

# Pregnancy complications linked to long-term increased heart disease risk

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Women who experience any of five major pregnancy complications, including preterm birth and pre-eclampsia, show an increased risk of ischemic heart disease up to 46 years after delivery, finds a study from

Sweden, published by *The BMJ* today.

The researchers say all major adverse pregnancy outcomes should be recognized as lifelong risk factors for [ischemic heart disease](#), and women should be offered appropriate care to help prevent its development.

Heart disease is a serious condition where the [blood vessels](#) supplying the heart are narrowed or blocked and is the leading cause of death among women worldwide.

Adverse pregnancy outcomes have been linked with higher future risks of [heart disease](#). But although nearly a third of women experience an adverse pregnancy outcome during their reproductive years, few studies have examined more than one outcome in the same group of women, preventing any firm conclusions to be drawn.

To address this, researchers based in the U.S. and Sweden set out to examine the associations between five major adverse pregnancy outcomes and long term risks of ischemic heart disease in mothers. They identified 2,195,266 women in Sweden, at an average age of 27 with no history of heart disease, who gave birth to a single live infant between 1973 and 2015. Using nationwide [medical records](#), they then tracked cases of ischemic heart disease from [delivery](#) date to December 2018 (average follow-up time 25 years, up to a maximum of 46 years).

The five major adverse pregnancy outcomes of interest were preterm delivery (less than 37 weeks gestation), small for gestational age at birth, pre-eclampsia, other blood pressure disorders of pregnancy, and gestational diabetes.

Other [important factors](#) were taken into account, such as mother's age, number of children, [education level](#), income, body mass index, smoking,

and history of high blood pressure, diabetes, or high cholesterol.

Overall, ischemic heart disease was diagnosed in 83,881 (3.8%) women at an average age of 58 years. The results show that women who experienced any of five major adverse pregnancy outcomes showed an increased risk of subsequent ischemic heart disease.

For example, in the 10 years after delivery, relative rates of ischemic heart disease were increased twofold in women with other hypertensive disorders of pregnancy (46 extra cases per 100,000 person years), 1.7-fold in those with preterm delivery (19 extra cases per 100,000), 1.5-fold in those with pre-eclampsia (12 extra cases per 100,000), 1.3-fold in those with [gestational diabetes](#), and 1.1-fold in those who delivered a small for gestational age infant, after adjusting for all other factors.

Women who experienced several adverse pregnancy outcomes showed further increases in risk. In the 10 years after delivery, rates of ischemic heart disease with 1, 2, or 3 or more adverse pregnancy outcomes were 1.3-fold, 1.8-fold, and 2.3-fold (20, 34, and 58 cases per 100,000 person years), respectively.

Most relative rates decreased over time but remained significantly increased (1.1-fold to 1.5-fold) even 30-46 years after delivery, and were only partially explained by shared genetic or environmental factors within families.

This is an observational study, so can't establish cause, and the researchers can't rule out the possibility that ischemic heart disease was underreported or that unreported maternal smoking, obesity, or other risk factors during pregnancy may have affected their results.

However, the large sample size based on highly complete nationwide

birth and medical registry data and long-term follow up prompt the researchers to say that all major adverse pregnancy outcomes should be recognized as lifelong risk factors for ischemic heart disease.

"Women with adverse [pregnancy](#) outcomes should be considered for early preventive evaluation and long term risk reduction to help prevent the development of ischemic heart disease," they conclude.

**More information:** Adverse pregnancy outcomes and long term risk of ischemic heart disease in mothers: national cohort and co-sibling study, *The BMJ* (2023). [DOI: 10.1136/bmj-2022-072112](https://doi.org/10.1136/bmj-2022-072112)

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