area, it is only 37.54 per cent. The child mortality in OBC caste in urban area was 39.66 per cent. In the rural area, it is only 35.74 per cent. Among no caste, the incidence of child mortality is observed as 17.26 per cent.

**Types of employment and mortality of children:**

Employment provides women cash and bargaining power in society. Mothers provide good health care and nutrition to children. Self-health is also maintained due to employment. All year employment provides cash benefits to women. It is regular work. Seasonal employment only provides work in agriculture seasons. Women involved in agriculture tasks at rural area. It provides cash benefits to women.

**Table 10 The types of employment of the women (Per cent)**

| Types of employment | Region | All year employed | Seasonal employed | Occasional employed |
|---|---|---|---|---|
| Neonatal mortality | Urban | 3.29 | 1.32 | 0.24 |
| | Rural | 3.37 | 3.16 | 0.28 |
| | Total | 3.35 | 2.86 | 0.28 |
| Infant mortality | Urban | 4.48 | 0.92 | 0.25 |
| | Rural | 3.07 | 2.95 | 0.34 |
| | Total | 3.3 | 2.63 | 0.32 |
| Child mortality | Urban | 3.91 | 1.64 | 0.44 |
| | Rural | 3.75 | 3.35 | 0.31 |
| | Total | 3.78 | 3.07 | 0.33 |

Source: As per table 1

Women employed full year but had neonatal mortality, they are 3.29 per cent in the urban area. In the rural area, it was 3.37 percent. Women had seasonal employment in urban area, but they were 1.32 per cent neonatal mortality in urban area but in the rural area, it was 3.16 per cent. Infant mortality in the rural women was 4.48 per cent but they are all year employed. Those are seasonally employed in the rural area; the incidence of infant mortality was 2.95 per cent. Occasional employed women in rural area had 0.31 percent of the child mortality. Due to less work pressure, they take care of children.

**Toilet facility and mortality among children:**

Most of the households do not have toilet facilities. They often go to farms or nearby areas where it may cause spreads the diseases. Close toilets are crucial for

the health of a mother and child health. The flush toilet is important to clean the toilet. But due to lack of water most of the households have pi t toilets.

**Table 11 Types of toilet facility and mortality among children (Per cent)**

| Type of toilet facility | Region | Flush toilet | Pit toilet | No toilet | Other toilet facility |
|---|---|---|---|---|---|
| Neonatal | Urban | 79.36 | 6.06 | 09.75 | 3.97 |
| | Rural | 51.84 | 8.24 | 29.06 | 10.68 |
| | Total | 56.31 | 7.89 | 25.92 | 09.76 |
| Infant Mortality | Urban | 79.03 | 6.48 | 09.64 | 05.16 |
| | Rural | 50.88 | 9.00 | 30.14 | 08.24 |
| | Total | 55.35 | 8.60 | 26.88 | 08.43 |
| Child Mortality | Urban | 80.33 | 5.79 | 09.82 | 04.43 |
| | Rural | 50.81 | 9.24 | 29.28 | 10.11 |
| | Total | 55.63 | 8.67 | 26.10 | 09.02 |

Source: As per table 1

The flush toilet in urban area had 79.36 per cent but women had neonatal mortality. In urban area, it is only 51.84 per cent. In urban area, 80 percent households had flush toilets, but women had child mortality. The one forth households do not have toilet but the women had neonatal mortality. The rural area, 30 per cent of the households had no toilet but the women had infant mortality.

**Use of fuel and mortality among children:**

Electricity is not used in most of the houses as there is a high cost and electrical equipment is not available in poor households. LPG is used everywhere due to availability of cylinders. It is used regularly for cooking food. Poor households still do not afford LPG. Biomass is used where animals are reared by farmers. The dung is used in gas plants and biogas is used for cooking. Kerosene is still used by a few households. But the government reduced its sell and subsidies. Therefore, it is no longer used as cooking fuel. Coal is used as cooking fuel by very few households. Very few households use charcoal for cooking. Wood is available in rural area; Rural households collect wood for cooking in surrounding areas. Strass grass is available for households. They collect straws from crops after harvest. Agriculture crops are also used as fuel. The residual is used for cooking. Animal cakes are used for cooking. Animals' cakes are prepared every day and through the dung of animals, it is prepared.

**Table 12 Fuel use for cooking and mortality among children (Percent)**

| Type of cooking fuel | Neonatal mortality | | | Infant mortality | | | Child mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Electricity | 1.19 | 0.64 | 0.73 | 1.11 | 0.55 | 0.64 | 0.8 | 0.43 | 0.9 |
| LPG | 76.22 | 30.27 | 37.81 | 76.14 | 27.15 | 34.94 | 78.33 | 28.71 | 36.81 |
| Biomass | 0.24 | 0.34 | 0.33 | 0.21 | 0.31 | 0.29 | 0.24 | 0.21 | 0.22 |
| Kerosene | 0.28 | 0.32 | 0.32 | 0.43 | 0.34 | 0.36 | 0.4 | 0.3 | 0.32 |
| Coal | 1.83 | 0.89 | 1.05 | 1.29 | 0.96 | 1.01 | 1.8 | 0.77 | 0.94 |
| Charcoal | 0.6 | 0.93 | 0.88 | 0.64 | 0.88 | 0.84 | 0.72 | 0.94 | 0.91 |
| Wood | 14.33 | 51.27 | 45.27 | 15.51 | 55.08 | 48.79 | 13.77 | 55.54 | 48.47 |
| Straw grass | 0.12 | 1.49 | 1.32 | 0.34 | 1.6 | 1.4 | 0.12 | 1.8 | 1.53 |
| Agriculture crop | 0.39 | 2.85 | 2.45 | 0.21 | 2.89 | 2.47 | 0.32 | 2.59 | 2.22 |
| animal dung | 2.1 | 8.67 | 7.6 | 2.36 | 8.35 | 7.4 | 1.8 | 7.37 | 6.46 |

Source: As per table 1

**Mass media coverage and relation to child mortality:**

Reading newspapers certainly helps to get the current news. The reading, expert opinion is helpful to understand the health issues in society. Women often read new papers and understand current health infections and technological to avoid it for family. Listening to the radio certainly not only provides music but current news, expert opinion about health, nutrition and immunization. Women get the knowledge through radio. Watching television often helps women to understand various health issues. They watch various health issues in society. Find the best healthy outcome for family. Mobile phone provides direct dialing to health experts, emergency numbers, health apps, news, and other facilities. Having a mobile set certainly help women to get emergency health care for children.

