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Altruism as an Explanation for High Infant Mortality? New Insights from Evolutionary Biology

Why is the mortality rate among newborns very high, but decreases with increasing maturity? This question has long occupied scientists. Now, researchers at the Max Planck Institute for Evolutionary Biology in Plön have developed a remarkable hypothesis further: altruism could be a crucial factor.

Parents certainly want to avoid the death of their offspring. However, when such a death is unavoidable due to illness or congenital conditions, the logic of natural selection takes over. As evolutionary biologist William D. Hamilton, a pioneer of social evolution theory, hypothesized, the death of an inevitably dying offspring could occur as early as possible to free up parental resources for other siblings or new offspring. An altruistic offspring would then initiate its own death as early as possible to help its parents or siblings.
This hypothesis has so far been only verbally formulated. The article now published in Evolution Letters by the Oxford University Press takes a step further by translating Hamilton's hypothesis into formal mathematical models. These models confirm the validity of Hamilton's theory and show how the age of the offspring affects the strength with which natural selection acts on a gene that increases offspring mortality.
"Our mathematical analyses and the application of these models to demographic data consistently show that selection regarding offspring mortality as a form of altruism is stronger in earlier juvenile stages," explains Stefano Giaimo, a postdoctoral researcher in the Department of Theoretical Biology at the MPI in Plön. These insights help explain the trend of decreasing mortality in the juvenile stage in species such as mammals, where parental care plays an important role.
The study offers a new perspective on the mechanisms of natural selection and expands our understanding of the evolutionary dynamics that shape the survival strategies of living beings.

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