

# A Review of Socioeconomic Factors Affecting Infant Survival in Indonesia

Zurayya Fadila<sup>1</sup>, Sevrina Anggraini<sup>2</sup>

<sup>1</sup>Department of Public Health and Community Medicine, Faculty of Medicine, Universitas Andalas, Padang, Indonesia

<sup>2</sup>Faculty of Health Science, Universitas Ibn Khaldun, Bogor, Indonesia

Corresponding Author: Zurayya Fadila

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## ABSTRACT

Infant survival is the infant's ability to survive until their first birthday. Indonesia has a high IMR. Previous research reported that socioeconomic is a crucial factor that must be discussed in solving the challenge of infant mortality in Indonesia, considering that Indonesia is a developing country with high socioeconomic disparities. This review aims to identify socioeconomic determinants affecting infant survival in Indonesia. According to Mosley and Chen's framework, the well-being and survival of infants are influenced by socioeconomic factors operating through proximate determinants identified at the individual, household, and community levels. The findings from this review are how socioeconomic variables are related to each other.

**Keywords:** infant mortality, household, community

## INTRODUCTION

Infant survival is the infant's ability to survive until their first birthday. The infant mortality rate (IMR) serves as a metric for this survival, is a sensitive indicator of the overall health of a society, and is essential for social and economic development. Indonesia has a high IMR, based on data from the Indonesia Demographic and Health Survey (IDHS) 2017; IMR Indonesia is 24 per 1,000. Higher than many neighboring countries. Sri Lanka reported seven deaths per 1000 live births,

Vietnam (17 deaths per 1000 live births), and Thailand (8 deaths per 1000 live births) (1–6). Based on the IDHS data, it is apparent that there are notable variations in the IMR across different regions in Indonesia. This discrepancy is especially noticeable between the eastern and western parts of the country. In 2017, the provinces with the highest IMR were Gorontalo, West Papua, and North Maluku, with 59, 53, and 52 deaths per 1000 live births, respectively. On the other hand, the regions with the lowest IMR were Riau Island, West Kalimantan, Jakarta, and Yogyakarta, with 13, 15, and 17 infant deaths per 1000 live births, respectively (figure 1). As many as four provinces in Indonesia are still experiencing an increase in IMR from 2012 to 2017 (4,7).

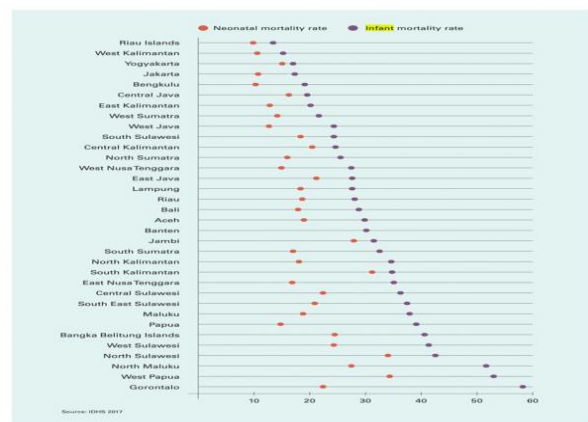


Figure 1. Disparities in Neonatal and Infant Mortality Across Provinces in Indonesia (source: UNICEF <https://www.unicef.org/indonesia/sites/unicef.org/indonesia/files/2020-06/The-State-of-Children-in-Indonesia-2020.pdf>)

Previous research reported that socioeconomic is a crucial factor that must be discussed in solving the challenge of infant mortality in Indonesia, considering that Indonesia is a developing country with high socioeconomic disparities. Some studies across countries show that infant mortality rates are highly related to income status and the mother's education level. In Cambodia, Myanmar, and the Philippines, infant mortality rates are more than three times higher in the poorest households compared to the richest ones. Similarly, in Vietnam and the Lao PDR, children born to mothers with no education

were six to seven times more likely to die before their first birthday than children whose mothers had completed secondary or higher school (6,8).

