







# The International Fertility Education Initiative: research and action to improve fertility awareness

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## WHAT DOES THIS MEAN FOR PATIENTS?

Research shows that people's knowledge about fertility and what they can do to improve the chance of having children is generally low. For people who want to have children, more awareness about the factors that affect fertility and chance of pregnancy might improve their chance of achieving their desired family size. The International Fertility Education Initiative (IFEI) is a newly formed group of experts from around the world who want to improve fertility and reproductive health awareness through education. The group includes health professionals, researchers, and representatives from patient organizations, professional societies, and industry. In this commentary, we explain why it is important that fertility and preconception health education is included in health and education policy and practice.

In response to evidence that people of reproductive age lack awareness about the factors that affect the chance of conceiving and having a healthy baby, a group of experts have founded the International Fertility Education Initiative (IFEI). Its mission is to improve fertility and reproductive health awareness through education. We believe that fertility education could reduce the prevalence of infertility and improve the health of future children. The group has representatives from Australia, Belgium, Canada, Czech Republic, Denmark, Finland, France, Greece, Japan, Philippines, Poland, Portugal, Sweden, Turkey, UK, Fertility Europe (represents patient associations in the field of (in)fertility in more than 20 European countries), and ESHRE and includes scientists, clinicians, nurses, health psychologists, clinical psychologists, bioethicists, fertility advocates, patients with infertility, and industry. In this commentary, we explain why it is important that fertility and preconception health education is embedded in health and education policy and practice.

Parental age at first birth has been increasing in the last few decades and is now around 30 years for women and 2–3 years older for men in many high-income countries (OECD, 2019). Because both female and male fertility declines with age, this means that some people will have fewer children than they had hoped to have or will end up childless, even after fertility treatment. In the Organisation for Economic Co-operation and Development (OECD) countries, the average rate of childlessness among women at the end of the reproductive period is 18% among women born in 1970 (OECD, 2018). For some, this is by choice, and support and understanding for people who choose to lead a childfree life are often lacking (Hintz and Brown, 2019; Moore, 2020; Stahnke et al., 2020; Verniers, 2020). For others, infertility, medical conditions, lack of a partner, or other personal circumstances might cause involuntary childlessness.

<sup>†</sup>The members of the International Fertility Education Initiative are given in the Appendix.

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# Do you want to have **KIDS** in the future?



## 9 THINGS YOU SHOULD KNOW NOW

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Women are born with all the eggs they are going to have. Female fertility declines markedly from age 35. By age 37, 90% of the eggs are gone. From puberty men produce sperm all their life but sperm quality declines with age.
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In one ejaculate, men produce about 100 million sperm. Once a month, a woman produces one egg – only ovulating about 500 eggs in her whole lifetime.
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Women and men should aim to be as healthy as possible before they start trying for a baby. Being a healthy weight, not smoking, limiting alcohol and caffeine, and exercising regularly increases the chance of pregnancy and is important for the long-term health of children.
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Pregnancy is only possible from about five days before ovulation through to the day of ovulation – the fertile window. Having plenty of sex during these days boosts the chance of pregnancy.
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Fertility is ageist! It's best to start trying sooner than later. Women younger than 30 have about a 20% chance of getting pregnant each month but this drops to about 5% at age 40. When the male partner is over the age of 45 there is increased risk of miscarriage and certain conditions in the offspring, such as autism.
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Most people get pregnant within a year of trying. If you have been trying for 12 months or more (six months if you're a woman older than 35) without success, it's time to talk to your doctor about your options as you may have infertility.
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Sexually transmitted infections (including HIV and genital tuberculosis), mumps after puberty, an undescended testicle, polycystic ovary syndrome, endometriosis, menstrual cycle problems, some environmental pollutants and workplace chemicals can affect fertility. If you have concerns, talk to your doctor.
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IVF cannot work miracles. The chance of having a baby after one IVF attempt is around 30% for women aged under 35, but only about 10% for women aged between 40 and 44 and over 45 it's almost zero.
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Fertility treatment can help infertile heterosexual couples, same-sex couples and single people have children. Talk to a fertility expert about the available options.

