First reproductive experience: a survey module

Authors

Eva Beaujouan, eva.beaujouan@univie.ac.at, University of Vienna (Wittgenstein Centre)

Shalini Singh, Shalini.singh@univie.ac.at, University of Vienna

Anna Šťastná, anna.stastna@natur.cuni.cz, Charles University

Martin Kreidl, kreidlm@fss.muni.cz, Masaryk University

Daniel Dvořák, 462749@mail.muni.cz, Masaryk University

Barbora Hubatková, 220208@mail.muni.cz, Masaryk University

Darina Kmentova, 483778@mail.muni.cz, Masaryk University

Jitka Slabá, jitka.slaba@natur.cuni.cz, Charles University

Jasmin Passet-Wittig, jasmin.passet@bib.bund.de, Bundesinstitut für Bevölkerungsforschung (BiB)

Alice Goisis, a.goisis@ucl.ac.uk, University College London

Heini Väisänen, heini.vaisanen@ined.fr, Institut national d'études démographiques (INED)

Abstract

Experiencing reproductive problems such as infertility and miscarriage becomes more common with age and can be a barrier to having children, especially if first births are delayed. This module on the first reproductive experience aims to enhance our understanding of women's and men's reproductive realities today. Collecting survey items on the first reproductive experience enables researchers to identify the reproductive issues women and men face, the ways in which they respond or tackle these challenges including infertility treatments, and the consequences for different aspects of their lives, including mental health, relationship stability and family size. It also allows researchers to chart the age at which people start trying to have a child and to quantify the incidence of reproductive difficulty in different settings. Finally, by asking about the age at or time between events (trying, conceiving, giving birth), it is possible to estimate success rates according to the age at which the person first tried to conceive a child, an important contribution to human reproduction research for which we currently lack data. Adding a module on the first reproductive experience to cross-sectional and panel family surveys that already contain basic information on fertility will help to integrate the studies of reproductive and demographic events and fill important gaps in knowledge about reproductive health in countries with later fertility.

1. Motivation to investigate first reproductive experience

Research indicates that as individuals age, their biological ability to conceive diminishes (Van Noord-Zaadstra et al., 1991; Wood, 1989). In contemporary Europe, first births have been postponed considerably in recent decades, leading to an increased likelihood of individuals remaining childless or having fewer children than intended (Bratti & Tatsiramos, 2012; Rybińska & Morgan, 2019). Furthermore, the risk of experiencing pregnancy-related difficulties – including infertility, miscarriage, foetal chromosomal abnormalities and preterm births – increases with age, which may act as a barrier to realising fertility intentions (Balasch, 2010; de La Rochebrochard et al., 2006; du Fossé et al., 2020; Frederiksen et al., 2018; Schmidt et al., 2012).

Yet, surveys do not routinely collect information on the age at which people attempt to have their first child, even though this seems to be a central element in the success of having a live birth and in the total number of children people have. Given the increasing focus on delayed parenthood and infertility in current research, it becomes crucial to investigate the timing and outcomes of men's and women's first reproductive experience – i.e. their first attempt to conceive or their first unplanned pregnancy . The module aims to provide a deeper and more robust understanding of the factors associated with men and women's first reproductive experience and how it unfolds.

The first reproductive experience has the potential to shape an individual's reproductive pathway. Specific events, such as miscarriage and pregnancy complications, have been shown to increase the risk of future miscarriage (Magnus et al., 2019). Beside this, reproductive experiences tend to affect physical and mental well-being and personal life circumstances (Gravensteen et al., 2018; Lewinsohn et al., 2018; Luk & Loke, 2015; McCarthy & Chiu, 2011; Quenby et al., 2021). Collecting items about the first reproductive experience allows researchers to identify and quantify the different problems women and men face, and the ways in which they respond or tackle these challenges. In particular, reliable data on the prevalence of infertility, the use of fertility treatments and the experience of other reproductive events such as miscarriage, abortions and stillbirth at all ages remain scarce. Despite the methodological challenge posed by the underreporting of events such as abortion and miscarriage in surveys (Lindberg & Scott, 2018), it is necessary and useful to ask about these first occurrences and have an overview across countries at a time when reproductive experiences and abortion are in the spotlight.

