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Examining India's child mortality: Unravelling the causes of death from 2015-2019

Vanishree Joseph

Assistant Professor, National institute of Rural Development and Panchayati Raj, India

Corresponding author email: vanishreej.nird@gov.in

Abstract--Child mortality in India constitutes a significant portion of global child deaths. Despite progress, challenges persist due to incomplete documentation and socio-cultural barriers. This study examines into the complexities surrounding child mortality in India, emphasizing the urgent need for effective interventions. The objective of this study is to analyze child mortality in India within the 0-4 age group. The research draws from Cause of Death Statistics collected nationwide, from multiple years (2015-2017, 2016-2018, and 2017-2019) ensuring a broad representation of the country's demographic and geographic diversity. The research aims to identify patterns and causative factors contributing to child mortality. The study focuses on refining the classification systems for low-resource settings, incorporating improved verbal autopsy methods. The data, collected using Virtual Autopsy (VA) methods, presents a representative sample across States in India including both urban and rural areas. The data encompasses a range of sociodemographic factors, contributing to a nuanced understanding of child mortality patterns in India. The study advocates for innovative approaches, including enhanced verbal autopsy techniques and home-based preventive care strategies, to address the persisting challenges. The findings emphasize the importance of sustained efforts and targeted interventions. The study highlights the effectiveness of verbal autopsies in determining causes of death and advocates for the integration of machine learning-based automated categorization criteria. Furthermore, the research emphasizes the role of preventive interventions, such as Vitamin A supplementation, in mitigating child mortality rates. This study accentuates the critical need for enhanced data collection methodologies and tailored interventions. By embracing innovative approaches, such as advanced verbal autopsy techniques and machine learning applications, India can make significant strides toward achieving Sustainable Development Goal 3.2. The findings of this research provide valuable insights, guiding policymakers and

healthcare professionals toward effective strategies for ensuring a healthier future for India's youngest population.

Keywords---Child Mortality, India, Cause of Death, Verbal Autopsy, Sustainable Development Goals.

Introduction

Every year, over 10 million children die from preventable causes, predominantly in developing countries. Half of these deaths are in six countries namely India, Nigeria, China, Pakistan, D R Congo and Ethiopia, and 90% in 42 countries (1). To successfully reduce this mortality rate, it is essential to gain an understanding of the child health epidemiology in each country, taking into account the underlying causes of death, such as undernutrition and concurrent illnesses. Pneumonia and diarrhoea are the two most common causes of child deaths. Enhancing our knowledge of child health epidemiology can help us find ways to save more young lives.

Even though, there was a worldwide drop in child and adolescent mortality between 1990 and 2017, the main factors causing non-fatal health loss during childhood and adolescence have not changed significantly. But, morbidity has increased as a percentage of the overall disease burden (2). The Sustainable Development Goal 3.2 seeks to eliminate all preventable child deaths, lower neonatal mortality to less than 12 deaths per 1,000 live births, and reduce the death rate of children under five to fewer than 25 deaths per 1,000 live births in every country by 2030. Between 2000 and 2019, global child mortality decreased by almost half, yet progress is slower in newborns and 65 countries, primarily located in sub-Saharan Africa and south Asia, are not predicted to achieve either SDG 3.2 goal by 2030 (3). Devising a policy to reach this goal necessitates analyzing the causes of death among children ranging from 0 to 4 years of age.

Many children in India die outside of hospitals, making it extremely hard to pinpoint the cause of death. Even when deaths occur in hospitals, the documentation of cause of death is often incomplete. Complete Diagnostic Autopsy (CDA) could be a more reliable option to identify the cause of death, but it is rarely used due to socio-religious-cultural beliefs. Additionally, India is limited in terms of financial resources, technical capabilities, and infrastructure (4).