**Table 13: Mass media coverage and use of mobile with mortality among children (Percent)**

| Age | Region | Read newspaper | Listen radio | Watch television | Use mobile phone regularly |
|---|---|---|---|---|---|
| Neonatal mortality | Urban | 29.62 | 11.62 | 82.12 | 8.75 |
| | Rural | 13.28 | 8.33 | 55.88 | 6.43 |
| | Total | 15.93 | 8.86 | 60.14 | 6.81 |
| Infant mortality | Urban | 26.56 | 12.1 | 78.85 | 8.66 |
| | Rural | 12.25 | 8.45 | 52.42 | 6.08 |
| | Total | 14.53 | 9.03 | 56.62 | 6.49 |
| Child mortality | Urban | 26.42 | 12.93 | 80.13 | 8.66 |
| | Rural | 10.77 | 8.38 | 52.26 | 6.10 |
| | Total | 13.32 | 9.12 | 56.81 | 6.52 |

Source: As per table 1

Above table shows that 29.62 per cent women are reading newspaper in urban area but she faced the neonatal mortality problem. In the rural area only 10.77 percent women read newspaper, but they faced the child mortality. In Rural area, only 8.33 per cent women listen radio but they found the neonatal mortality. But in the urban area, 12.93 percent women are reading newspaper, but incidence of child mortality is observed. In urban area, nearly 82.12 per cent women are watching the television but they had the neonatal mortality. In the rural area, 55.88 per cent women watched television but found child mortality in India. In rural area, 6.45 per cent women had mobile phone but found neonatal mortality. The 6.66 per cent women in urban area had mobile phone but they had child mortality. In the rural area, it is 6.1 per cent.

**Banking and mobile coverage:**

Mobile is also useful for financial transactions and various apps are available for payment. Women use mobile for payment and improve the health status of children.

Bank account is certainly helping women to save excess money and withdraw is whenever required. During illness, bank account provides instant money through ATM. The Internet provides information and access to various services and apps. It is important instrument through which women get information. Hospitals, experts, doctor, tablets information can be found through the internet. They can be contacted through WhatsApp and mail if any medical emergency arises.

**Table 14 Access to bank and use of internet use (Per cent)**

| Access to bank and use of internet | Region | Account in bank | Use internet | Use mobile phone for financial transactions |
|---|---|---|---|---|
| Neonatal mortality | Urban | 12.62 | 2.14 | 1.50 |
| | Rural | 12.69 | 1.9 | 0.71 |
| | Total | 12.57 | 2.06 | 0.84 |
| Infant mortality | Urban | 11.94 | 3.68 | 1.66 |
| | Rural | 12.39 | 1.59 | 0.60 |
| | Total | 12.32 | 3.03 | 0.77 |
| Child mortality | Urban | 13.25 | 3.39 | 1.24 |
| | Rural | 12.34 | 1.40 | 0.51 |
| | Total | 12.49 | 1.73 | 0.63 |

Source: As per table 1

In Urban area, 12.62 per cent women have bank account but faced the neonatal mortality problem. In rural area, 12.69 per cent women had bank account but had

neonatal mortality. The urban 11.94 per cent women had bank account but they had faced infant mortality issue. In rural area, 12.34 per cent women had bank account but they had child mortality problem. In urban area, 2.14 per cent women are using internet but they had neonatal mortality. The rural 1.9 per cent women had neonatal mortality but they are using internet. In urban area, 3.39 per cent women are using the internet but they had child mortality. In the rural area, 1.4 per cent women are using the internet but they had child mortality problem. Only 1.50 per cent women in urban area used mobile for transaction but she found the issue of neonatal mortality. The rural 0.71 per cent women had used mobile for transaction but they had neonatal mortality. The 1.66 percent women in urban area had used mobile for the transaction but they had infant mortality. In rural area, only 0.60 per cent women had used mobile for financial transaction but they had infant mortality. Total 0.63 per cent women had used mobile for financial transaction but found child mortality in India.

**Mothers age and child mortality:**

Women get married early, perhaps before 18 years and give birth a child which may have low birth weight and illness. They do not take care of children properly due to lack of knowledge. They often neglect children due to household work, lack of knowledge and poverty. As the age increases, the health of women status deteriorates. Children do not have much immunity. They die due to illness and infection. A mother's age at birth is a critical determinant of child health.

**Table 15 Mothers age at child and mortality (Percent)**

| Age at childbirth | Region | Childbirth below 18 | 18-23 | 24-29 | 30-35 | 35< |
|---|---|---|---|---|---|---|
| Neonatal mortality | Urban | 34.50 | 49.10 | 14.75 | 2.04 | 0.18 |
| | Rural | 38.60 | 49.32 | 10.88 | 1.04 | 0.11 |
| | Total | 37.93 | 49.19 | 11.51 | 1.20 | 0.12 |
| Infant mortality | Urban | 37.21 | 46.95 | 13.91 | 1.90 | 0.03 |
| | Rural | 39.64 | 48.87 | 10.38 | 1.01 | 0.08 |
| | Total | 39.25 | 48.57 | 10.94 | 1.16 | 0.07 |
| Child mortality | Urban | 40.94 | 44.81 | 12.81 | 1.04 | 0.28 |
| | Rural | 43.55 | 46.10 | 9.39 | 0.83 | 0.09 |
| | Total | 43.13 | 45.89 | 9.95 | 0.86 | 0.12 |

Source: As per table 1

Those women had age between 18-23 in urban area had 49.10 per cent of neonatal mortality. In the rural area, it was 49.32 per cent. In the rural area, 48.87

per cent women had infant mortality. In urban area, it was 46.95 per cent. As far as child mortality is concerned then 44.81 per cent women in urban area had age as 18-23 but they had child mortality. In the age group of 18-23, the 46.10 per cent women experienced child mortality. Around half of the women had 18to 23 age group but they experienced child, neonatal and infant mortality in India.