2. Why reproductive timing matters?

Demographic research has often used the age of 15 as a computational benchmark for the start of the reproductive window. Today, as individuals have greater control over their family planning and tend to start having children later in life, it is more meaningful to define the start of the reproductive window by the first time someone tries to conceive (whether or not this results in a live birth) or experiences a pregnancy without a planned attempt. The first reproductive experience appears to be central to the rest of the reproductive journey (Guzzo & Hayford, 2011; Trussell & Menken, 1978). It not only defines the unique starting point of individuals' reproductive trajectories, but is also closely linked to their later life outcomes, be they reproductive health, mental health, partnership dynamics, marriage and the number of children people ultimately have (Guzzo & Hayford, 2014; Habbema et al., 2015; Henretta et al., 2008; HOGUE, 1986; Mirowsky, 2002; Morgan & Rindfuss, 1999).

Time to pregnancy (TTP) – the number of non-contracepting menstrual cycles required to conceive (Baird et al., 1986) – is a widely used measure in clinical studies to estimate infertility. However, TTP often provides only partial information. This is either due to its use in specific clinical contexts, such as measuring the success of assisted reproductive technologies (ART), or because the handling of unsuccessful conception attempts varies across studies (Hong et al., 2022; Sunkara et al., 2020). The data provided by this module will enable the calculation of a more comprehensive measure outside clinical set up that answers a crucial question: *How long does it take for a person to have a child (or achieve a pregnancy leading to live birth) when they begin trying at a given age?* Our measure starts tracking from the respondent's first attempt to conceive and ends with a well-defined outcome—for instance a pregnancy, a birth, or no pregnancy by the time the individual stops trying. By explicitly capturing the duration of the attempt, our approach includes individuals who never conceive, making the measure both inclusive and highly informative. Furthermore, by tracking the sequence of key reproductive events—attempting to conceive, achieving pregnancy, and giving birth—this measure allows for a precise estimation of success rates based on the age at first attempt. Our measure provides an accurate estimation of age-specific fecundability, helps refine models of age-related fertility decline, and enhances our understanding of socio-economic variations in TTP and time to live birth. This is a significant contribution to human reproduction research, where data on age-related fecundability patterns remain limited (Eijkemans et al., 2014; Leridon, 2008).

3. New research questions arising from this module

This module examines the first instance in which a person either actively sought to conceive or became pregnant without a planned attempt. It does so by collecting detailed information on the timing, sequence and outcome of reproductive events during that period, including the first attempt to conceive, use of fertility treatments, pregnancy, abortion, miscarriage, stillbirth, and live birth. It allows for a distinction between a conscious decision to become pregnant and an unplanned pregnancy, offering deeper insight into the circumstances surrounding a person's first reproductive experience.

Designed for inclusion in nationally representative family surveys, this module significantly enriches the study of contemporary life experiences by reaffirming reproduction as a fundamental aspect of the life course. It enables researchers to address a wide range of questions: from understanding how the age and circumstances of an individual's first reproductive experience relate to its outcome and future life trajectory; to broader population-level analyses of how first birth postponement may be shaping overall fertility patterns.

The research generated from incorporating these questions into Social Science Surveys will be pioneering in several ways. For the first time, both women and men will be asked when they began trying to have children and about their first experience with an unplanned pregnancy. By structuring the questions in a stepwise manner—from attempting to conceive, to achieving pregnancy, to experiencing different pregnancy outcomes—this module provides a unique opportunity to capture key reproductive events. In particular, it allows for a detailed understanding of: the experience of planned and unplanned pregnancies (and whether they resulted in a live birth, miscarriage, stillbirth, or abortion); difficulties conceiving naturally and the use of fertility treatments; and adverse pregnancy outcomes. The methodological advances in measuring time to pregnancy detailed above

also enable comparisons of the risks of failure to conceive or to achieve a live birth based on age at first attempt and socio-economic status.