According to research, verbal autopsies are effective in determining the cause of death, and automated categorization criteria obtained through machine learning could be applied to verbal autopsies to enhance cause of death classification (5). India maintain records for the cause of death through representative of sample across districts across the country. The data is collected using Virtual Autopsy (VA) method (6). In this paper an attempt is made to analyse the cause of death of children in the age group of 0-4 years in India. Data for this study is analysed from Cause of Death Statistics 2015-2017, 2016-18 and 2017-2019 (Office of The Registrar General & Census Commissioner, 2022 and 2023).

Cause of Death

The health and well-being of children is of paramount importance to any society. Unfortunately, in India, children are facing a number of health issues that are leading to premature death. In particular, there is a high rate of mortality among children under the age of five. The alarming rate of mortality has been attributed to a variety of factors, including poor nutrition, lack of access to healthcare, inadequate sanitation, and an overall lack of awareness of the importance of preventive health measures. This section explores the causes of death among children in India. The Table 1 shows the gender segregation of distribution of deaths in India between the years of 2015 and 2019, for children aged 0-4.

Table 1: Gender Segregation of Distribution of Deaths in India (0-4 Years of age)

Cause of Death	2015-2017		2016-2018		2017-2019	
	Boys	Girls	Boys	Girls	Boys	Girls
Communicable, maternal, perinatal and nutritional conditions	85.1	80.6	84.3	83.2	82.6	84.7
Non Communicable diseases	8.7	10.7	9.5	10.1	10.7	9.5
Injuries	4.8	7.3	4.8	5.6	5.1	4.7
Symptoms, signs and Ill- defined conditions	1.4	1.4	1.4	1.2	1.6	1.2
Total	100	100	100	100	100	100

Source: Cause of Death Statistics, 2022 and 2023

Across the three periods, a consistent reduction in mortality rates is observed. Notably, boys consistently exhibit higher mortality rates compared to girls in this category, although the gender gap has slightly narrowed in the 2017-2019 period, indicating positive progress in addressing these conditions. While the overall mortality rates due to non-communicable diseases are low, there is a concerning upward trend, especially among girls. This suggests a need for focused interventions targeting non-communicable diseases, particularly for young girls, to prevent further escalation of mortality rates.

The data indicates relatively stable mortality rates due to injuries for boys, whereas a decline is observed for girls. Despite the improvement, girls consistently face higher mortality rates from injuries, underlining the necessity for targeted safety measures and awareness campaigns aimed at reducing injuries among young girls.

With regard to Symptoms, Signs, and Ill-Defined Conditions, this category demonstrates consistently low mortality rates for both genders, with negligible gender disparities. While the rates are low, ensuring accurate reporting and diagnosis in this category remains crucial for effective public health planning. The data emphasises the importance of targeted interventions to further reduce child mortality rates, focusing on non-communicable diseases and injuries, especially among girls. Policy initiatives promoting gender-sensitive healthcare access and safety measures can play a pivotal role. Continuous monitoring and analysis of gender-segregated data are vital to evaluate the effectiveness of interventions and

refine strategies, ultimately working towards a more equitable and healthier future for India's young population.

Communicable Diseases

The table 2 shows the gender segregation of deaths due to communicable, maternal, perinatal and nutritional conditions in India for children between 0 and 4 years of age. The table reveals that boys and girls experienced different levels of mortality in these conditions. Perinatal conditions and bacterial infections as cause of death are high among boys whereas nutritional deficiency and respiratory infections are high among girls. Research studies suggest that child mortality due to respiratory distress in India is associated with delay in tertiary care after sever illness and secondary bacterial infection (8). Acute respiratory infections are burden in child's health and cause death among children in India. The Global Action Plan for Prevention and Control of Pneumonia (GAPP) said that respiratory infections can be reduced among children by vaccination, prevention and management of HIV infection, improvement of nutrition and breast feeding (9).