**The contraceptive use and mortality prevalence among children:**

Modern contraceptives certainly help women to provide space between the children. A gap in the children help women to improve self as well as children, s health. Traditional contraceptives have many failures. Therefore, modern contraceptives have good options available with training from health staff. Women use number of modern contraceptives such as condom, coper T, tablets, pills and family planning operation etc. But the women are not using any contraceptives then fertility rate increases. If women do not required child, then they must use the contraceptives and vis a vis.

**Table 16 Use of contraceptives by ever married women and mortality among children (percent)**

| Contraceptive use | Neonatal mortality | | | Infant mortality | | | Child mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Modern contraceptive use | 56.49 | 54.02 | 54.42 | 56.8 | 54.37 | 54.76 | 59.42 | 57.63 | 57.92 |
| Traditional contraceptive use | 12.52 | 12.4 | 12.42 | 12.13 | 11.64 | 11.72 | 10.61 | 10.14 | 10.22 |
| No use of contraceptives | 3.72 | 4.27 | 4.18 | 3.35 | 3.58 | 3.55 | 2.15 | 3.05 | 2.91 |
| No intent to use contraceptive | 27.27 | 29.29 | 28.96 | 27.69 | 30.38 | 29.95 | 27.81 | 29.16 | 28.94 |
| Never had sex | 0 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0 | 0.02 | 0.01 |
| Want child | 24.96 | 30.3 | 29.43 | 24.59 | 28.81 | 28.14 | 17.48 | 21.87 | 21.16 |
| Latter want child | 1.43 | 1.28 | 1.3 | 1.44 | 1.32 | 1.34 | 1.08 | 0.77 | 0.82 |
| Want no more children | 1.78 | 2.16 | 2.1 | 1.69 | 2.31 | 2.21 | 1.84 | 1.65 | 1.68 |

Source: As per table 1

Nearly 56.49 per cent women in urban area are using the modern contraceptives but they faced neonatal mortality. Nearly 54.02 per cent women in the rural area had used modern medicines but they had experience of neonatal mortality. Nearly 27.27 per cent women in urban area had neonatal mortality. In the rural area, 29.29 per cent women had no intension to use contraceptive but women

experienced neonatal mortality. The 10.61 per cent urban women had child mortality but they are using the traditional contraceptive. In the rural area, it is 10.14 per cent. Nearly 28.94 per cent women in India do not use contraceptives but they had child mortality.

**Nature of work of women and mortality:**

Women are performing various task such as agriculture, domestic, service etc. Manual work does not help women to achieve knowledge. Technical jobs are important for women who understand the child health issues. But women working in agriculture and less skilled jobs do not have the knowledge of childcare. The children are often left without care.

**Table 17 Nature of Work of women and mortality among children (Per cent)**

| Nature of work | Neonatal | | | Infant Mortality | | | Child Mortality | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Current working | 4.21 | 5.55 | 5.53 | 4.67 | 5.2 | 5.11 | 5.33 | 6.01 | 5.89 |
| Not working | 10.43 | 9.12 | 9.33 | 9.15 | 9.4 | 9.36 | 10.1 | 8.13 | 8.45 |
| Professional work | 0.42 | 0.17 | 0.21 | 0.34 | 0.16 | 0.19 | 0.4 | 0.22 | 0.25 |
| Clerical work | 0.1 | 0.06 | 0.06 | 0.09 | 0.05 | 0.06 | 0.08 | 0.02 | 0.03 |
| Sale work | 0.31 | 0.21 | 0.23 | 0.71 | 0.21 | 0.29 | 0.68 | 0.31 | 0.37 |
| Service work | 0.31 | 0.21 | 0.23 | 1.11 | 0.21 | 0.29 | 0.68 | 0.31 | 0.37 |
| Agriculture work | 1.14 | 4.65 | 4.08 | 1.72 | 4.2 | 3.71 | 1.04 | 5.04 | 4.39 |
| Skilled manual | 1.81 | 1.11 | 1.22 | 0.49 | 1.15 | 1.24 | 2.23 | 1.1 | 1.28 |
| Other work | 0.29 | 0.23 | 0.24 | 3.75 | 0.25 | 0.29 | 0.36 | 0.23 | 0.25 |

Source: As per table 1

In urban area, 10.43 per cent women are not working but they had neonatal mortality. In the rural area, 9.12 per cent women do not work but had neonatal mortality. Around 9.15 per cent women in urban area do not work but they had infant mortality related issue. In the rural area, it is 9.40 per cent. The child mortality is observed in 5.55 per cent urban women. Total 6.01 per cent rural women are currently working but experienced child mortality.

**Table 18 Child mortality and Prenatal visits and its nature (Per cent)**

| Antenatal visits | Region | Complete prenatal visit | Prenatal visits though doctor |
|---|---|---|---|
| Neonatal mortality | Urban | 1.11 | 9.02 |
| | Rural | 1.15 | 8.6 |
| | Total | 1.06 | 8.82 |
| Infant mortality | Urban | 0.43 | 8.75 |
| | Rural | 0.99 | 7.27 |
| | Total | 0.9 | 7.51 |
| Child mortality | Urban | 0.62 | 9.99 |
| | Rural | 1.15 | 7.77 |
| | Total | 1.04 | 8.02 |

Source: As per table 1

In the urban area, only 1.11 per cent women never had pre-natal visits but they had neonatal mortality. The 1.15 per cent women in rural area had no prenatal visit but they had neo-natal mortality issue. Infant mortality with no prenatal visit was 0.43 per cent in urban area. But it is 0.99 per cent with women in rural area. Total 1.15 per cent women in rural area never received any pre-natal visit but had child mortality. In urban area, it was only 0.62 per cent. The prenatal visits through doctor's were 9.02 per cent in urban area but women had neonatal mortality. The 8.60 per cent women in rural area had prenatal visits from doctor but women had infant mortality issue. In the rural area, it is 7.27 per cent. The 9.99 per cent women had child mortality issue in the rural area but in the urban area it was 7.11 per cent.