4. The survey module as implemented in the Czech GGS-II wave 2

Our module, as conducted in the Czech Generations and Gender Survey, is given in appendix 1. It is entirely original and inspired by gaps in current human reproduction research. Avoiding complicated research design, it focuses only on the first reproductive experience, with simple questions about the timing and outcome of the first pregnancy attempt and the first unplanned pregnancy. The module can be administered to anyone. Men and women of any age, whether in a relationship or not, may have experienced an unplanned pregnancy, an abortion or other reproductive difficulties when trying to have a child for the first time. In order to provide a sufficient sample for the study of those with a late first reproductive experience and later life outcomes, it is particularly recommended to administer it to people of all ages, as done in the Czech Republic, and not only to people of reproductive ages at the time of interview. The module covers the essential question of timing of the attempt (age at first attempt, duration until pregnancy), and offers the possibility of several paths to the outcome (use of assisted reproduction, etc.) and of several outcomes including pregnancy loss.

We acknowledge that some of these questions can be sensitive for some individuals, which may contribute to higher non-response rates compared to less sensitive topics. Self-administered questionnaires such as computer-assisted web interviewing (CAWI) and computer-assisted personal interviewing (CAPI), which are now widely used in large-scale family surveys, are thus particularly well suited to these questions, which touch on very intimate areas of life. In addition, it is unclear whether we can expect a good level of accuracy and reliability in responses, as first reproductive experiences have been rarely investigated. To address these concerns and ensure good comprehension of the questions, the initial version of the survey module (shown in Appendix 3) was subject to cognitive testing in the Czech Republic. This assessment confirmed a generally positive reception of the questions, with no major difficulties in discussing unplanned pregnancy, infertility, use of infertility treatments or abortion. The report, available in Appendix 3, explains refinements in question wording and structure to enhance clarity and account for cognitive response factors.

Following these adjustments, the revised questionnaire was tested in a pilot study conducted by the Czech team in two steps, the second one following some format corrections. The results of the pilot testing are available in Appendix 2. In addition to the percentage distribution of responses for each question, we provide a table with descriptive statistics on response time, returns to items, and deletions of previously provided responses. They are good indicators of sensitivity (e.g., respondents taking longer to consider whether and how to respond), of potential misunderstanding and/or high cognitive burden (e.g., respondents needing to check their previous response, or respondents truly understanding the question only after the context is revealed through subsequent questions). Due to technical issues in the filter for the last two questions on unplanned pregnancy (age (b8repr08_2801) and outcome (b8repr09_2801)), which have since been corrected for the actual survey, results for these items are not available. Other than that, the results were consistent and the indicators confirm that respondents understood the questions without significant difficulty.

On items presented to at least 100 pilot respondents, the share of respondents who chose the “don’t know” response was low, varying between 0 % (result of the pregnancy, see Table 13) and 7 % (age at first attempt to conceive, see Table 1). The share of respondents that chose the “I don’t want to tell” response varied between 0 % (result of the pregnancy, see Table 13) and 3 % (three items: age at first

attempt to conceive, outcome of the first attempt to conceive, experience of unplanned pregnancy, see Tables 1, 3, and 15, respectively). Similarly (again looking only at items that were presented to at least 100 respondents and disregarding items on duration questions, the format of which was corrected based on the pilot), the share of respondents who went back to a particular question was between 0.8 % (infertility treatment methods, see Table 6) and 3.7 % (experience of unplanned pregnancy, see Table 16) and the share of respondents who edited a previously provided answer was between 0 % (two items: outcome of the first attempt to conceive, pregnancy result, see Tables 4 and 14, respectively) and 2.1 % (experience of unplanned pregnancy, see Table 16). The final pilot-tested questionnaire also served as the version implemented in the Czech GGS survey after the filter corrections of the last two questions (Round 2, Wave 2) (shown in Appendix 1).