Pneumonia and sepsis among children requires ventilation during illness. When children are disconnected from ventilators may cause inability to sustain spontaneous breathing (10). Nearly 60% of all newborn deaths occur within the first three days of life, and the majority of preterm and malformation deaths occur within the first week. After the first week, around half of sepsis-related deaths take place. The standard of care during childbirth and the first few weeks after delivery needs to be improved (11). A large proportion of death occurs due to influenza virus which occurs during infancy. Findings from trails found that an effective strategy against influenza infections in infants under 3 months of age is maternal influenza immunisation (12).

Table 2: Gender Segregation of Distribution of Deaths by communicable, maternal, perinatal and nutritional conditions in India (0-4 years of age)

Communicable, maternal, perinatal and nutritional conditions	2015-2017		2016-2018		2017-2019	
	Boys	Girls	Boys	Girls	Boys	Girls
Acute Bacterial Sepsis and severe Infections	4.6	3.5	4.2	3.8	3.8	4.2
Diarrhoeal diseases	5.2	9	5.2	7.4	5.4	6.2
Fever of unknown origin	3.5	6.3	3.6	5.1	4.1	4.1
Malaria	0.5	1.1	0.4	0.7	0.2	0.3
Nutritional Deficiencies	0.5	1.5	0.6	1.1	0.7	1
Perinatal Conditions	54.2	36.2	52.7	42.9	49.4	48.4
Respiratory Infections	14.8	19.4	15.9	19.3	16.8	18.1
Selected Tropical diseases	0.3	0.5	0.3	0.4	0.3	0.3
Tuberculosis	0	0.2	0	0.1	0.1	0.1
Other Infections and Parasitic diseases	1.5	2.9	1.4	2.2	1.7	1.9

Source: Cause of Death Statistics, 2022 and 2023

Mortality rates due to acute bacterial sepsis and severe infections have shown a steady decline over the three periods. In 2015-2017, 4.6% of boys and 3.5% of girls succumbed to these conditions. This decreased to 3.8% for boys and 4.2% for girls in 2017-2019. Although boys initially had higher rates, the gender gap narrowed, indicating improved healthcare access and interventions.

Diarrheal diseases posed a significant threat, especially to girls, throughout the periods. In 2015-2017, 9% of girls faced mortality compared to 5.2% of boys. While rates reduced marginally, the gender disparity persisted, with 6.2% of girls and 5.4% of boys succumbing to diarrheal diseases in 2017-2019. This highlights the need for targeted interventions in improving sanitation and healthcare access for young girls.

Mortality rates due to fever of unknown origin decreased slightly from 2015-2019. Girls consistently faced higher risks, with 6.3% mortality in 2015-2017, decreasing to 4.1% in 2017-2019. Boys had lower rates, indicating a need for specialized research to understand and mitigate this disparity. Perinatal conditions accounted for a significant portion of child mortality. In 2015-2017, 54.2% of boys and 36.2% of girls succumbed to these conditions. While rates decreased, the gender gap remained, with 48.4% of girls and 49.4% of boys affected in 2017-2019. Efforts to enhance maternal and neonatal healthcare are crucial to addressing this issue.

The data reveals persistent gender disparities, particularly in diarrheal diseases and perinatal conditions. Targeted interventions focusing on improving healthcare access, sanitation, and maternal health are vital to reducing these disparities and ensuring the well-being of children in India.

Non-communicable Diseases

The table 3 above provides information on the gender segregation of the distribution of deaths by non-communicable diseases in India between 2015-2019 for those aged 0-4. From the table it can be seen that mortality rates due to cardiovascular diseases increased gradually from 0.3% for boys and 0.4% for girls in 2015-2017 to 0.7% for boys and 0.6% for girls in 2017-2019. Although still relatively low, this increase highlights the need for early detection and intervention strategies for cardiovascular health among children. Congenital anomalies accounted for a substantial portion of non-communicable disease-related deaths. Rates remained relatively stable, ranging from 5% to 6% for both boys and girls across the periods. Targeted prenatal screening and specialized medical care for affected infants are crucial in addressing these conditions.