For more information visit [www.fertilityed.uk](http://www.fertilityed.uk) or [www.yourfertility.org.au](http://www.yourfertility.org.au). Fertility education is effective see <https://doi.org/10.1093/humrep/dey107>.



**Figure 1.** The fertility education poster produced by the International Fertility Education Initiative.

If and when people have children is influenced not only by their desires and personal circumstances but also by social and economic factors. Mills *et al.* (2011) conclude that access to effective contraception, increases in women's education and labour market participation, value changes, gender equity, partnership changes, housing conditions,

economic uncertainty, and the absence of supportive family policies all contribute to later childbearing. However, lack of knowledge and awareness of the factors that influence fertility, including age, among people of reproductive age might contribute to later childbearing (Hammarberg *et al.*, 2013; Pedro *et al.*, 2018). Also, most people

overestimate the chance of achieving parenthood through IVF and this might lead to unrealistic expectations of what is possible with IVF (Fauser *et al.*, 2019). Improved public awareness about the potentially modifiable factors that affect fertility could reduce the risk of infertility and the need for infertility treatment. In addition, greater awareness among women and men of reproductive age about the impact of age and some potentially modifiable factors on fertility as well as the importance of optimal parental preconception health may improve pregnancy outcomes and the health of babies at birth and into adulthood (Barker *et al.*, 2018; Fleming *et al.*, 2018; Stephenson *et al.*, 2018).

Taken together, this evidence shows that public education initiatives are needed to help people who want to have children make informed reproductive decisions to achieve their desired family size and have healthy babies.

In some countries, fertility education programmes have been instigated. Australia was the first with a government funded programme, which includes an interactive website with over 5 million visits per year and learning modules for healthcare providers ([www.yourfertility.org.au](http://www.yourfertility.org.au)) (Hammarberg *et al.*, 2017). Denmark has published a national report on infertility prevention in 2016 (Nielsen *et al.*, 2016) and in 2011, opened the world's first Fertility Assessment and Counselling Clinic to provide individual fertility assessment and guidance to women and men with no known reproductive problems (Hvidman *et al.*, 2015; Birch Petersen *et al.*, 2017). To date, the clinic has seen more than 3000 people. In the UK, the Fertility Education Initiative was established in 2016 ([www.fertilityed.uk](http://www.fertilityed.uk); Harper *et al.*, 2017) and the Department for Education (2019) introduced fertility education into the UK curriculum in 2019. Several countries have established fertility education websites, including Belgium ([klaarvoorkinderen.be](http://klaarvoorkinderen.be); [testjev-ruchtbaarheid.be](http://testjev-ruchtbaarheid.be)), Greece, Portugal (<https://www.cuidadatuafertilidade.pt/>), Czech Republic ([www.mojereprodukcnizdravi.cz](http://www.mojereprodukcnizdravi.cz)), and Sweden (<http://www.reproduktivlivsplan.se/>).

The call for universal fertility education was also part of Fertility Europe's 2019 Call to Action to encourage politicians to support equal access to infertility treatment and education in the European Union. The IFEI founders, in collaboration with members of ESHRE and Fertility Europe, developed a fertility education poster (Fig. 1), which was launched in the EU Parliament as part of the 'My Fertility, My Future, My Family' campaign organized by Fertility Europe during their annual European Fertility Week in 2019. The poster targets the general public of all ages, with the aim of facilitating the conversation around fertility education. It is hoped that the poster will be displayed in doctors' and gynaecology surgeries, family planning clinics, and schools. Evaluation of the public's perception of the poster is underway.