5. Relevance to existing surveys

Standard demographic surveys provide information on live births, but live births hardly represent the full range of reproductive experiences. The understanding of a wider range of reproductive events is often limited to surveys that are not representative of the population (people visiting hospitals or fertility clinics, etc.). The only two population surveys we could identify that include calendar information on the reproductive experiences including age when started trying to conceive and outcomes of pregnancies not ending in live births are the French Fecond Survey (2010) and the American National Survey of Fertility Barriers (2004). The Fecond survey tried to capture all women's reproductive attempts, but the complexity of the questionnaire and survey fatigue likely led to data quality problems (Scott et al. 2019). In the American National Survey of Fertility Barriers, the 4,712 women were interviewed only up to age 45, which limits the sample size for the exploration of the life-long consequences of the first reproductive experience (such as childlessness). Although the Spanish Fertility Survey (2018) contains many questions on reproduction, it does not have information on the age at which men and women first tried to conceive a child.

The existing question on infertility in FReDA (frt45: Have you ever tried to have a child with a partner, but pregnancy has not occurred within at least 12 months?) and in GGS II Wave 1 or 2 (fer04d: Was there ever a time when you and a partner were trying to get pregnant but did not conceive within at least 12 months?) is not accompanied with a question on the age of the individual at the time of trying. Hence, both surveys lack the essential information needed to understand the sequence of events, for example, whether these people used assisted reproduction following that episode, whether the infertility episode happened before or after the known births of the respondent, etc. Most importantly, the experience of infertility cannot be linked to the age at which the person started trying to have a child, an aspect that is increasingly important to investigate given the sustained patterns of childbearing postponement.

Asked in the context of larger representative cross-sectional or panel surveys (e.g. the GGS or FreDA), the proposed set of questions on the first reproductive experience can feed into and uniquely enrich the research agenda on reproduction among women and men in countries with delayed fertility. In particular, it allows us to link the first reproductive experience with various aspects observed at the time of the survey, such as wellbeing (e.g. mental health), fertility intentions, childlessness, completed fertility and later life outcomes. It can complement and enrich a panel survey (such as FreDA) but it can also complement retrospective questions on fertility history and current reproductive experiences as asked in some cross-sectional surveys (e.g. Generations and Gender Surveys). The retrospective

partnership and fertility histories allow for the first reproductive experience to be linked to subsequent births and the time taken to achieve a pregnancy, which is rarely measured with such precision. In GGS and FReDA, the questions on reproductive experience with the current partner already included in the questionnaire complement our module with more information on recent contraceptive use, experience of assisted reproduction, etc. In surveys with a longitudinal design, the use of subsequent waves together with this combined information makes it possible to explore future life pathways (e.g. birth, separation and variation in fertility intentions).

6. Policy relevance

Goal 5.6 of the 2030 Agenda for Sustainable Development is to "ensure universal access to sexual and reproductive health and reproductive rights". The availability of information on reproductive experiences is a major necessity in the context of widening inequalities in reproductive health and of postponement of childbearing to ages characterised by infertility. As access to care is increasingly liberalised in some countries, it is important to understand the implications for equity in access to reproductive support (Lipson, 2001). Many reproductive events such as infertility, unplanned pregnancies, and pregnancy loss are not isolated occurrences but are interconnected to other life trajectories. Women from disadvantaged socio-economic backgrounds often experience a higher frequency and complexity of these events, leading to a greater cumulative reproductive burden (Johnson et al., 2023). Understanding these patterns can provide valuable insights into reproductive inequalities and inform policies that better support the reproductive health needs of socially and economically disadvantaged groups.

Data on the timing and outcomes of first reproductive experiences should enable policymakers to identify variations in individuals' reproductive trajectories, allowing for more tailored, problem-specific interventions. Such detailed information could inform the development of policies addressing reproductive and sexual health needs in times of delayed fertility. Reproductive issues, especially those occurring early in an individual's reproductive journey, can have far-reaching consequences. Understanding early reproductive events can help shape policies aimed at young people, by improving reproductive health through measures such as fertility education, access to cost-free contraception, and other supportive initiatives.

Ensuring access to fertility treatments, mental health support, and social services for those facing reproductive difficulties—such as pregnancy loss or unsuccessful conception attempts—can help mitigate long-term negative outcomes. Policies that provide equitable, affordable access to assisted reproductive technologies (ART) and fertility counselling are essential for individuals struggling with infertility. At the same time, offering comprehensive information and resources to those who do not wish to conceive supports their reproductive choices and enhances overall sexual and reproductive health and rights.