**Nutritional status of women and children:**

Women's weight should be normal. Normal weight assures the good health of children, but women are less educated. They are involved in various economic activities. Such activities are less skilled, and they are affecting child health.

**Table 19 Nutritional status of women and child mortality (Percent)**

| Nutritional status of women | Region | Underweight | Normal BMI | Obese1 level | Obese 2 level | Obese 3 level | Obese 4 level |
|---|---|---|---|---|---|---|---|
| Neonatal | Urban | 9.15 | 48.34 | 26.93 | 9.23 | 2.14 | 4.21 |
| | Rural | 17.92 | 58.64 | 16.35 | 3.75 | 0.71 | 2.63 |
| | Total | 16.48 | 56.96 | 18.07 | 4.64 | 0.94 | 2.88 |
| Infant Mortality | Urban | 7.82 | 49.92 | 25.46 | 9.78 | 2.03 | 4.75 |
| | Rural | 17.38 | 60.57 | 16.04 | 3.14 | 0.58 | 2.26 |
| | Total | 15.97 | 59.09 | 17.58 | 3.84 | 0.83 | 2.66 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Child Mortality | Urban | 7.82 | 49.52 | 25.46 | 9.78 | 2.00 | 5.03 |
| | Rural | 16.75 | 60.18 | 16.44 | 3.53 | 0.77 | 2.27 |
| | Total | 15.29 | 58.5 | 17.91 | 4.55 | 0.97 | 2.72 |

Source: As per table 1

The 48.34 per cent women in urban area had normal BMI in urban area but they have neonatal infant mortality. In rural area, 58.64 per cent women had normal BMI but the women had neonatal mortality problem. The 49.92 per cent women in urban area had normal BMI but women found an issue of infant mortality rate. In the rural area, 60.57 per cent women had normal BMI but they had infant mortality.

Total 60.18 per cent women in rural area had normal BMI but child mortality issue is found. The 49.52 per cent urban women had normal BMI but found the incidence of child mortality.

**Econometric model**

In order to examine the socio-economic co-relation with the mortality among children, we have used logit regression (Greene W. 2003). Logit regression gives the significant results for child mortality with socio-economic factors. The model is explained as follows.

$f(z) = e_z/e_{z+1}$ (20)

$=1/1+e_z$

$z = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots\ldots\ldots + \beta_k x_k,$ (21)

Where

z = Dependent variable

$\beta_0$= Intercept

$\beta_1$, $\beta_2$, $\beta_3$ are "regression co-efficient" of $x_1$, $x_2$, $x_3$ respectively. The variables $x_1$, $x_2$, $x_3$ are considered as independent variables. Such independent variables are of socio-economic and demographic categories. The results are presented in the following table.

**Table 20 Logit regression results for neonatal mortality, infant mortality and under five child mortality**

| Variables | Sub-categories | Neonatal Mortality | | Infant Mortality | | Under five mortalities | |
|---|---|---|---|---|---|---|---|
| | | co-efficient (SE) | Wald test | co-efficient (SE) | Wald test | co-efficient (SE) | Wald test |
| Religion | Hindu | 0.61*(0.02) | 633.59 | 0.27* (0.02) | 150.1 | | |
| | Muslim | 0.32*(0.02) | 132.95 | | | | |
| | Christian | | | 0.15* (0.03) | 17.31 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sikh | 0.64*(0.04) | 204.34 | 0.17** (0.06) | 7.64 | | |
| | Buddhist | | | | | -0.276** ( 0.093) | 8.838 |
| Sex | Male | 0.120* (0.011) | 130.982 | 0.032* * (0.014 ) | 5.147 | | |
| | Female | | | | | -0.065* (0.016 ) | 15.810 |
| Place of delivery | Home deli | | | 0.156* (0.042 ) | 14.019 | -0.442* (0.058 ) | 58.208 |
| | Public | | | | | -0.529* (0.039 ) | 179.063 |
| | Private | | | 0.087* * (0. 044 ) | 3.951 | -0.410* (0.059 ) | 48.347 |
| Wealth quantile | Poorest | | | 0.300* (0 .029) | 110.663 | 0.323* (0.048 ) | 45.773 |
| | Poorer | | | 0.173* (0.025 ) | 48.683 | 0.168* (0.045 ) | 14.050 |
| | Middle | | | 0.086* ( 0.024) | 12.747 | 0.116** (0.042 ) | 7.835 |
| | Richer | | | | | 0.114** (0.038 ) | 8.902 |
| Mothers' education | Illiterate | 0.166 * (0.011) | 221.046 | | | 0.464* (0.023 ) | 411.109 |
| | Primary | | | | | 0.248* (0.027 ) | 85.437 |
| Women's age | 25-34 | | | 0.138* (0.018 ) | 58.412 | | |
| | 44-49 | | | 0.447* (0.043 ) | 107.858 | | |
| Assets | Radio | -0.292* (0.030) | 97.174 | -0.150* (0.040 ) | 14.179 | -0.276* (0.047 ) | 35.021 |
| | Televisio n | -0.177* (0.012) | 223.714 | -0.161* ( 0.018) | 76.006 | -0.048** ( 0.021) | 5.167 |
| | Rridge | | | | | -0.074** (0.028 ) | 7.000 |
| | Car | -0.305* (0.027) | 127.253 | -0.135* (0.038 ) | 12.704 | -0.119** (0.045 ) | 7.054 |
| | Scooter | | | -0.066* (0.017 ) | 15.504 | | |
| Caste | Schedule d Caste | 0.203* (0.015) | 195.392 | 0.113* ( 0.024) | 22.874 | 0.307* (.043 ) | 50.004 |
| | Schedule d Tribe | | | 0.045*** (0.026 ) | 3.092 | 0.308* (0.044 ) | 50.256 |
| | Other Backward Caste | 0.139* (0.013) | 123.003 | 0.044** (0.021 ) | 4.412 | 0.157* (0.042 ) | 13.725 |
| | No caste | | | | | 0.160** (0.046 ) | 12.064 |
| Husband's Education | Illiterate | | | 0.146* ( 0.036) | 16.426 | 0.148* (0.037) | 16.070 |
| | Primary | | | 0.124** (0.044 ) | 8.058 | | |
| Toilet facility | Flush toilet | -0.060* * (0.019) | 10.313 | | | | |
| | Pit toilet | -0.074* * | 8.630 | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (0.025) | | | | | |
| | No toilet | 0.077* (0.020) | 15.096 | | | | |
| Cooking fuel | Electricity | | | | | -0.479* (0.117 ) | 16.835 |
| | Biomass | | | | | -0.357** (0.175 ) | 4.150 |
| | Kerocene | | | | | -0.257** (0.144) | 3.188 |
| | Straw | | | | | 0.133** (0.067) | 3.899 |
| | Animal dung | | | | | 0.109** (0.034 ) | 10.344 |
| Employment | All year | | | -0.120** (0.046 ) | 6.876 | | |
| | Seasonal | | | -0.131** (0.049 ) | 7.183 | | |
| Listen | Radio | | | -0.090* (0.025 ) | 12.578 | | |
| Read | Newspaper | | | | | -0.087** (0.028) | 9.617 |
| Use of mobile and internet | Mobile | | | | | -0.339** (0.111 ) | 9.286 |
| | Use internet | -.242* (0.039) | 38.392 | | | -0.116** (0.069 ) | 2.840 |
| Age at birth | Below 18 | | | 0.156* (0.015) | 111.524 | | |
| | 24-29 | | | | | -0.317* (0.027 ) | 133.395 |
| | 30-35 | | | | | -0.604* (0.088 ) | 46.983 |
| Contraceptives use | Modern | -0.299* (0.011) | 779.643 | | | -0.154* (0.018 ) | 70.399 |
| | Traditional | | | | | -0.152* (0.029 ) | 26.796 |
| Women's work | Not working | 0.052* * (0.019) | 7.426 | | | | |
| | professional | | | | | 0.485** (0.169 ) | 8.257 |
| | Clerical | 0.361* * * (0.209) | 2.981 | | | | |
| | Agriculture | 0.188* (0.027) | 49.463 | | | | |
| | skilled manual | 0.195* (0.048) | 16.526 | 0.197** (0.071 ) | 7.730 | | |
| | other work | | | 0.275** ( 0.135) | 4.131 | | |
| Prenatal visits | no prenatal visits | | | | | 0.489* (0.088 ) | 31.006 |
| | visit through doctor | | | 0.080** ( 0.030) | 6.924 | 0.643* ( 0.045) | 200.185 |
| Nutritional status of women | Normal | | | -0.077* (0.020 ) | 15.193 | -0.058* ( 0.017) | 12.187 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | obese1 | | | -.072** (0.025 ) | 8.467 | | |
| | obese2 | | | -.155* (0.041 ) | 14.506 | | |
| | obese 3 | | | -.120* (0.047 ) | 6.600 | | |
| Low birth weight | Lbw | | | .113* (0.032 ) | 12.812 | | |
| Constant | | -3.939* (0.029) | 17936.909 | -4.733* ( 0.055) | 7509.170 | -4.740* (0.065 ) | 5399.395 |
| | | -2 Log likelihood | Cox & Snell R Square | -2 Log likelihood | Cox & Snell R Square | -2 Log likelihood | Cox & Snell R Square |
| | | 108258.178 | 0.005 | 207587.563 | 0.002 | 164148.476[a] | 0.002 |

