

# Do highly educated women breastfeed less?

Findings from the new IAEA database on human milk intake

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## Introduction

The findings presented here are the result of an internship at the Division of Human Health, IAEA, and were part of the MSc thesis work to achieve the Master of Science in Clinical and Psychosocial Epidemiology (research) at the University of Groningen. It is an example of the use of the new IAEA database on human milk intake which includes to date almost 3000 data points from different studies using the deuterium oxide dose-to-mother (DTM) technique to measure the human milk intake of breastfed infants.

According to UNICEF's report '[From the First Hour of Life \(2016\)](#)', higher maternal education is linked to better infant feeding practices. However, the literature on this topic presents mixed findings showing that both better and poorer breastfeeding practices are associated with higher maternal education. I had the privilege to work with the newly launched IAEA database on human milk intake. Using these data, we researched the relation between breastfeeding and maternal education in 1,111 mother-infant dyads from 19 countries with infants about 3 months old. This sample included mothers with no or primary education (N = 473), secondary (N = 463), and tertiary education (N = 175).

## Maternal education

Facilitated by the size of the database, we were able to compare breast milk intake in relation to maternal education – which has previously been difficult due to small sample sizes of individual studies. Figure 1 presents the results of this analysis. Most interestingly, correcting for various variables revealed that estimated breast milk intake was lowest in the tertiary education group, whereas the unadjusted median intakes suggest for a lower breast milk intake of women of secondary education. As the differences are small and not statistically significant, however, these findings should be interpreted with some caution. We do believe that they indicate some effect of maternal education on breastfeeding practices, and that further research is needed to better understand the association.

## Country development

The lack of a clear association between maternal education and breast milk intake may have been caused by different country context. It was therefore assessed