Furthermore, understanding the relationship between first reproductive experiences and later life outcomes, such as partnership stability and family size, would also guide the design of family-friendly policies. Modelling shows that postponing childbearing beyond age 35 reduces the likelihood of achieving one's desired family size, and, in particular, increases the likelihood of being childless (Habbema et al., 2015; Kneale & Joshi, 2008). Strengthening this connection with more formal evidence could support policies that promote work-life balance, affordable childcare, and parental

leave, while also raising awareness about biological limits and the limited efficiency of assisted reproduction at older ages (Pedro et al., 2018). Balanced measures could potentially encourage individuals to start families earlier, while still supporting those who delay parenthood for educational, career, or financial reasons.

By focusing on the timing and nature of first reproductive events, this module offers valuable insights that can guide policies that respect individual reproductive choices while ensuring positive outcomes for families and society as a whole. The proposed questions are therefore highly relevant for policy development, helping to identify those who may require support and ensuring that existing policies are more equitable and responsive to diverse needs. Hence, we encourage countries conducting surveys that include a section on fertility and family to incorporate this module on first reproductive experience. Over time, this will enable meaningful international comparisons of the implications of delayed childbearing for individual reproductive trajectories and national fertility trends.

7. Acknowledgments

This work was funded by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant Agreement No 101001410, BIC.Late). The cognitive testing, survey pilot, and its evaluation were conducted as a part of methodological research within the large research infrastructure "Czech national cluster for family research" that is financially supported by the Ministry of education, youth, and sports of the Czech Republic (proj. num. LM2024074). Thank you to Martin Bujard for commenting on an earlier version of the module and for rich discussions during a 2024 meeting of the EAPS working group on "Infertility and Medically Assisted Reproduction".

8. Authors' Contributions

EB conceived the idea of asking survey questions on reproductive experience, drafted the original module questions, initiated the dissemination of this module by writing submissions to the calls for modules for GGS and FreDA, and edited all drafts of this text. SS drafted all versions of this text, expanding the call for module submissions, and contributed to the development of the module questions. MK initiated the implementation of the module in the Czech Generations and Gender Survey (CZ GGS Round 2, Wave 2). DK conducted the cognitive testing. AŠ, DD, BH, DK, JS and MK organized and evaluated the pilot survey of different module versions in Czech, refined the questionnaire accordingly and adopted the final set of questions in the Czech GGS. JP, AG, and HV were part of the initial team that submitted the module proposals and contributed to the project's development through input and revisions.

9. References

Baird, D. D., Wilcox, A. J., & Weinberg, C. R. (1986). USE OF TIME TO PREGNANCY TO STUDY ENVIRONMENTAL EXPOSURES. *American Journal of Epidemiology*, *124*(3), 470–480. https://doi.org/10.1093/oxfordjournals.aje.a114417

Balasch, J. (2010). Ageing and infertility: An overview. *Gynecological Endocrinology*, *26*(12), 855–860. https://doi.org/10.3109/09513590.2010.501889

Bratti, M., & Tatsiramos, K. (2012). The effect of delaying motherhood on the second childbirth in Europe. *Journal of Population Economics*, *25*(1), 291–321. https://doi.org/10.1007/s00148-010-0341-9

de La Rochebrochard, E., de Mouzon, J., Thépot, F., & Thonneau, P. (2006). Fathers over 40 and increased failure to conceive: The lessons of in vitro fertilization in France. *Fertility and Sterility*, *85*(5), 1420–1424. https://doi.org/10.1016/j.fertnstert.2005.11.040

du Fossé, N. A., van der Hoorn, M.-L. P., van Lith, J. M. M., le Cessie, S., & Lashley, E. E. L. O. (2020). Advanced paternal age is associated with an increased risk of spontaneous miscarriage: A systematic review and meta-analysis. *Human Reproduction Update*, *26*(5), 650–669. https://doi.org/10.1093/humupd/dmaa010

Eijkemans, M. J., Van Poppel, F., Habbema, D. F., Smith, K. R., Leridon, H., & Te Velde, E. R. (2014). Too old to have children? Lessons from natural fertility populations. *Human Reproduction*, *29*(6), 1304–1312.