*Significant at 1 per cent, ** significant at 5 per cent, *** significant at 10 per cent

Neonatal mortality is positively co-related and statistically significant with Hindu religion of women. Due to high population of Hindu, the neonatal mortality is statistically significant. The neonatal mortality is positively co-related with Muslim households. Muslim women have many children due to which the less pre-natal care, age at marriage, education are the reasons of high neonatal mortality. The incidence of neonatal mortality is higher among Sikh community. Women perhaps do not take care of children at birth. Therefore, the neonatal mortality could be higher. The neonatal mortality is positively co-related to male child. Male child is biologically weak, and it required health care immediately after birth. Therefore, neonatal mortality with male child is statistically significant. Women with no education, the neonatal mortality is positively co-related and statistically significant. Illiterate women do not know how to take care of child. She does not visit frequently to health care facilities. Antenatal visits are not completed. Therefore, illiteracy among women is positively co-related with neonatal mortality. Radio at home is negatively co-related with neonatal mortality. Radio provides information and expert lectures on maternal and child health. Many women are taking benefit of the knowledge. Television is negatively co-related with neo-natal mortality. Television provides continuous information on maternal and child health. Having a car at home is negatively co-related and statistically significant with neonatal mortality. The car provides immediate mobility to households. The car ownership guarantees to reach the best hospital for child illness in a short period. Therefore, cars at home have negative co-relation with neonatal mortality. Women with scheduled caste category has positive co-relationship with neonatal mortality. Women in scheduled caste category are less educated and do not take care much of children.

The other backward caste has a high incidence of neonatal mortality. Their socio-economic status is low, and children often die due to lack of access to health care. Flush toilet is negatively co-related with neonatal mortality. Flush toilet is put where there is water availability is existing. Similarly, hygiene is maintained for children's health. The pit toilet is also negatively co-related and statistically significant with neonatal mortality. Pit toilet access also guarantees hygiene at home and child health is protected and safe. But no toilet at home is positively co-related with neonatal mortality. It means households do not protect hygiene and they are poor. Use of internet is negatively co-related with neonatal mortality. The Internet provides maximum information. It can be used to take care of a child. Moden contraceptive use is negatively co-related with neonatal mortality. It means the use of modern contraceptives requires knowledge. Knowledge helps to take care of children. Not working women have positive significant effect on neonatal mortality. Women those are working get money and go frequently to doctor and take care of children but women with no employment the infant mortality is more and significant. Women is doing clerical job have high incidence of neonatal mortality. Clerical work does not help how to take care of children. Women with agricultural work also have high incidence of neonatal mortality. Women with skilled manual work have high incidence of neonatal mortality. The manual work does not support the child's health.

