

## **WORLDWIDE TWINNING RATES A SUMMARY OF A RECENT STUDY**

The *Human Reproduction* journal published an article last week on worldwide twinning rates – *Twin Peaks: more twinning in humans than ever before*, Christiaan Monden, Gilles Pison, Jeroen Smits.

The study is based on the data of the HMBD (Human Multiple Birth Database) for developed countries. ICOMBO is a partner of the HMBD. It is quite a long article, so I thought I would provide a summary for you.

You can read more about the HMBD in our next newsletter, due out before the end of March.

You can read the published article [here](#)

### **Terms**

$$\text{twinning rate} = \frac{\text{twin deliveries}}{\text{total number of deliveries}} \times 1000$$

MAR – medically assisted reproduction. This includes IVF techniques and also simpler methods such as ovarian stimulation and artificial insemination.

### **The Data**

- The twinning rate for 112 countries was collected for the period 1980 – 1985
- The twinning rate for 165 countries was collected for the period 2010 – 2015
- The twinning rates for these two periods were compared, to see if there was an increase or decrease in the rate between the two time periods

## Results

**Table 1** Absolute and relative number of twin and all deliveries, in the world and by region, in 1980–1985 and 2010–2015.

	Number of twin deliveries (thousands)		Share of all twin deliveries in the world		Total number of deliveries (thousands)		Share of all deliveries in the world		Twinning rate (twin deliveries per 1000)	
	1980–1985	2010–2015	1980–1985	2010–2015	1980–1985	2010–2015	1980–1985	2010–2015	1980–1985	2010–2015
Africa	373	674	32%	41%	22,684	39,559	18%	29%	16.5	17.1
Asia	556	693	48%	42%	80,006	75,435	62%	54%	7.0	9.2
Europe	90	113	8%	7%	9,944	7,878	8%	6%	9.1	14.4
North America	38	71	3%	4%	3,937	4,251	3%	3%	9.9	16.9
Oceania	4	9	0%	1%	481	640	0%	0%	10.1	14.8
South America	102	100	9%	6%	11,772	10,823	9%	8%	8.7	9.3
World	1,165	1,663	100%	100%	128,827	138,590	100%	100%	9.1	12.0

Notes: Own calculations.

- The twinning rate for monozygotic (identical) twins has remained at around 4 twin deliveries per 1000 deliveries everywhere in the world. The changes in rates are due to changes in dizygotic (fraternal) twinning rates.
- In both time periods, Africa had the highest twinning rates, and there no significant increase in twinning rate was observed between the two periods.
- Substantial increases in twinning rates, even doubling or more, could be seen in many countries in Europe, North America and East Asia.
- In 1980-85, the global twinning rate was 9.1 twin deliveries per 1000 deliveries. In 2010-15, it had increased to 12 twin deliveries per 1000 deliveries.
- In the period 2010 – 2015, the twinning rate for the world was 12.0 which means that one of every 42 children born on earth between 2010 and 2015 is a twin. There were about 1.6 million twins born in the world each year.
- In 2015, Asia and Africa were home to more than 80% of the world twin deliveries.
- 42% of all twins born in 2015, were born in Africa. Sadly, these twins face a very high mortality rate.

### Why has the twinning rate changed?

- The increased twinning rates were largely driven by reproductive and fertility choices of households, and were initially concentrated in Europe and North America.
- MAR began in the wealthier regions of the world in the 1970s, spreading to emerging economies in the 1980s and later.
- The increasing age of the mother at birth has contributed to increased twinning rates in high income countries.
- There may be other factors that influenced the change to twinning rates but no convincing evidence has been found yet.

## Discussion

- The strong increase in the number of twin (and triplet etc) births due to MAR started to raise concerns in the 1990s in medical authorities and policy makers, because of the public health problems related to twin births. (twins are a high risk group)
- As a result, many developed countries started to change their MAR regulations and clinical practices around 2000 – reduced numbers of embryos were transplanted and the focus was directed to the successful live birth of a singleton. It is likely that the 2015 twinning rate for these countries is an all-time high and rates may decrease in the coming decade.
- For example, in Europe the number of transfers of a unique embryo in IVF/ICSI was just over 10% in the late 1990s, but was just over 40% in 2017. Also, transfers of three or more embryos has declined steadily over time.
- It is known that substantial numbers of women travel to other countries for fertility treatments. These births may not be registered in their home country in the usual way, so their data doesn't appear in these results.
- Accurate and detailed data on twin rates is important for forecasting the demand for health services given the health implications for twins and their mothers. This is particularly important in low-income countries, where mortality among twins is highest and care for women expecting twins is often inadequate by modern standards.

Citation: Christiaan Monden, Gilles Pison, Jeroen Smits, Twin Peaks: more twinning in humans than ever before, *Human Reproduction*, 2021;, deab029, <https://doi.org/10.1093/humrep/deab029>