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The Situation of Child Mortality and Parity Classified by the Age of the Mother in Indonesia

Purwo Setiyo Nugroho^{1,2}, Ratu Matari^{1,3}, Sri Sunarti^{2,4} and Budi Irwansyah²

¹Ph.D. Student in Applied Demography and Social Research, Mahidol University, Thailand

²Faculty of Public Health, Universitas Muhammadiyah Kalimantan Timur, Samarinda, Indonesia

³Faculty of Public Health, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

⁴Ph.D. Student in Health Sciences, Lincoln University College, Malaysia

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Abstract: Child mortality was one indicator of Sustainable Development Goals. Each country has to measure the rate of child mortality to know the child health situation. In this research, the researcher calculated indirect child mortality using Indonesian census data in 2010. Children's mortality can be calculated based on children's information ever born and children surviving. The estimation of children's mortality can be calculated using the indirect estimation method. The indirect estimation method used Brass Method, which has five steps to estimate child mortality. The five steps include calculation of average parity per woman, calculation of the proportion of children dying for each age group of mothers, calculation of multipliers, calculation of probabilities of dying and of surviving, and calculation of reference period. The analysis revealed that the probability of children's death increased with the increasing age of the mother. The probability of children surviving decreases with the rising age of the mother. Increasing the mother's age will increase the number of children ever born. The probability of dying in children increases with the increasing age mother group. The probability of surviving children tends to be decreased with the increase in the mother age group. The high number of children born to older mothers was related to breastfeeding duration and exclusive breastfeeding. Children who did not receive breastfeeding exclusively will risk dying due to infection. The Indonesian Government needs to improve its health services for pregnant older women to prevent child mortality.


1 INTRODUCTION


The child mortality rate was an indicator of the country's welfare, especially regarding health services access. Children's mortality was caused by factors, e.g., neonatal factors, healthy pregnant women, mother workers, culture, and the environment—the Indonesian Government targets to end death in those under five of age by the end of 2030. The target can be achieved by preventing the death of the infant death (Soleman, 2020). Based on the Demographic Health Survey (IDHS), infant mortality in Indonesia on 2017 was around 24 deaths per 1,000 live births. This mortality rate declined from the previous survey in 2012 that Indonesia's infant mortality rate of 32 deaths per 1,000 live births.


However, infant mortality in Indonesia has not yet reached the Sustainable Development Goals, which have a standard of 12 infant mortality per 1,000 live births (Lengkong et al., 2020).

In achieving the Indonesian Government's target, policymakers require data about the population condition in the past, the current, and the future projection, including children's mortality. Children's mortality can be calculated based on children's information ever born and children surviving. The estimation of children's mortality can be estimated using the indirect method (United Nations, 1983). This information was beneficial for policymakers in making the policy. Children's mortality can be estimated by children ever born and children surviving from the mother group. Thus, this article



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 <https://orcid.org/0000-0002-3750-9201>

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will calculate indirect child mortality based on 2010 census data in Indonesia.

2 METHODS

This estimation used the census data in 2010 conducted by the Indonesian Government. The indirect estimation method was derived from estimating child mortality using data classified by the mother's age group. The indirect estimation of child mortality used Brass Method Model (United Nations, 1983). This method requires the data to estimate children's mortality, such as children ever born classified by age group of mothers, children surviving, and women parity. Thus, this method can estimate the trend probability of children dying, probability of children surviving, and average parity per women.

3 RESULTS

Figure 1 explains that the probability of dying in children increases with the increasing age mother group. Female children have a high probability of dying than male children. Figure 2 explains that the probability of surviving children tends to be decreased with the increase in the mother's age. Figure 3 explains that the average parity per woman has increased as the mother ages. Male children dominated in Indonesia based on Census 2010.