Women in Hindu religion category has positive co-relation with infant mortality. Women in Hindu religion are large in number. Therefore, the incidence is positively co-related and significant. The Christian women have positive co-relationship with infant mortality. The women already have more children and due to less health care and nutrition. It is affecting mortality among children. The women in Sikh community have more incidence of infant mortality and it is statistically significant. The male child has high incidence of infant mortality. It is positively co-related and statistically significant. Male child is biologically weak, after birth boys required health care. Therefore, it is positively co-related and statistically significant. The place of delivery is at home, then the infant mortality is positively co-related and statistically significant. All the deliveries must take place to health care facilities. It must be attended by a doctor or nurse. Delivery to the private health care facilities is positively co-related and statistically significant. Private health care facilities charge more money but provide less quality care as compared to public health care facilities. The wealth quantile poorest and poorer have positive co-relation to infant mortality. Poor

households cannot provide good quality health care and nutritious food to children. They grow with a less healthy diet. Therefore, they die at an early age. The middle wealth index is also positively co-related and statistically significant. If the women age is found between 25-34, then infant mortality is negatively co-related and statistically significant. It is an ideal age of the women to have healthy children. But if women's age is 44-49 then infant mortality is higher. At higher age children are often born weak. They die and infant mortality increases. The women are illiterate primary and secondary studied then infant mortality rate is higher. We explain that the women with low education does not take care properly. Across countries, the U5M rate was higher among the children of parents with at most primary education than that of parents who had at least secondary education. This pattern of U5M rate was also observed for children of parents where husbands were more educated than their wives. Maternal age at birth, sex of the child, toilet facility, type of cooking fuel, tetanus injection during pregnancy, and birth weight were significantly associated with U5M (Adebowalea A.S. et.al 2020). The results revealed that father's literacy was associated with Under 5 mortalities. Literature suggests that an educated husband can play a better role both as husband and parent. Educated husband can take better decisions and seek timely and appropriate treatment for their children. Contrary to the past studies, we did not find an association between mother's literacy and the under-five mortality. (Agha A. et.al 2010). Having a radio at home means the infant mortality is less. Women often listen to health experts, news. It is effective to save a newborn child. Similarly, having television at home, the infant mortality is significantly low. Having a scooter at home means the infant mortality is statistically significant and negatively co-related. It provides the mobility of households in the region. The similar case with car also which provides the access to health care facilities. The scheduled caste, scheduled tribe and other backward caste have significantly lower mortality rate among children. If the husband is illiterate, then the infant mortality rate is higher. Less educated husbands do not have skills and cannot earn more money which is required for family. Therefore, due to poverty children may die. All year employed women have no infant mortality. Similarly, the seasonal employed women have negative relationship with infant mortality. Similarly, the seasonal employed women have negative co-relationship with infant mortality. Employment of women provides money and women take care of their children through visit to hospitals and doctor. Listening to radio is negatively co-related

with infant mortality. Radio provides maternal and child health related programs. They benefit to women. Age at birth of women if it is below 18 then the infant mortality is positively co-related. At a lower age, women's bodies get developed. But birth at lower age affects the birth weight of baby and there is additional responsibility of child. Women's skilled manual work is positively co-related with infant mortality. It does not provide women with proper knowledge. Women other work is also positively co-related with the infant mortality. Women's any kind of work does not support child health. The prenatal visit from doctor is positively co-related with infant mortality. It is difficult to explain such a relationship. Normal BMI of a women is negatively co-related with infant mortality rate. Normal BMI in women is important for healthy children. The obese 1 category is also negatively co-related with infant mortality, The obese 1 and 3 category of women BMI is also negatively co-related with infant mortality rate. The woman with higher weight is good indicator of healthy children. Maternal overweight or obesity significantly increases the risks of infant mortality, neonatal mortality, early neonatal mortality, and post-neonatal mortality compared with normal BMI in a dose-dependent manner. Also, maternal underweight does not increase the risk of infant mortality, neonatal mortality, early neonatal mortality, or post-neonatal mortality; instead, it tends to decrease the risk of infant mortality (Huo et.al 2021). The low birth weight (LBW) children have more chance of infant and neonatal mortality. High birth weight is an advantage to have good health of child in long term.

The child mortality is negatively co-related and statistically significant with women of Buddhist community. The community does not take care of children properly as compared to the other community. The female child has negative co-relation with child mortality. It means female child will not die due to biological factors. The place of delivery at home has a negative co-relationship with infant mortality. At the same time, the place of delivery at private and public health care facilities is also negatively co-related with child mortality. The findings revealed that health facilities during delivery have statistically significant effect on neonatal and infant mortality. The newborn baby at home had an increased risk of death during the neonatal period compared to those who gave birth in health facilities. Women who gave birth at home had a 1.3-fold increase in the risk of neonatal death compared to their counterparts (Das U. et.al 2021). The wealth quantile as poorest, poorer, middle and richer is positively co-related with child mortality. It is difficult to explain such a relationship at this point. Richness or

poverty is not associated with child mortality. An illiterate women have co-relation with child mortality in India. Illiterate women do not take care of her child. Primary education is positively co-related with child mortality. Radio at home negatively co-related with child mortality. U5 mortality is very high, the male and female analyses, greater distance from a primary health center was consistently associated with a high rate of U5 mortality. The poorer wealth quintile, poorer reading ability among women of reproductive age in the household and having access to electricity were also significantly associated with U5 mortality among male child (Boettiger et.al 2021). Refrigerators at home have a negative co-relationship with child mortality. Care at home has a negative co-relationship with child mortality. If the household caste is schedule caste, tribe or other backward class then it has positive and statistically significant relationship with child health. No caste has also positive and statistically significantly co-related with child mortality. If the husband is illiterate, then the child mortality is positively co-related and statistically significant. Looking through electricity, biomass, kerosene has a negative co-relationship with child mortality. Similarly, the animal dung used for cooking is also positively co-related with child mortality. If the women are reading newspaper, then child mortality is negatively co-related. The mobile used for financial transactions is negatively co-related and statistically significant with child mortality. The use of the internet is also negatively co-related with child mortality. The women's age at birth that is 24-29 and 30-35 is negatively co-related with childbirth. It is because lower and higher women age is a problem of mortality among children. The modern and traditional contraceptive is positively co-related and statistically significant with child mortality. It is difficult to explain that the modern contraceptives use among women have positive co-relationship with child mortality. The women professional work is positively co-related to child mortality. It may be because she does not have time to take care of the children. No prenatal visits are positively co-related with child mortality. Women do not get injection tablets and checkups in pregnancy. Prenatal visits from doctors are positively co-related to child mortality. Normal birth is negatively co-related with child mortality. Those children died had no normal delivery of the mother in the past.