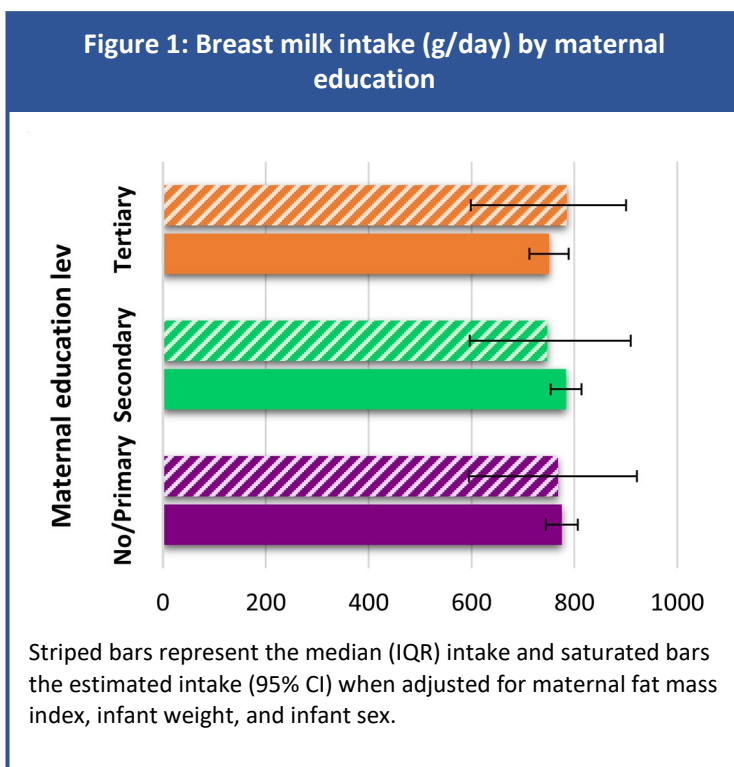
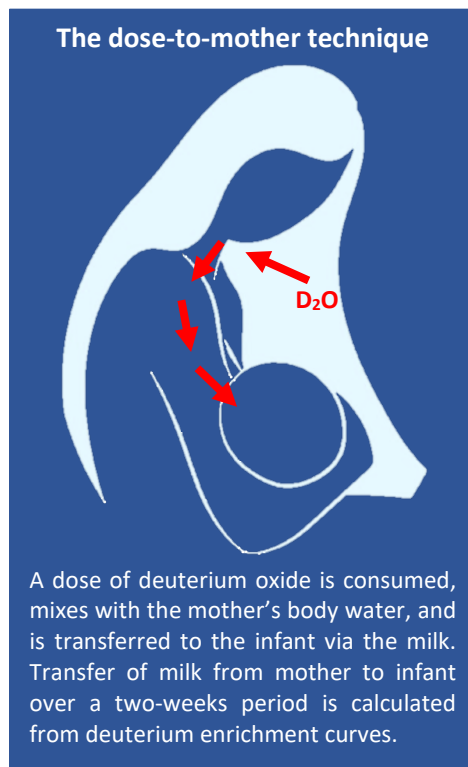
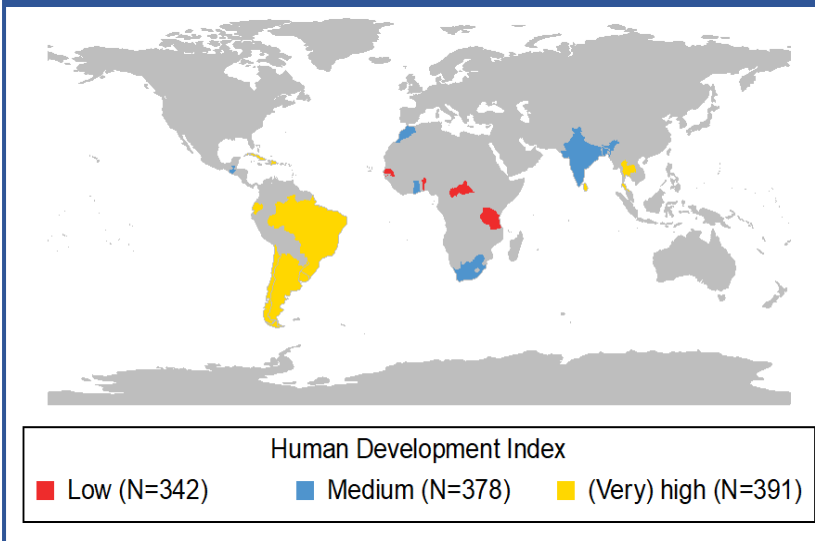


Figure 2: Map of countries included in the study



how country development relates to breast milk intake. As countries develop, diets tend to shift towards more unhealthy patterns such as higher consumption of processed foods, but it is unclear whether and how such shifts are also seen for infant and young child feeding.

For this project, the country level of development was classified by the [Human Development Index \(HDI\)](#). This index combines a country's life expectancy, educational level, and gross national income (GNI) to generate a measure of development that can be compared across

countries. The countries were classified into low, medium, or high development (Figure 2). This use of an external scale meant that information was available for all countries and that the categorization did not depend on what was measured in the different projects that contributed to the database.

The median values of breast milk intake and the estimated, adjusted values are presented by development level in Figure 3. Although the raw median breast milk intake was similar across development level, adjustment for maternal education, and maternal fat mass index as well as infant weight and sex, revealed a higher intake in countries of lower development.

### Conclusion

Do highly educated women breastfeed less? Maybe, but it depends on the overall country context. We found that breast milk intake overall was similar between the maternal education levels, but higher in countries of lower development. The interaction needs to be further explored.

The database's large number of accurate measurements of breast milk intake provides a unique opportunity for studying overarching research questions and comparing country groups. However, the combined database holds limited information on covariates because the data were collected for other and variable purposes. Although the data included arises from different countries representing different continents, nearly all countries of high HDI in our subset were in Latin America, while low HDI was mainly represented by Africa. Our observations could therefore reflect cultural differences between regions rather than HDI. Future versions of the database might resolve this. The database is dynamic and will grow in future as new datasets are continuously added upon submission by researchers.

Figure 3: Breast milk intake (g/day) by country development