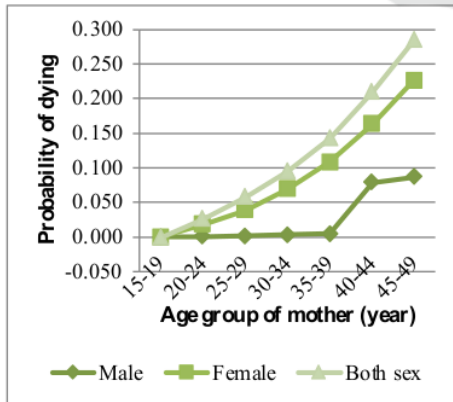


Figure 1: Trend probability of dying in Indonesia by children sex, Census 2010.

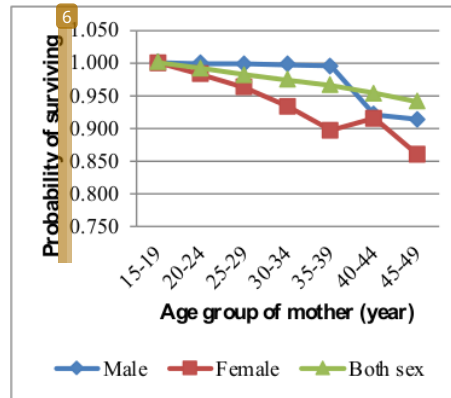


Figure 2: Probability of surviving in Indonesia by children sex, Census 2010.

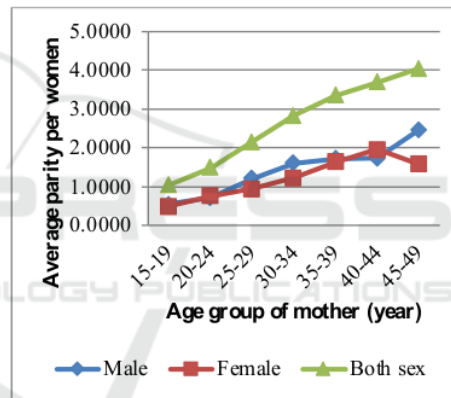


Figure 3: Average parity per women by children's sex.

4 DISCUSSION

This article calculated the estimated child mortality from the Indonesian population census in 2010. The analysis revealed that the probability of children's death increased with the increasing age of the mother. The probability of children surviving decreases with the increasing age of the mother. Increasing the mother's age will increase the number of children ever born. The average parity per woman also increases with the age of the mother.

High parity was a risk factor for increasing deaths in children caused by breastfeeding duration factors and poorer nutritional status (Sonneveldt et al., 2013). Research conducted by Kitano et al. revealed that

primipara mothers over 35 and parity were associated with not doing exclusive breastfeeding caused by working mothers (Kitano et al., 2016). Infants aged 0-5 months who did not exclusively breastfeed had an 8.66 times higher risk of death caused by infection than exclusive breastfeeding infants (Sankar et al., 2015). Breastfeeding was also related to children's survival; children will be more able to survive if they get breastfeeding for up to 6 months (Yapo, 2020).

High parity in Indonesia was also related to the people's belief that '*banyak anak banyak rezeki*' means that if the mother has many children, she will get wealthier, given by God (Afidah, 2019). This concept was related to the symbolic concept in Indonesian culture that children have privileges in the eyes of religion and society. The concept was associated with the social exchange theory that many children get wealth from God. This concept began to be abandoned in the community because many poor people with children affect their household income and spend a lot of money caring for their children. Poverty will influence household income to buy healthy food for their children. Thus, children will be at risk of poorer nutritional status and a higher risk of death. (Nelson, 2000).

5 CONCLUSION

The indirect estimation method can calculate the trend probability of children dying, probability of children surviving, and average parity per woman. The probability of dying in children increases with the increasing age mother group. The probability of surviving children tends to be decreased with the increase in the mother's age. In addition, the average parity per woman has increased as the mother aged. The Indonesian Government has to concern pregnant women in older groups through regulation or intensive programs to prevent children's death.

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