

# Study notes decline in male births in the US and Japan

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A study published in this week's online edition of *Environmental Health Perspectives* reports that during the past thirty years, the number of male births has decreased each year in the U.S. and Japan.

In a review of all births in both countries, the University of Pittsburgh-led study found significantly fewer boys being born relative to girls in the U.S. and Japan, and that an increasing proportion of fetuses that die are male. They note that the decline in births is equivalent to 135,000 fewer white males in the U.S. and 127,000 fewer males in Japan over the past three decades and suggest that environmental factors are one explanation for these trends.

"The pattern of decline in the ratio of male to female births remains largely unexplained," said Devra Lee Davis, Ph.D., M.P.H., lead investigator of the study, director of the University of Pittsburgh Cancer Institute's Center for Environmental Oncology and professor of epidemiology, University of Pittsburgh Graduate School of Public Health. "We know that men who work with some solvents, metals and pesticides father fewer baby boys. We also know that nutritional factors, physical health and chemical exposures of pregnant women affect their ability to have children and the health of their offspring. We suspect that some combination of these factors, along with older age of parents, may account for decreasing male births."

Dr. Davis explained that environmental factors, such as prenatal exposure to endocrine-disrupting environmental pollutants may impact the SRY gene – a gene on the Y chromosome that determines the sex of a fertilized egg. Other environmental factors that also may affect the viability of a male fetus include the parents' weight, nutrition and the use of alcohol and drugs.

In the study, Dr. Davis and her colleagues reported

an overall decline of 17 males per 10,000 births in the U.S. and a decline of 37 males per 10,000 births in Japan since 1970. They also found that while fetal death rates have generally decreased, the proportion of male fetuses that die has continued to increase. In Japan, among the fetuses that die, two-thirds are male, up from just over half in 1970.

The study also examined the ratio of African-American male to female births to that of whites in the U.S. The researchers found that while the number of African-American male births has increased modestly over time, the ratio of male to female births for African-Americans remains lower than that of whites. In addition, they noted that African-Americans have a higher fetal mortality rate overall and a higher proportion of male fetuses that die.

"These results are not surprising since the black-white ratio in terms of infant mortality has remained the same for almost 100 years," said Lovell A. Jones, Ph.D., study co-investigator and professor and director, Center for Research on Minority Health, department of health disparities research, University of Texas M.D. Anderson Cancer Center. "Given the higher mortality rates for African-American males in the United States, these results reemphasize the need to determine all factors, including environmental contaminants, which are responsible for this continuing health disparity."

"Given the importance of reproduction for the health of any species, the trends we observed in the U.S. and Japan merit concern," added Dr. Davis. "In light of our findings, more detailed studies should be carried out that examine sex ratio in smaller groups with defined exposures as a potential indicator of environmental contamination."

Source: University of Pittsburgh Schools of the Health Sciences

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