Mortality rates due to digestive diseases saw a slight decline, with 1.8% of boys and 2.6% of girls affected in 2015-2017, decreasing to 1.9% for boys and 1.6% for girls in 2017-2019. Enhanced early diagnosis and nutritional interventions are vital in managing these diseases among young children. Mortality rates due to neuro-psychiatric conditions remained relatively stable, with 0.7% to 1.1% of boys and 0.8% of girls affected across the periods. Accessible mental health services and early intervention programs are essential to support affected children and their families.

Rates of mortality due to respiratory diseases were relatively low, remaining stable at around 0.3% to 0.4% for both boys and girls. However, even minor fluctuations could signify changes in environmental factors or healthcare practices, necessitating continuous monitoring and research. Mortality rates due to other non-communicable diseases were consistently low, ranging from 0.2% to 0.4%. While these conditions individually contribute minimally, a comprehensive approach to pediatric healthcare is necessary to address the collective impact of various rare diseases.

The data highlights the need for ongoing research, accessible healthcare services, and public health awareness campaigns to address non-communicable diseases effectively. To prevent premature deaths in India, treatment for non-communicable diseases should be given priority (13). Timely interventions, particularly in the case of congenital anomalies, are crucial for reducing child mortality rates and ensuring a healthier future for India's children.

Table 3: Gender Segregation of Distribution of Deaths by Non-communicable diseases in India

2015-2017			2016-2018		2017-2019	
Non Communicable diseases	Boys	Girls	Boys	Girls	Boys	Girls
Cardiovascular diseases	0.3	0.4	0.5	0.5	0.7	0.6
Congenital anomalies	5	5.2	5.5	5.5	6	5.4
Diabetes mellitus	0	0	0	0	0	0
Digestive diseases	1.8	2.6	1.6	2.1	1.9	1.6
Genito urinary diseases	0.2	0.1	0.1	0.1	0.2	0.3
malignant and other neoplasms	0.4	0.5	0.4	0.3	0.4	0.4
Neuro-psychiatric conditions	0.7	1.1	0.8	1	0.8	0.8
Respiratory diseases	0.3	0.4	0.3	0.4	0.3	0.2
Other Non-communicable diseases	0.2	0.4	0.2	0.3	0.3	0.2
Total	8.7	10.7	9.4	10.2	10.6	9.5

Source: Cause of Death Statistics, 2022 and 2023

Perinatal and Neonatal death

Studies have shown that the cause of perinatal and neonatal death is attributed to high level of infection and prematurity. Hygienic delivery in institutions and new born care should remain priority to avert neonatal deaths (14). Table 4 shows the top 10 causes of death for persons below 29 days of age in India.

Table 4: Top 10 Causes of Death for age group below 29 days in India

2015-2017			2016-2018		2017-2019	
Cause of death	Boys	Girls	Boys	Girls	Boys	Girls
Prematurity & low birth weight	46	46.3	46.1	45.5	44.8	46.2
Birth asphyxia & birth trauma	13.2	14.4	13.9	14.9	15.5	14.7
Neonatal pneumonia	11.1	11.9	11.8	13.9	12	13.4
Other Non-Communicable Diseases	8.6	7.7	7.8	7.8	8.1	7.8
Sepsis	5.6	5.8	5	5.4	4.9	5.7

Congenital anomalies	4.5	3.7	4.9	4.4	5.4	4.3
Diarrhoeal diseases	2.2	2.9	2.1	2.3	2	2.1
Fever of unknown origin	1.5	0.9	1.4	0.7	1.1	1
Injuries	1.2	1.3	0.9	0.8	0.5	0.7
Ill-defined or cause unknown	5.6	4.4	5.5	3.8	5.1	3.8
All other remaining causes	0.5	0.7	0.5	0.4	0.5	0.3

Source: Cause of Death Statistics, 2022 and 2023

From 2015 to 2019, the data reveals consistent challenges in neonatal healthcare in India. Prematurity & Low Birth Weight remained the leading cause of infant mortality throughout these years, highlighting the persistent issue of inadequate prenatal care and maternal health. The rates, although stable, indicate a need for continuous efforts to improve antenatal support for mothers. Birth Asphyxia & Birth Trauma witnessed a slight increase in mortality rates over the period. This rise emphasizes potential gaps in perinatal care and the crucial necessity of skilled attendants during childbirth, particularly for girls who exhibited higher vulnerability.

