

In poor countries, birth spacing affects infant mortality

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In poor countries with high infant mortality rates, such as Rwanda, infant mortality can be significantly reduced if siblings do not follow each other too closely. Even an interval of two years can halve the death rate among infants. Credit: deinarson on Pixabay

For children in the poorest countries in the world, their chance of survival depends on the length of the period between their birth and the birth of the previous sibling, according to a new MPIDR study. In some cases, increasing the time between births by just one year can reduce the risk of infant mortality by about 50 percent.

For babies in the world's [poorest countries](#), the chances of survival are strongly influenced by the length of time between their birth and the birth of their previous sibling, according to a study by MPDIR scientist Kieron Barclay and co-authors Joseph Molitoris of Lund University and Martin Kolk of Stockholm University published online today in the journal *Demography*. One of their key findings: In the least developed countries, a child's risk of dying could be halved by increasing the time between births from 12 to 24 months.

"Our results highlight the importance of 'birth intervals' for the survival of [infants](#). We hope that these results will assist local health authorities and aid agencies as they devise measures to reduce child mortality", said Barclay, co-author of the study and deputy head of the Laboratory of Population Health at the MPIDR.

The United Nations has set itself the goal of improving the survival of newborns and infants worldwide by 2030. Overall, child mortality is falling worldwide, but the chances of survival for infants in the poorest

countries in Africa and Asia are still too low. In addition to access to health care, clean water, electricity and vaccinations, many studies suggest that the length of birth intervals is crucial for the survival of babies. Therefore, the World Health Organization (WHO) recommends that women space births between three and five years apart to reduce health risks to children and mothers.

There are several explanations for why short birth intervals can be detrimental for infants. One explanation is 'maternal depletion', as short birth intervals do not allow women to fully physically recuperate from the previous pregnancy. In such cases, the mother's body prioritizes its own well-being over that of the fetus. Another explanation concerns the transmission of infectious diseases. Infants whose immune systems are not fully developed may be at greater risk of contracting an infection from older siblings.

Strongest impact in the poorest countries

Recently, however, a series of studies using data from high-income countries have shown that the length of birth intervals has no impact on children's health, but until now it was not clear if these findings could be generalized to low-income settings. "Mothers and children in high-income countries generally have much greater access to resources than mothers and children in poor countries. They have enough food and good medical care. Although short birth intervals in high-income countries have a negligible impact on [child mortality](#), these short intervals matter a lot in poorer countries. The international comparison we use in our study helps to close the gap in our understanding about how birth intervals matter across countries at different levels of economic development," said Barclay.

For this study the researchers used data from the 'Demographic and Health Surveys' program. This program has been collecting accurate,

nationally representative data on health and population in low- and middle-income countries for 35 years. The project is funded by the US Agency for International Development (USAID) and supported by various United Nations programs.

The scientists examined data from a total of 77 countries with information on approximately 1.15 million women who had given birth to 4.56 million children. Of these 4.56 million children, approximately 370,000 died in the first year of life.

The authors conclude that with up to a 36-month birth interval the likelihood that a child will survive the first year of life increases sharply with longer intervals. When looking across all countries combined, this protective trend continues from the 36th month, but at a much slower pace. "This is slightly contrary to the WHO recommendation, which recommends birth spacing of three to five years. According to our findings, three years are enough to significantly reduce the risk of infant mortality," says Barclay. "After that, the benefits of longer spacing are less dramatic, but we find that the risk of infant mortality continues to decline even with intervals longer than five years."

This mortality-reducing effect is most pronounced in the poorest countries, where infant mortality is very high. Infant mortality is an indicator of how developed a country is. The researchers found that in regions where infant mortality is greater than 100 per 1000 live births, (that is, regions where, out of 1000 children born alive, 100 die before the age of one,) increasing the birth interval from 12 to 24 months is associated with a reduction in the probability of dying before age one by about 50 percent.

Breastfeeding for longer two-fold positive benefits

"Our findings suggest there is great potential to reduce infant mortality

in the poorest countries in the world," says Molitoris, co-author of the study. "Worldwide, over 30 percent of second and later-born children are born within two years of their older sibling. In the poorest countries, increasing this spacing by just one year can cut the risk of infant mortality for those children in half."

This finding is also confirmed by the researchers' finding that for rich countries with low infant mortality, shorter birth intervals have little or no impact on children's chances of survival.

According to Barclay, the results suggest another recommendation, namely encouraging mothers in low- and middle-income countries to breastfeed. "Breastfeeding has many benefits, one of which is its ability to inhibit the likelihood of conception when practiced exclusively during the first six months after birth. The continued promotion of exclusive breastfeeding could both directly reduce the risk of infant mortality by providing infants with optimal nutrition and indirectly reduce the risk of infant [mortality](#) by shifting the distribution of birth intervals in a population away from shorter intervals", says Barclay.

More information: Joseph Molitoris et al. When and Where Birth Spacing Matters for Child Survival: An International Comparison Using the DHS, *Demography* (2019). [DOI: 10.1007/s13524-019-00798-y](https://doi.org/10.1007/s13524-019-00798-y)

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