The primary goal of the fertility education poster is to increase public awareness about fertility and what people can do to have the best chance of having a healthy child. The poster provides facts, highlights misconceptions, and sets the record straight on common myths regarding fertility. The poster campaign also aims to increase policymakers' awareness of the need for fertility education, making the case that it enables informed reproductive decision-making. The poster has been translated into 35 languages and is free to download from [www.fertilityeurope.eu](http://www.fertilityeurope.eu). A video in English is available at <https://www.youtube.com/watch?v=5hUmX4xsDN0&t=25s>

To build on the strengths of these innovative public education initiatives and to create a multidisciplinary and collaborative research

platform, the IFEI was established in 2020. The mission of the IFEI is 2-fold; to promote fertility awareness and preconception health through public education and to conduct research. Our vision for improving fertility awareness is still developing but our target audiences include adolescents, people of reproductive age, primary healthcare and education professionals, and policymakers. The two research themes the group will pursue are to establish country-specific evidence about people's knowledge and attitudes to fertility and identify knowledge gaps, and to evaluate the effectiveness of existing and emerging fertility education programmes. Such programmes need to be tailored to different age groups, genders, ethnicities, and sexual orientations. For example, a woman aged 40 years who is struggling to conceive will need different information to an 18-year-old male who is not contemplating fatherhood.

IFEI members are currently developing a website where health professionals can share information about fertility education and research projects they are involved in or planning. We welcome people with an interest in fertility education to join us to help establish national fertility education programmes in as many countries as possible. Ultimately, we want every country to have a comprehensive government-sponsored fertility education programme because we believe that fertility education should be provided to young people in schools in an age-appropriate manner and, beyond, to all people in their reproductive years. The aims are to ensure that people are empowered with the knowledge they need to make informed decisions about their reproductive choices and that they have a full understanding of all aspects of their reproductive health and what they can do to enhance their chances of having a family when the time is right. Awareness about the role and limitations of modern treatments and technology in the treatment of infertility and in creating 'modern families' for those who are lesbian, gay, bisexual, and transgender is also essential.

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## Appendix

The International Fertility Education Initiative Committee comprises: Tomas Bagocsi, Basak Balaban, Adam Balen, Valerie Blanchet, Maja Bodin, Jacky Boivin, Alexandra Carvalho, Ilse Delbaere, Michel De Vos, Kerem Dirican, Jacques de Mouzon, Maria Ekstrand Ragnar, Elif Ergin, Anita Fincham, Necati Findikli, Bola Grace, Timur Gurgan, Emily Koert, Karin Hammarberg, Joyce Harper, Jessica Hepburn, Tuong Ho, Zuzana Holubcova, Shellie Jallorina, Sarah Johnson, Lale Karakoc, Lenka Libichová, Stepan Machac, Eri Maeda, Christina Magli, Mariana Veloso Martins, Nathalie Massin, Marijke Merckx, Heidi Mertes, Basar Murat, Odkhuu Enkhtaivan, Amelia Pantou, Juliana Pedro, Mariana Moura Ramos, Satu Rautakallio-Hokkanen, Virginie Rio, Ana Rita, Teresa Almeida Santos, Lone Schmidt, Mara Simopoulou, Evrim Unsal, and Søren Ziebe.

