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P-731 Correlation between fertility rate, utilisation of ART and gross domestic product across Europe

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Study question: Are there any correlations between a country's wealth determined by GDP per capita and its total fertility rate (TFR) and utilisation of ART in Europe?

Summary answer: There is strong correlation across Europe between GDP and utilisation of ART. This correlation does not exist when only investigating the European Economic Area (EEA)

What is known already: The number of documented ART cycles has increased significantly from 203,893 cycles in 1997 (first European report) to 918,159 in 2016. During the same period, growth was observed in European GDP and, to a lesser extent, TFR following a significant and prolonged decline. Global data suggest that utilisation rate is higher in developed countries, speculated to be due to either generous reimbursement systems or higher affordability for patients paying out of pocket. This study analysed for the first time the relationships between national GDP, TFR and utilisation in Europe both as a whole, and specifically the more affluent EEA

Study design, size, duration: This study was an analysis of publicly available primary international reports: total cycles in the European IVF-monitoring Consortium (EIM) and TFR, GDP and population size from the World Bank indicators (https://data.worldbank.org/indicator). The period studied ranged from the first EIM report for 1997 (published in 1999) to the 20th report for 2016 (published in 2020).

Participants/materials, setting, methods: TFR was described as births per women (BPW) and country wealth was presented as GDP per capita in US Dollars. Utilisation rate was defined as the total national number of cycles (fresh IVF and ICSI, and frozen embryo transfer) divided per population, and presented as cycles per million (CPM). When utilisation was not reported, total cycles were projected by proportional calculation. Pearson Correlations were calculated using Sigmaplot for utilisation, GDP and TFR in 2016

Main results and the role of chance: Forty countries were included in the EIM report for 2016, of which 18 reported in full. The median utilisation rate was 1280 CPM (range 162 - 3,156) and median TFR was 1.6 BPW (range 1.26 - 2.73); only one country, Kazakhstan, had a TFR above the natural fertility replacement level of 2.1 BPW. Mean GDP was $31604 per capita (range $10,610 - $110,650). There was no correlation between TFR and utilisation or between TFR and GDP, however there was a significant positive correlation between GDP and CPM (correlation coefficient = 0.428; P = 0.00661). Compared to Europe as a whole, analysis of only the EEA countries – EU member states plus Norway, Iceland, and Switzerland – revealed a similar median TFR (1.59), but a 27% increase in the utilisation rate to 1629 CPM (range: 317 – 3157) and 24% rise in GDP per capita to $39,300 (range: $19,885- $110,650). For the EEA, no significant correlations were observed, including between GDP and utilisation (correlation coefficient = 0.131; P = 0.507). Additionally, there was no significant correlation between TFR and GDP in the EU for the period of 1997 – 2016.

Limitations, reasons for caution: The data is a snapshot of a single year, but we observed similar outcomes in previous years. Projection calculation of utilisation in partially reporting countries may cause bias, however, with a reporting level of 92% (1347 of 1467 clinics), this bias is probably very limited.

Wider implications of the findings: Findings of this study confirm that there are strong disparities in the availability of ART even in Europe. This difference does not exist in the more affluent countries in Europe suggesting that the reason for lower utilisation in lower-income countries being reduced affordability.

Trial registration number: NA

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