

The fertility calculator

What is the best age to start a family? No one knows for sure, but the decision should be a little bit easier now you can ask a computer

Jessica Hamzelou

IT'S a question many people will ask themselves at some point in their lives: when should I start a family? If you know how many children you'd like, and whether or not you would consider, or could afford, IVF, a computer model can suggest when to start trying for your first child.

Happy with just one? The model recommends you get started by age 32 to have a 90 per cent chance of realising your dream without IVF. A brood of three would mean starting by age 23 to have the same chance of success. Wait until 35 and the odds are 50:50 (see "When to get started", below).

The suggestions are based on averages pulled from a swathe of data so don't give a personal prediction. And of course, things aren't this simple in real life – if only family size and feelings about IVF were the only factors to consider when planning a family. But the idea behind the model is to help people make a decision by condensing all the information out there into an accessible form.

"We have tried to fill a missing link in the decision-making

process," says Dik Habbema at Erasmus University in Rotterdam, the Netherlands, one of the creators of the model. "My son is 35 and many of his friends have a problem deciding when to have children because there are so many things they want to do."

It's a scenario that will be familiar to many; the age at which people have their first child has been creeping up over the last 40 or so years. For example, the average age at which a woman has her first child is 28 in the UK and has reached 30 in Italy, Spain and Switzerland. In the US, the birth rate for women in their 20s has hit a record low, while the figures for those over 35 have increased over the last few decades.

The decision is more pressing for women thanks to their limited supply of eggs, which steadily drop in quantity and quality with age. Female fertility is thought to start declining at 30, with a more significant fall after the age of 35.

Men are thought to have more time. "We do know that there are male age effects, but they don't kick in severely until a man is well into his forties," says Allan Pacey, professor of andrology at the

University of Sheffield in the UK.

The new model incorporates data from studies that assess how fertility naturally declines with age. The team took information on natural fertility from population data collected over 300 years up to the 1970s, which includes data on 58,000 women. While such information has been criticised as being out of date, it represents the best insights into fertility from a population that wasn't regularly using contraceptives, says Habbema.

"We need data from populations in which couples try to have as many children as possible, and these populations are scarce," he says. Figures taken from hundreds of years ago are consistent with those taken more recently, he adds.

Surprising results

The model also includes information on IVF success rates for women of various ages based on 2013 figures from the Netherlands (*Human Reproduction*, doi.org/6ck).

One thing it doesn't account for, however, is the age of the prospective father. While older men are known to be more likely to pass on genetic mutations that increase a child's risk of conditions like schizophrenia, age doesn't seem to strongly affect a couple's fertility until the father is in his late 40s. "Our results are generally valid for couples where the man is not more than 10 years older than the woman," says Habbema. Pacey agrees that this is reasonable, and says that the model is "as good as it can be".

The model is based on averages so won't apply to every woman on



CHRISTOPHER EBERLE/PLAINPICTURE

When to get started

Crunching 300 years' of fertility data, a computer model has come up with the age by which couples should start building a 1, 2 or 3-child family, for a 50, 75 and 90 per cent chance of success. Ages given are for the female partner

Chance of realisation	1-child family	2-child family	3-child family
Without IVF			
50%	41	38	35
75%	37	34	31
90%	32	27	23
With IVF			
50%	42	39	36
75%	39	35	33
90%	35	31	28

an individual basis as there is a lot of variation, but it could be very helpful, says David Keefe at New York University Langone Medical Center. "It makes explicit certain statistics that don't sink in for many people," he says.

Some of the results may come as a surprise. For example, pregnancy remains an option for

"If you are relaxed about having 3 kids you can wait until 35, but you've got to start early to be certain"

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Want one... or three?

women in their early 40s – with the chance of conceiving about 50 per cent. At the other end of the spectrum, the early age at which the model suggests you should start having children if you want a 90 per cent chance of having three – 23 – may be a shock to a generation who are waiting until their late twenties and early thirties to even consider the prospect.

On reflection, however, the figure makes sense, says Pacey. “You’ve got to factor in that

people don’t necessarily have children in quick succession,” he says. “What it is saying is that if you’re relaxed about having three children, you can wait until you’re 35, but you’ve got to start early to be certain.”

“In general, young people are very optimistic about their reproductive potential,” says Ulla Waldenström at the Karolinska Institute in Stockholm, Sweden. “They also have a lot of faith in reproduction technologies – there is a strong belief that if

you can’t get pregnant naturally, there is always IVF, although it is far from a guarantee.”

According to the model, IVF only increases the upper age for starting a family of any size by a few years. “IVF has limited impact, and that might surprise people,” says Habbema.

Habbema admits that other factors will influence decisions made by potential parents, such as their career and relationship stability, and the available childcare resources. “It’s not easy to make recommendations,” he says. “I hope the model will play a part in making decisions easier.”

Women in their 30s who want

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to have children needn’t worry yet, says Keefe. “Some might think: ‘oh my gosh, I have to get started’, but for many women that’s not true,” he says. “For women at the age margins, this could help nudge them one way or another, but we don’t want to force people to change their lives.”

Pacey thinks the table should be widely circulated. “The table ought to be photocopied and put up on the clinic wall,” he says. “We should also be aiming this at sixth formers [college students] and university students, so that they’re aware of how to plan their life.” The best way to inform both young men and women, without pressuring or scaring them, might be to integrate fertility awareness into lessons on contraception that are routinely delivered at schools.

Such education programmes are being launched in Sweden, says Waldenström, and the British Fertility Society is planning to run a similar scheme in the UK.

“We haven’t got a time machine we can put people in... that’s just a blunt reality,” says Pacey. “Everyone thinks they can wait – this shows that you can’t.” n

EXPERT’S VIEW

We need to get the message right

Adam Balen, chair of the British Fertility Society

The information captured in the fertility model is extremely important to have out there. There’s been a lot of publicity recently about the decline in fertility with age – not all of it well informed. This is such an emotionally charged subject with such fundamental consequences, we need to get the message right.

In June, for example, one scientist suggested that women who haven’t started a family by the age of 35 should freeze their eggs. But this doesn’t guarantee a family – eggs don’t always freeze well, and you need to freeze quite a few to give yourself reliable insurance.

It’s also been suggested that all men should have their sperm frozen at the age of 18. That’s even more ludicrous, because while male fertility falls with age, the effects don’t kick in until the late forties.

Young people today expect to have complete control over their life. The messages about unwanted pregnancy are clear – you can control that with contraception. But when it comes to getting pregnant things are less clear. For most people, it’s not as simple as coming off the pill.

It is our duty to educate people about the decline in fertility with age. There is also a case for providing fertility checks to couples. At the moment, such tests aren’t widely available to healthy people, but I don’t see why they shouldn’t be.

Couples need support so they can start their families early. Women who have children in their 20s are more likely to achieve their desired family size but can also expect lower lifetime earnings than women who start later. We need to ensure women aren’t disadvantaged at work, and sort the lack of childcare facilities so we can enable young couples to establish their careers and families at the same time.

As told to Jessica Hamzelou