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Human Twinning Rate in Iniö in the South-West of Finland

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Abstract. A secular demographic study on the Iniö Island in SW Finland shows an even stronger decline of twinning rates than in the Åland Islands and the rest of the archipelago. Twinning rates in Iniö declined, in fact from about 30‰ to less than 10‰.

Key words: Twinning rates, Demography, Finland

The rates of human multiple maternities in the south-west of Finland and especially the archipelago could be studied for births and baptism very regularly from Church registers of the beginning of the 1720s. Especially high values, between 15‰ and 20‰, as well as highly significant fluctuations, have been registered. Iniö, which forms part of the archipelago of Åboland, differs in many respects from the region as a whole and from Åland. The question of parity is also discussed.

INTRODUCTION

Several papers have dealt with human twinning in the archipelago of south-west Finland [2-4].

In the archipelago of south-west Finland, including the Åland Islands and the Åboland archipelago, the twinning rates have been considerably higher than on the mainland of Finland and in Sweden [2]. The highest levels were found during the 18th century but have since declined. Obviously this was due to lower parity

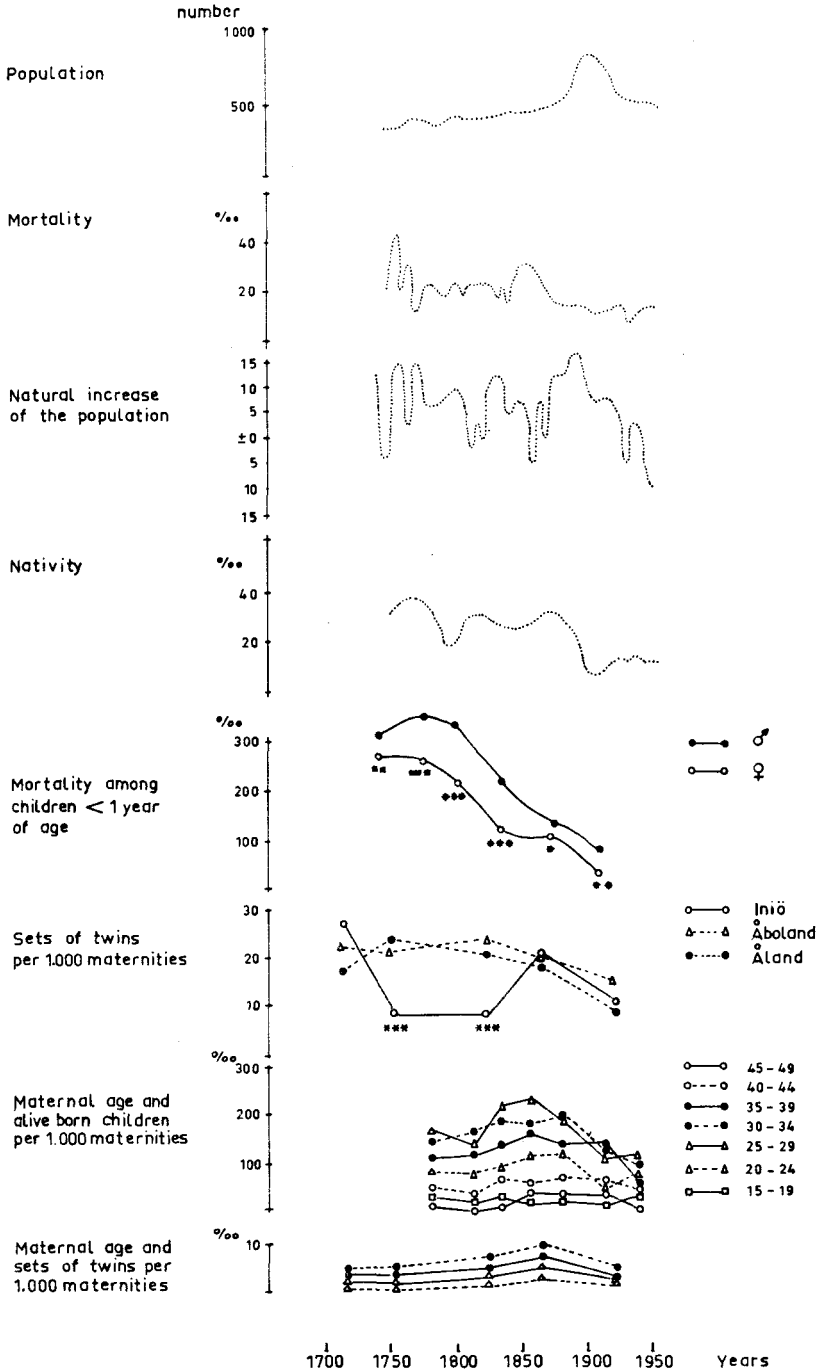


Figure. Different demographic parameters for the Iniö Islands from Church registers of the the beginning of the 1720's. (Student's t-test: * = P < 0.05, ** = P < 0.01, *** = P < 0.001)

and number of children born [3]. Triple confinements were also quite common on Åland [3].

The Iniö Island (commune of Iniö) form part of the Åboland archipelago cited in the papers above. Iniö is also now the subject of a major research project concerned with genetics in isolates. Several genetic markers, DNA polymorphism, HLA, heredity, public health, occurrence of disease as well as human twinning rate, have been studied during this project.

MATERIAL AND METHODS

Data have been collected on the size of the population, natural increase in population, mortality, nativity (total births), sets of twins per thousand maternities, mortality among children under one year, live births and the age of the mothers bearing twins. Comparables figures, especially for sets of twins per thousand maternities, were collected for the Åland Islands and for Åboland as a whole.

Material was collected from tax and census lists, church registers and the so-called Tabellverket, which gives continuous statistics for the whole nation, both for the Iniö Islands, Åboland and the Åland Islands.

Student's t-tests were used to test the hypotheses.

RESULTS

The results of the study are given in the Figure. The population was lowest at the beginning of the 18th century, when the collection of data started. The highest figure was recorded at the end the 19th century. At the same time very low values were recorded for births and mortality. On the other hand, there was a natural increase in population at this time. These changes could partly be explained by immigration to Iniö being stronger than emigration. Also, mortality among children under one year of age has decreased since the middle of the 18th century. There is also a significant trend towards a higher male birth rate.

The results also show more sets of twins in Iniö compared with the Åland Islands and Åboland as a whole at the beginning of the 18th century. Then there is a statistically significant decrease both at the end of the 18th century and in the early 19th century. The figures for sets of twins are the same both for Åland and Åboland, with a decrease during the 19th century. The obviously higher age of women at maternity does not alone explain the higher twinning rate. No triplets were found in the Iniö material.

DISCUSSION

The study shows that there are great fluctuations in the numbers of twins per thousand maternities in Iniö compared with both Åland and the Åboland region as a whole. A general trend is a decline in pairs of twins born from about 1870 onwards [2,3]. The fluctuations in the twinning rates of Iniö are, however, more random, showing changes from less than 30‰ to somewhat 10‰. The fluctuations for the Åland Islands lie between 23‰ and 15‰ and for Åboland as a whole between 23‰ and 17‰. Obviously, there are no reasonable demographic explanations for these fluctuations in Iniö. On the other hand, it is quite plausible that hereditary tendencies [1,6-8] play a considerable part in the incidence of twin maternities. The non-existence of triple maternities in the Iniö material also makes this hypothesis stronger. The isolation and the small population of Iniö could hence merely be taken as a possible explanation for a very special trend found and against the background of complex interaction of multiple genetic and environmental determinants.

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