One of the popular theories for the Study of Child Survival in Developing Countries is The Mosley and Chen framework (figure 2), which provides insight into the factors that contribute to infant survival. Analyzing socioeconomic determinants and classifying them into three groups commonly examined in social science literature demonstrates how they impact growth faltering and mortality through the immediate determinants (9).

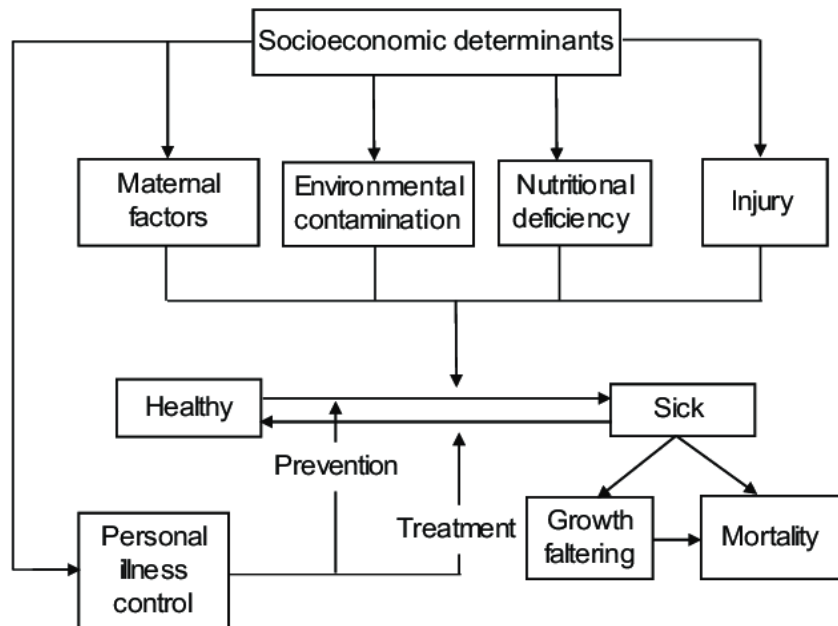


Figure 2. Proximate determinants of child survival (Source: Mosley and Chen, 1984)

Given that infant survival is a critical measure of a country's overall health and prosperity, examining the factors that influence it is essential. In Indonesia, a vast and diverse archipelago, various socioeconomic factors impact the fate of infants during their first year of life. Through this review, we aim to identify of socioeconomic determinants that affect infant survival in Indonesia.

### Individual-level variables

Based on Mosley and Chen's theory, the individual-level variables that influence an

infant's survival are the educational factors of the mother and father. Research conducted by Amoah et al. found that mothers who completed basic education experienced 1% fewer deaths on average compared to mothers who had no level of education at all. In the case of a completed secondary education level relative to no education level, a marginal effect of -0.0666 is obtained. The implication is that a mother who has, on average, completed a secondary level of education is likely to experience about 7% fewer deaths compared to a mother who has no education at all. For a

higher level of education, compared with no level of education, a marginal effect of -0.2194 is obtained, which means that mothers who have a higher level of education, on average, experience about 22% fewer deaths compared to mothers who have no level of education (10).

Research in Indonesia has similar results that maternal education has a significant effect on infant mortality in rural Indonesia. Research conducted by Irawaty et al. explains that education influences mothers' decisions on various matters, including those related to decision-making regarding their health and the health of their babies. Furthermore, Amoah et al. also explained that education provides knowledge that allows women to become self-aware and create awareness of decisions and their consequences. In other words, women who gain knowledge through education tend to behave differently from less knowledgeable women. For example, women who receive education about how to prevent pregnancy have a greater chance of not getting pregnant compared to women who do not have this knowledge. Again, a woman who knows prenatal challenges and how to deal with them has a higher chance of saving herself and her child from premature death. However, women who lack knowledge about pregnancy are always vulnerable to disease and the threat of early death (10–13).

