

LOWER LIFE EXPECTANCY FOR MOTHERS OF TWINS: Evidence from Sweden

Women who have twins when they first give birth have shorter life expectancy, according to research by **Raphael Guber** and colleagues, to be presented at the annual congress of the European Economic Association in Mannheim in August 2015.

Their study analyses data on 400,000 Swedish mothers who were aged 55-65 in 1990 and whose lives were tracked for the following 20 years. It finds that women whose first children were twins had a 4% higher likelihood of dying during this time, losing on average four months of lifetime. This effect was even stronger for university-educated mothers, who were twice as likely to die from smoking-related diseases than equally educated non-twin mothers.

The researchers attribute their findings to the fact that twins tend to be less healthy when born, which carries on throughout their early lives. This could be a source of continuing stress for the mother, who is then more likely to die of stress-related problems ranging from heart disease to smoking-related diseases. Although we already know that a multiple pregnancy increases a mother's chance of dying during childbirth, until now we had not known much about the effects later in life.

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It is known that a multiple pregnancy increases the mortality and morbidity risk for children and mothers around the time of birth. But little is known so far about the long-run relationship between having twins and maternal health into old age.

This study uses administrative data covering the entire Swedish population to document previously unknown strongly increased mortality rates among mothers that give birth to twins at first birth, compared with those who did not.

Data provided by the Swedish labour market institute IFAU covers more than 400,000 Swedish mothers of age 55 to 65 in 1990 over 20 years until 2010. If a person dies, the cause of death is known.

The researchers analyse two groups of causes that may be related to stress during life: cardiovascular diseases; and smoking-related diseases, including lung cancer and COPD. They find that, between 1990 and 2010, those mothers who had twins at first birth have a 3.8% higher probability of dying, up from a 28.7% baseline probability for mothers who had no twins at first birth (chance 6 to 5).

The chance of dying from lung cancer is even higher with 4 to 3 (twin to non-twin mothers). Twin-mothers lose on average one third of a year of lifetime during the time they are observed in the data.

Moreover, there are striking differences between educational groups, in particular among mothers that completed a university degree, which make up about 11% of the sample. The twin mothers in this group exhibit relative effect sizes that are roughly three times as large as those of the full sample. For example, they are twice as likely to die from smoking related diseases than highly educated non-twin mothers.

This is also the only group for which there is a significantly increased probability of dying from heart attacks or strokes. At the same time, these mothers were most likely to be employed in 1990, which suggests a double of by twins and labour market participation.

The researchers suggest several causes for their findings, but one is probably the most plausible and well documented. Medical literature has established that twins have lower birth weight, have a higher one-year mortality and are more likely to be too light at birth (<2,500 grams) than singletons.

At the same time, previous research in economics on the foetal origins hypothesis has analysed similar large administrative data to show that birth weight is one of the single most powerful predictors of future health, education and economic success in the long run. The researchers thus suggest that the twins' worse health early and later in life poses a source of continuing stress to the mother, which does not vanish shortly after birth.

With these data, the researchers can reliably link children to their parents even if they have already established their own households or moved out. Household-based surveys usually only collect information on the children currently living in the same household. As twins are a rare event (fewer than 1% of mothers have twins in the sample), a large sample size is needed to detect statistically significant differences between twin and non-twin mothers.

One concern when comparing mothers who give birth to twins and those who do not, is that twins, in particular fraternal (dizygotic) twins, are not a completely random event. The older the mother, the more likely are fraternal twins. The study takes this into account in the analysis.

Another concern is that in-vitro fertilisation (IVF) increases the chance for twins enormously. But the mothers observed here gave birth to their first child between 1940 and 1970, when IVF was not yet available.

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