Neonatal Pneumonia showed a concerning upward trend, especially among girls. This indicates a growing need for focused postnatal care, including early detection and treatment of respiratory infections. Gender-specific factors might be contributing to this vulnerability, warranting further research. Other Non-Communicable Diseases maintained relative stability, underlining the importance of ongoing efforts in managing diverse health conditions in neonates.

Regional Disparities

Smaller states in terms of population have shown significant progress in reducing the child mortality (15). Studies have shown that infant deaths are highly prevalent in the families of poor and illiterate mothers. Mothers education, age at marriage and birth spacing also play a significant role in determining child mortality. U5MR clustering is seen in non-EAG states, hence region wise interventions should be designed and implemented (16).

The table 5 shows the percentage proportion of perinatal deaths in different geographic regions in India, according to gender. It indicates that the proportion of perinatal deaths varies significantly between different regions of the country. The leading cause of death among children in the states of where infant mortality is high are infectious related causes like pneumonia and diarrhoea. Where as in states with low infant mortality, the cause of death is attributed to non-communicable diseases (17).

Table 5: Percentage Proportion of Perinatal Deaths - Region and gender wise

2015-2017			2016-2018		2017-2019	
Region	Male	Female	Male	Female	Male	Female
North	4.7	1.9	3.8	2.8	3	3.6
North-East	5.2	2.2	4.3	3.7	3.1	4.6
East	8	3.8	6.4	4.2	4	4.7
Central	11.3	4.6	9.7	6.4	8.1	8.9
West	5.1	2	6.4	2.3	Perinatal deaths are not in top 10 causes	
South	Perinatal deaths are not in top 10 causes		Perinatal deaths are not in top 10 causes			

Source: Cause of Death Statistics, 2022 and 2023

From 2015 to 2019, examining the percentage proportion of perinatal deaths by region and gender in India reveals significant disparities and improvements across different parts of the country. In North, Perinatal deaths were observed, with a noticeable decrease from 4.7% among males and 1.9% among females in 2015-2017 to 3% and 3.6%, respectively, in 2017-2019. This indicates positive progress in healthcare services, especially for females. Similar to the northern region, the North-East also experienced perinatal deaths, with a decrease from 5.2% among males and 2.2% among females in 2015-2017 to 3.1% and 4.6%, respectively, in 2017-2019. This signifies a notable improvement in perinatal healthcare, particularly for males. The eastern region showed relatively higher proportions of perinatal deaths, with a decrease from 8% among males and 3.8% among females in 2015-2017 to 4% and 4.7%, respectively, in 2017-2019. Despite the reduction, there's a need for continued efforts to enhance maternal and neonatal care in this region.

The central region exhibited the highest proportions of perinatal deaths, with reductions from 11.3% among males and 4.6% among females in 2015-2017 to 8.1% and 8.9%, respectively, in 2017-2019. Although improvements are noted, urgent interventions are crucial to further decrease these rates. Perinatal deaths are no longer among the top 10 causes in the western region. This indicates significant progress, particularly in reducing perinatal mortality rates among males, showcasing effective healthcare interventions in this region. Notably, the southern region did not register perinatal deaths among the top 10 causes during these years. This signifies a relatively robust healthcare infrastructure and maternal care practices in this region, contributing to a healthier start for newborns.

Under 5 Mortality

The cause of death for Under-5 children in India can be either prevented or treated. In Uttar Pradesh and Haryana the cause of neonatal death is low birth weight (18). The health of the mother and ante-natal checkups play a crucial role to avert such kind of death. Maternal factors such as mother's prior history of still birth, complicated pregnancy and adverse reproductive health contribute to the birth of low weight children. These in turn lead to alarming rate of child mortality in the country (19). Table 6 shows the top 10 causes of death among children aged 0-4 in India.