**Logit regression for child mortality:**

The neonatal, infant and under five mortality is related to number of socio-economic and demographic variables i.e independent variables. We have categorized women with any incidence of neonatal, infant and child mortality in

the past. The yes result is categorized as one and it is used for dependent variable. The results are presented as follows.

**Table 21 Logit regression results for Neonatal, Infant and under five Child Mortality**

| Variables | Sub category | Co-efficient | Wald |
|---|---|---|---|
| Area | Rural | 0.18*(0.01) | 265.30 |
| Sex | Female | -0.08*(0.01) | 106.36 |
| Nutritional status | Underweight | 0.13*(0.01) | 168.54 |
| Age at birth | Below 18 | 0.18*(0.00) | 530.13 |
| Use internet | Use internet | -0.18*(0.00) | 45.43 |
| Media coverage | Listen radio | -0.13*(0.01) | 91.32 |
| Use of fuel | Cooking fuel as wood | 0.01***(0.00) | 3.95 |
| Toilet facility | No toilet | 0.13*(0.01) | 185.03 |
| Mothers' education | Illiterate | 0.10**(0.01) | 32.99 |
| Caste | Scheduled caste | 0.14*(0.00) | 222.64 |
| | Scheduled tribe | -0.10*( 0.01) | 107.97 |
| Media access | Radio | -0.29*( 0.02) | 179.29 |
| | Television | -0.16*( 0.00) | 287.17 |
| Husband's education | Illiterate | 0.24*(0.00) | 861.17 |
| Wealth Index | Poorest | 0.10*(0.01) | 95.53 |
| | Constant | -3.05*(0.01 ) | 48310.44 |
| -2 Log likelihood | | Cox & Snell R Square | |
| 555510.531[a] | | 0.006 | |

*Significant at 1 per cent, ** significant at 5 per cent, *** significant at 10 per cent

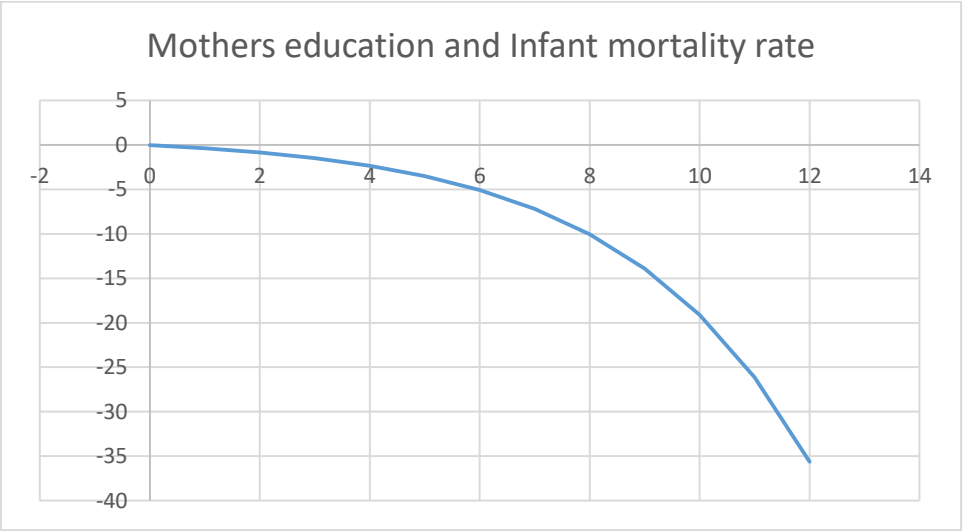
Above table shows that morality among children is positively co-related to rural area, underweight women, age of marriage below 18, cooking fuel as wood, no toilet in house, Illiterate husband and wife, scheduled caste and poorest wealth quantile. The child mortality is negatively co-related with female child, use internet, radio at home, scheduled tribe, listen radio and television. Child malnutrition is found more in the rural area. The women are involved in different tasks, and they do not eat proper food on time therefore they are underweight. Girls get marry early in the rural area. The poor women carry wood and use it as fuel. The households are poor, and toilet is not found in their house. The results showed that lower maternal and paternal education are both risk factors for child mortality, even after controlling for other markers of family socioeconomic status

(Balaj et.al 2021). Both the husband and wife are illiterate and found in poorest background with scheduled caste background. The female child is stronger as compared to male. Those mothers use internet and listen radio regularly, the child mortality is low. Scheduled tribes have lower incidence of child mortality.

**Policy implication and Conclusion:**

The study finds that populated and least developed states like Uttar Pradesh, Madhya Pradesh and Bihar still contribute significantly to India's overall high Infant Mortality Rate and Under five Mortality Rate. In spite of reduction in child deaths in these states over the years, even today, these three states alone contribute to over 50% of all infant deaths in India (Bhatia M. et.al. 2019). Our study finds that Bihar and Uttar Pradesh state has highest number of mortalities among children. Women of Hindu religion followed by women of Muslim community have high mortality among children. Male children have more incidence of mortality. Women those are illiterate and 35-44 age group, OBC background, had poorest wealth quantile, stay in rural area have highest number of mortalities among children. Having radio and car at home reduces the incidence of child mortality. The refrigerator at home in rural area significantly reduces the mortality among children. Women with pit toilet significantly have lower mortality among children. Those women are using the wood as fuel for cooking in rural area have higher mortality among children. But the use of the LPG reduces the mortality among children significantly. Those women listen radio regularly, use mobile phone for financial transaction with internet facility, the mortality among children is very low. Mothers with birth of child below 18 and 18-23 have more incidence of child mortality. Mother using modern contraceptives have more incidence of child mortality. Child mortality is low those mothers have completed all prenatal visits. Around half of the women in rural area had normal Body Mass Index but they had child mortality. There is still room to improve access to health facilities for mothers and children belonging to deprived caste groups in India. Continuous efforts to raise the level of maternal education and the economic status of people belonging to deprived caste groups should be pursued simultaneously (Bora JK, Raushan R, Lutz W 2019). Furthermore, infant mortality was high among those women who had more children than their comparison group, who had birth intervals of less than two years, who had multiple births, who were from rural areas, who were poor, whose source of water was the river or unprotected sources, and who did not have a toilet facility in their household (Adhikari and Sawangde 2011).

