

# Marriage patterns drive fertility decline

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This is one of the images from pre-industrial Finnish church records used in the study. Credit: Virpi Lummaa

Researchers at the University of Sheffield have applied an evolutionary 'use it or lose it' principle when studying past marriage patterns, to show that marriage can influence the evolution of age-patterns of fertility.

Researchers Duncan Gillespie, Dr Virpi Lummaa and Dr Andrew Russell, from the University's Department of Animal and Plant Sciences, studied Finnish church records from the 18th and 19th centuries, a time during which almost everyone married and divorce was forbidden, to trace the survival and [marriage](#) histories of 1,591 women.

They found that women aged 30-35 were the most likely to be married. Those that married wealthy husbands were married at a younger age but to relatively older men, thereby gaining the family size-benefits of wealth but also an increased risk of widowhood. This high chance of widowhood, coupled with low re-marriage prospects for older widows with children, limited the percentage of women in the population with the opportunity to reproduce at older ages.

In today's society however, women do not start childbearing until an older age as marriage is often delayed, and casual or short-term relationships and divorce are more common. As a result, the natural selection maintaining young-age fertility might weaken and the relative strength of [natural selection](#) on old-age fertility could increase, something that could potentially lead to improvements in old-age fertility over many generations.



This is one of the images from pre-industrial Finnish church records used in the study. Credit: Virpi Lummaa

Duncan Gillespie from the University of Sheffield's Department of Animal and Plant Sciences, said: "In today's society, family-building appears to be increasingly postponed to older ages, when relatively few women in our evolutionary past would have had the opportunity to reproduce. As a result, this could lead to future evolutionary improvements in old-age female fertility.

"Childbearing within a relationship is still the norm in modern society, but at ages where fewer [women](#) have the chance to reproduce, we should expect the evolution of lower fertility."

**More information:** Read the full paper entitled Pair-bonding modifies the age-specific intensities of natural selection on human female fecundity at the following link:

[www.ncbi.nlm.nih.gov/pubmed/20536363](http://www.ncbi.nlm.nih.gov/pubmed/20536363)

Provided by University of Sheffield

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