## References

- Barker M, Dombrowski SU, Colbourn T, Fall CHD, Kriznik NM, Lawrence WT, Norris SA, Ngaiza G, Patel D, Skordis-Worrall J, et al. Intervention strategies to improve nutrition and health behaviours before conception. *Lancet* 2018;**391**:1853–1864.
- Birch Petersen K, Maltesen T, Forman JL, Sylvest R, Pinborg A, Larsen EC, Macklon KT, Nielsen HS, Hvidman HW, Nyboe Andersen A. The Fertility Assessment and Counseling Clinic—does the concept work? A prospective 2-year follow-up study of 519 women. *Acta Obstet Gynecol Scand* 2017;**96**:313–325.
- Department for Education. Relationships and Sex Education (RSE) and Health Education Guidance. 2019. <https://www.gov.uk/government/publications/relationships-education-relationships-and-sex-education-rse-and-health-education> (1 March 2021, date last accessed).
- Fauser BCJM, Boivin J, Barri PN, Tarlatzis BC, Schmidt L, Levy-Toledano R. Beliefs, attitudes and funding of assisted reproductive technology: public perception of over 6,000 respondents from 6 European countries. *PLoS One* 2019;**14**:e0211150.
- Fleming TP, Watkins AJ, Velazquez MA, Mathers JC, Prentice AM, Stephenson J, Barker M, Saffery R, Yajnik CS, Eckert JJ, Hanson MA, et al. Origins of lifetime health around the time of conception: causes and consequences. *Lancet* 2018;**391**:1842–1852.
- Harper J, Boivin J, O'Neill HC, Brian K, Dhingra J, Dugdale G, Edwards G, Emmerson L, Grace B, Hadley A, et al. The need to improve fertility awareness. *Reprod Biomed Soc Online* 2017;**4**:18–20.
- Hammarberg K, Norman RJ, Robertson S, McLachlan R, Michelmore J, Johnson L. Development of a health promotion programme to improve awareness of factors that affect fertility, and evaluation of its reach in the first 5 years. *Reprod Biomed Soc Online* 2017;**4**:33–40.
- Hammarberg K, Setter T, Norman R, Holden C, Michelmore J, Johnson L. Knowledge about factors that influence fertility among Australians of reproductive age: a population based survey. *Fertil Steril* 2013;**99**:502–507.
- Hintz EA, Brown CL. Childfree by choice: stigma in medical consultations for voluntary sterilization. *Women's Reproductive Health* 2019;**6**:62–75.
- Hvidman H, Petersen KB, Larsen E, Macklon K, Pinborg A, Andersen A. Individual fertility assessment and pro-fertility counselling: should this be offered to women and men of reproductive age? *Hum Reprod* 2015;**30**:9–15.
- Mills M, Rindfuss RR, McDonald P, Te Velde E; ESHRE Reproduction and Society Task Force. Why do people postpone parenthood? Reasons and social policy incentives. *Hum Reprod Update* 2011;**17**:848–860.
- Moore J. The fixed childfree subjectivity: performing meta-facework about sterilization on Reddit. *Health Commun* 2020;**8**:1–10.
- Nielsen HS, Schmidt L, Nyboe Andersen A, Birch PK, Gyrd-Hansen D, Jensen TK. *Prevention of Infertility [Forebyggelse af Nedsat Frugtbarhed, in Danish]*. Copenhagen: The National Council of Disease Prevention [Vidensråd for Forebyggelse], 2016.
- Pedro J, Brandão T, Schmidt L, Costa ME, Martins MV. What do people know about fertility? A systematic review on fertility awareness and its associated factors. *Ups J Med Sci* 2018;**123**:71–81.
- Stahnke B, Blackstone A, Howard H. Lived experiences and life satisfaction of childfree women in late life. *Family J* 2020;**28**:159–167.
- Stephenson J, Heslehurst N, Hall J, Schoenaker DAJM, Hutchinson J, Cade JE, Poston L, Barrett G, Crozier SR, Barker M, et al. Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health. *Lancet* 2018;**391**:1830–1841.
- OECD. *Childlessness*. 2018. [https://www.oecd.org/els/family/SF\\_2-5-Childlessness.pdf](https://www.oecd.org/els/family/SF_2-5-Childlessness.pdf) (1 March 2021, date last accessed).
- OECD. *Age of Mothers at Childbirth and Age-Specific Fertility*. 2019. [www.oecd.org/els/soc/SF\\_2\\_3\\_Age\\_mothers\\_childbirth.pdf](http://www.oecd.org/els/soc/SF_2_3_Age_mothers_childbirth.pdf) (1 March 2021, date last accessed).
- Verniers C. Behind the maternal wall: the hidden backlash toward childfree working women. *J Theo Soc Psychol* 2020;**4**:107–124.