Figure 2 : Mothers education and infant mortality



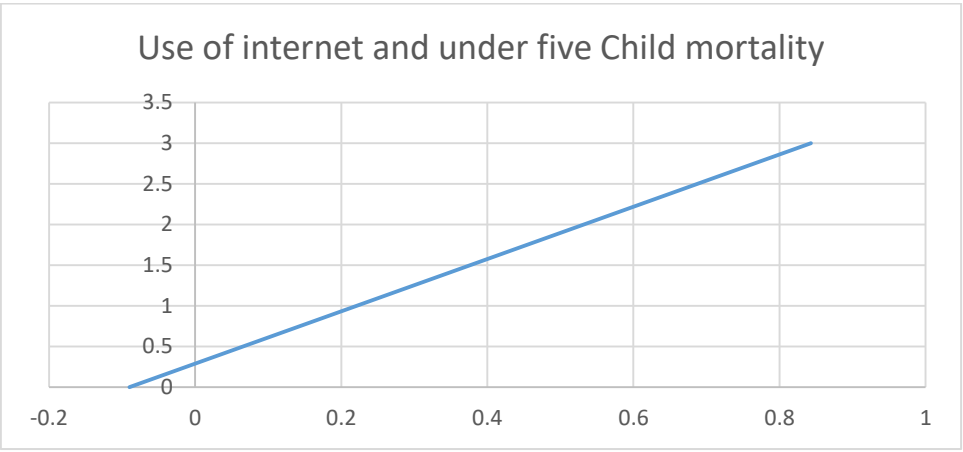

Source: Author's derivation

Above figure shows that if women have 6 years of education, then child mortality rate will decline 5 per cent. If education increases from 6 to 8$^{th}$ class, then the decline is mortality rate becomes double. Still if education increased from 8 to 10 then mortality declines from 20 per cent. At the 12$^{th}$ class, mortality rate may decline up to as 35 per cent. Women's education plays a very important role in reducing the mortality among children.

**Use of internet and under five child mortality:**

We have also used internet use and its relationship with mortality among children.

Figure 3 Use of internet and under five mortality rate




Source: Author's derivation

Above figure shows that if the women use the mobile phone, then probability of child survival is 20 per cent. If women use mobile phone continuously then probability of child survival after five years is 50 percent. If the mobile phone is used for a long period, then probability of child survival is more than 85 percent.

It is possible that very early neonatal deaths may not be reported in birth history. Such an error, however, is hard to detect unless it is so pronounced as to result in fewer deaths reported in the first day or two of life than in say the period from 2 days to 4 days. Further analysis of the reporting of stillbirths in pregnancy histories, and the possible misreporting of early neonatal deaths as stillbirths, is required (Hill K. and Yoonjoung Choi 2018). In addition, increasing maternal education levels were associated with lower U5M in all surveys. Though, in recent years, primary education has had no significant effect. The U5M risk was additionally lower for urban children than rural children whose mothers had secondary and higher education by NFHS-III; however, this additional urban advantage was no longer significant in recent surveys. The higher impact of secondary education on Under five Mortality Rate in urban areas in the past may be attributed to poor socio-economic and healthcare conditions in rural areas. Overall, maternal education, particularly secondary education, remained a protective factor for Under five Mortality Rate in both rural and urban areas, even after controlling predictors (Moradhvaj, K.C. Samir 2023). The findings revealed that health facilities during delivery have a statistically significant effect on neonatal and infant mortality. The newborn baby at home had an increased risk of death during the neonatal period compared to those who gave birth in health facilities. Women who gave birth at home had a 1.3-fold increase in the risk of neonatal death compared to their counterparts. The study emphasized that safe delivery is associated with lower risks of neonatal deaths but increases in institution-based deliveries were not consistently associated with decreased neonatal mortality rates. Improving the quality and safety of institutional deliveries has the potential to increase the utilization and health impact of perinatal health services, as well as improve the health status of newly born Indian babies (Das et.al. 2021). However, a crucial point emerging from this analysis is that the mortality rate on day 3 is substantially higher than on day 2 in all the surveys, suggesting a poor transition of care from hospital to household. This finding calls for special attention to the management of newborn health status when the newborn baby is moved from the health facility to the home. This attention is crucial, as the social settings are often poor among the vulnerable populations that continue to show higher neonatal mortality rates. Consequently, health system improvements might play a small role in future reductions in neonatal mortality in India. Multipronged efforts, including an effective, low-cost health system combined with a responsive program for dealing with social

determinants locally might need greater attention. Community-based interventions had the least pro-rich inequalities. In many countries, these interventions are delivered by community health workers at little or no cost to families, including immunizations, case management for common diseases (malaria, diarrhea, and pneumonia), and insecticide-treated bed nets or household spraying with insecticides. The group of interventions also includes family planning services, which might be provided at community level, in health facilities, or a combination of both, depending on the country. Minimum dietary diversity was included in this group because it is also often part of nutrition counselling at community level, although this intervention is more inequitable than other community interventions because it also requires families to purchase a variety of foods, some of which might be expensive. The culturally driven interventions pertained to infant and young child feeding: exclusive breastfeeding up to age 6 months, and continued breastfeeding at age 12–15 months (Daniel et.al 2009)

All the women should have access to family planning services on continuous basis. Heath staff must provide iron folic acid tablets to all pregnant women in rural and urban area. All the pregnant women required counsellor for healthy and balanced diet. Every prenatal visit, there is need to identify and manage risk factor for women and children. All the above policies will certainly help to reduce the number of neonatal, infant and under five mortality children in India. India would find a better tomorrow, if these children saved and given the guarantee of life to all newborn. It is real growth the India want at this movement.

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