Table 6: Top 10 Causes of Death for age group 0-4 year in India

Cause of Death	2014-2016		2016-18		2017-2019	
	Male	Female	Male	Female	Male	Female
Prematurity & low birth weight	34.7	23.6	33.7	27.7	30.8	31.6
Pneumonia	14.8	19.5	15.9	19.3	16.8	18.2
Other Non-Communicable Diseases	10	9.2	9.6	9.1	10.1	9
Birth asphyxia & birth trauma	9.7	6.6	9.9	8.4	10.3	9.4
Diarrhoeal diseases	5.2	9	5.2	7.4	5.4	6.2
Injuries	4.8	7.3	4.8	5.6	5.1	4.7
Congenital anomalies	5	5.2	5.5	5.5	6	5.4
Fever of unknown origin	3.5	6.3	3.6	5.1	4.1	4.1
Acute bacterial sepsis & severe infections	4.4	3.3	4.1	3.5	3.6	4
Ill-defined or cause unknown	5	4	4.9	3.7	4.6	3.9
All other remaining causes	3	6.3	2.8	4.6	3	3.7

Source: Cause of Death Statistics, 2022 and 2023

From 2014 to 2019, the data illustrates the prominent causes of mortality among children aged 0-4 years in India. Despite a decrease in rates, prematurity and low birth weight remained the leading cause of death across all periods, affecting 30.8% to 33.7% of males and 31.6% to 27.7% of females. This emphasizes the critical need for enhanced prenatal care and neonatal services. Pneumonia consistently posed a significant threat, especially for females, with rates ranging from 15.9% to 19.3%. Efforts to improve immunization coverage and access to healthcare facilities are vital in combating this respiratory illness. Other Non-Communicable Diseases excluding pneumonia, accounted for around 9% of deaths, showing stable trends. Nutrition programs and early disease detection are crucial in addressing this category.

Despite a decrease, birth-related complications still affected around 10.3% of males and 9.4% of females in 2017-2019. Skilled obstetric care during delivery is imperative to prevent such fatalities. Although rates reduced, diarrheal diseases remained concerning, especially for females, affecting 6.2% in 2017-2019. Clean water access and hygiene education are essential in further decreasing mortality rates. Injuries caused approximately 5.1% to 4.7% of deaths. While these rates decreased, ongoing awareness campaigns on child safety are necessary.

Congenital Anomalies rates were stable, affecting approximately 5% of children. Early diagnosis and specialized care are essential in managing congenital conditions. Deaths due to unknown fevers decreased, with rates ranging from 4.1% to 3.5% for males and 4.1% to 5.1% for females. Research to identify the underlying causes can guide targeted interventions. Acute Bacterial Sepsis & Severe Infections: Rates decreased, impacting around 3.6% of children. Improved healthcare access and maternal education contribute to this positive trend. Approximately 4.6% of males and 3.9% of females succumbed to unknown causes in 2017-2019. Enhanced medical reporting and comprehensive post-mortem examinations can reduce deaths in this category.

U5MR could be significantly reduced with targeted improvements in perinatal and newborn care. Continued and expanded delivery of health services like immunisation and infection prevention can be strengthened with an emphasis on equity. Sustained effort in reducing poverty and promoting education, and investments in health systems across the development spectrum will help to reduce U5MR. Given COVID-19's massive effects, maintaining and accelerating development to attain Sustainable Development Goal (SDG) 3.2 on neonatal and child health will need a lot of work (3).

Rural-Urban disparity and Gender Differences

Table 7 suggests that death rates are higher in rural areas than in urban areas for both males and females. In rural India, there is an epidemiological transition with a change in the causes of death from communicable to non-communicable diseases. Rural India's public health system, which prioritises maternal and child health and infections, must now be strengthened to deal with the triple threats of communicable, non-communicable diseases, and injuries (20). Disability Adjusted Life Years (DALY) in rural India are at least two times more than in urban areas. The causes are prenatal conditions, nutritional deficiencies, chronic respiratory problem, diarrhoea and fever (21).