A father's education is also related to infant survival because it is strongly correlated with employment, which will be linked to household income. Higher education fathers, whether through a degree or certification, have more opportunities to secure fulfilling and well-paying jobs, particularly for those living in urban areas, where there may be a higher demand for skilled and educated professionals. The income earned from these jobs is often above the average salary for the region and can provide these fathers with more excellent financial stability and security for their families. From a comprehensive perspective,

research about socioeconomic factors and the infant mortality rate in Indonesia shows that income per capita (GDP) has a negative and significant effect on the infant mortality rate in the short term and long term, with the coefficient on the long-term greater than the coefficient on the short term. It means that an increase in GDP per capita (GDP) will cause a decrease in Infant Mortality Rate (IMR). Wealthy households can access quality health services, good public infrastructure, clean water, nutritious food, and reduced child mortality compared to low-income families. Children from households with low economic status have a 1.42 times risk of experiencing under-five mortality compared to households with high financial status (10,14,15).

#### **Household level variable**

The household level variable includes the household's social and economic condition that affects infant mortality through the proximate variable. Based on the discussion in the previous section, many studies have proven that household conditions are a factor that can influence an infant's survival. This is associated with their access to health services. Low-income households will prioritize the need for daily food rather than choosing a good health facility at a high cost or even not going to a health facility at all, especially during pregnancy and childbirth. The Indonesian government has insurance for services during pregnancy and childbirth for low-income households. However, home births are still high at 11.25%; in the context of developing countries, home births tend not to provide good outcomes for mothers and newborns compared to facility births due to the high rate of complications caused by poor hygiene and limited access, against skilled birth attendants (SBA), and a higher likelihood of infection, and limited access to referral health facilities (16,17).

Discussions related to infant survival and household conditions are complex discussions.

The results are different when compared between several regions in Indonesia, such as Java-Bali, Sumatra, Kalimantan, Sulawesi, and East Indonesia. Based on research conducted by Lee et al. (2022), home birth is more likely to occur in mothers living in Eastern Indonesia (21.9%) and Kalimantan (23.9%) compared to other regions. The study further shows variations in the choice of birth attendant and place of delivery. Socioeconomic groups and geographic areas support the idea that socioeconomic deprivation manifests as inequities in accessing high-quality health services. Poorer households tend to give birth at home or in lower primary health facilities with less competent health service providers. Other research shows that some mothers choose to give birth at home with the help of a traditional birth attendant (TBA), even though they are close to health facilities or health workers, mainly because The TBA also performs prayers and other customs and ceremonies. Society believes that birth is sacred and must align with traditional beliefs. These cases potentially lead to worse health outcomes (16,18,19).

### **Community level variable**

At the community level, Mosley and Chen delved into factors associated with the ecological setting, political economy, and health system. However, due to the scarcity of community-level data, only a limited number of empirical studies have explored the varying impacts of these factors. If community-level determinants hold significance, there would be observable differences in infant mortality prevalence across communities (9,20,21).

The community-level variable most discussed in research is related to community investment in immunization participation, which positively impacts infants' survival status. Immunization is one of the most cost-effective interventions for diminishing infant mortality and morbidity. The incorporation of routine vaccination has proven effective in reducing

instances of vaccine-preventable diseases among this vulnerable population. In Indonesia, the high infant and under-five mortality rate in the country has led to efforts to implement complete basic immunization programs for infants and toddlers. However, the coverage of complete basic immunization in Indonesia is still below the target set by the Strategic Plan; some areas with low basic immunization coverage also have high IMR (21–26).

Data related to basic immunization in infants illustrates many things. The decision of parents to take their children to be immunized is the result of complex thinking. It is influenced by various factors such as education and knowledge about health, social and cultural norms, and access to appropriate immunization services through the health system (25,27).

### **CONCLUSION**

In conclusion, the review of socioeconomic factors affecting infant survival in Indonesia highlights the web of interconnected variables. The evidence underscores the importance of addressing multifaceted challenges to improve infant survival rates. Initiatives to enhance maternal education, alleviate economic disparities, bolster healthcare infrastructure, and acknowledge cultural nuances are imperative. This comprehension would make healthcare interventions and policies more grounded in evidence.

### **Declaration by Authors**

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