Table 7: Distribution of Deaths in Rural & Urban Areas in Percentage

Age Group	2015-2017				2016-2018				2017-2019			
	Rural		Urban		Rural		Urban		Rural		Urban	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-1	9.8	5.4	7.2	3.9	8.3	6.4	5.9	4.7	6.4	7.4	4.5	5.5
1 - 4 years	1.4	2	0.8	1.1	1.3	1.6	0.7	0.9	1.1	1.3	0.7	0.8

Source: Cause of Death Statistics, 2022 and 2023

From 2015 to 2019, the data reveals distinct patterns in the distribution of deaths between rural and urban areas for different age groups. In the age group 0-1 year, mortality rates were higher in rural areas compared to urban areas, affecting 9.8% to 4.5% of males and 5.4% to 5.5% of females. These numbers decreased slightly over the years, indicating some progress in rural healthcare, especially for females. Urban areas consistently exhibited lower mortality rates, ranging from 3.9% to 4.7% for males and 6.4% to 7.4% for females. Although higher than rural areas, these rates remained relatively stable, suggesting consistent healthcare standards but still requiring attention, particularly for males.

In the age group 1-4 years mortality rates for the age group 1-4 years were lower in rural areas, ranging from 0.8% to 1.1% for males and 0.7% to 0.8% for females. These rates remained relatively stable, indicating relatively consistent healthcare access and services. In urban areas, too, demonstrated low mortality rates, ranging from 0.7% to 1.3% for males and 0.7% to 0.9% for females. These rates remained steady, reflecting a consistent level of healthcare standards in urban regions for children aged 1-4 years.

Gender discrimination at all stages of the female life cycle, including sex-selective abortions, neglect of the care of female infants, and limited access to health care for females, all contribute to gender-based health disparities (22). Studies say there is improvement in mortality of the younger age group from 0-14 increased among male children (13). Infant mortality is more common in female children than male children. Infant mortality rates were lowest in children born after the birth interval of 36+ months. Strong indicators of a child's survival include the mother's education and household affluence. Mothers whose previous child has passed away tend to have more infant deaths (23).

Conclusion

It is crucial to analyze the medical causes of death in order to create strategies to reduce mortality rates, and to track changes in the causes of death. Yet, it is difficult to classify and document the causes of death in a precise manner. In India, there is a wide variation in healthcare and it is considered a 'low resource setting' when it comes to health. This lack of access to medical equipment, devices and other supplies may impede the accuracy of the current classification system in determining the cause of death. Therefore, a classification system that is suitable for 'low resource settings', where 98% of deaths occur, should be implemented. (24).

To significantly lessen Under 5 Mortality Rate, it is indispensable to advance perinatal and newborn care, continue and extend the delivery of essential interventions, such as vaccination and infection prevention, prioritize equity, reduce poverty and invest in education, and invest in strengthening health systems in all stages of development. As a result of the far-reaching effects of COVID-19, a notable effort is needed to both sustain and speed up progress. (3). By gathering and improving upon data collection, it is possible to determine and record the mortality rate and causes of death in children. Utilizing pre-established verbal autopsy tools and techniques to determine causes of death is suggested. To gain a more precise cause-of-death, and potentially a better data collection, methods such as minimally invasive tissue sampling or Countrywide Mortality Surveillance for Action may be considered (17). Enhancing home-based preventive care can help parents and care givers recognise and act upon health risks in their children that could result in mortality. Regular conduct of social and verbal autopsies can generate evidence to inform policy measures targeted at lowering infant mortality (25). Vitamin A supplementation in children will reduce all-cause of morbidity and mortality among children. Universal policy on providing Vitamin A supplementation to children under 5 years of age should be in place (26). This will reduce disease and death in children especially in the age group of six months to five years.

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