Frederiksen, L. E., Ernst, A., Brix, N., Braskhøj Lauridsen, L. L., Roos, L., Ramlau-Hansen, C. H., & Ekelund, C. K. (2018). Risk of Adverse Pregnancy Outcomes at Advanced Maternal Age. *Obstetrics & Gynecology*, *131*(3). https://journals.lww.com/greenjournal/fulltext/2018/03000/risk_of_adverse_pregnancy_outcomes_at_advanced.7.aspx

Gravensteen, I. K., Jacobsen, E.-M., Sandset, P. M., Helgadottir, L. B., Rådestad, I., Sandvik, L., & Ekeberg, Ø. (2018). Anxiety, depression and relationship satisfaction in the pregnancy following stillbirth and after the birth of a live-born baby: A prospective study. *BMC Pregnancy and Childbirth*, *18*(1), 41. https://doi.org/10.1186/s12884-018-1666-8

Guzzo, K. B., & Hayford, S. (2011). Fertility following an unintended first birth. *Demography*, *48*, 1493–1516.

Guzzo, K. B., & Hayford, S. R. (2014). Fertility and the stability of cohabiting unions: Variation by intendedness. *Journal of Family Issues*, *35*(4), 547–576.

Habbema, J. D. F., Eijkemans, M. J., Leridon, H., & te Velde, E. R. (2015). Realizing a desired family size: When should couples start? *Human Reproduction*, *30*(9), 2215–2221.

Henretta, J. C., Grundy, E. M., Okell, L. C., & Wadsworth, M. E. (2008). Early motherhood and mental health in midlife: A study of British and American cohorts. *Aging and Mental Health*, *12*(5), 605–614.

HOGUE, C. J. R. (1986). Impact of abortion on subsequent fecundity. *Clinics in Obstetrics and Gynaecology*, *13*(1), 95–103.

Hong, X., Yin, J., Wang, W., Zhao, F., Yu, H., & Wang, B. (2022). The current situation and future directions for the study on time-to-pregnancy: A scoping review. *Reproductive Health*, *19*(1), 150.

Johnson, K. M., Shreffler, K. M., Greil, A. L., & McQuillan, J. (2023). Bearing the Reproductive Load? Unequal Reproductive Careers Among US Women. *Population Research and Policy Review*, *42*(1), 14.

Kneale, D., & Joshi, H. (2008). Postponement and childlessness: Evidence from two British cohorts. *Demographic Research*, *19*, 1935–1968.

Leridon, H. (2008). A new estimate of permanent sterility by age: Sterility defined as the inability to conceive. *Population Studies*, *62*(1), 15–24.

Lewinsohn, R., Crankshaw, T., Tomlinson, M., Gibbs, A., Butler, L., & Smit, J. (2018). "This baby came up and then he said, "I give up!": The interplay between unintended pregnancy, sexual partnership dynamics and social support and the impact on women's well-being in KwaZulu-Natal, South Africa. *Midwifery*, *62*, 29–35. https://doi.org/10.1016/j.midw.2018.03.001

Lindberg, L., & Scott, R. H. (2018). Effect of ACASI on Reporting of Abortion and Other Pregnancy Outcomes in the US National Survey of Family Growth. *Studies in Family Planning*, *49*(3), 259–278. https://doi.org/10.1111/sifp.12068

Lipson, D. J. (2001). The World Trade Organization's health agenda. *BMJ*, *323*(7322), 1139. https://doi.org/10.1136/bmj.323.7322.1139

Luk, B. H.-K., & Loke, A. Y. (2015). The Impact of Infertility on the Psychological Well-Being, Marital Relationships, Sexual Relationships, and Quality of Life of Couples: A Systematic Review. *Journal of Sex & Marital Therapy*, *41*(6), 610–625. https://doi.org/10.1080/0092623X.2014.958789

Magnus, M. C., Wilcox, A. J., Morken, N.-H., Weinberg, C. R., & Håberg, S. E. (2019). Role of maternal age and pregnancy history in risk of miscarriage: Prospective register based study. *BMJ*, l869. https://doi.org/10.1136/bmj.l869

McCarthy, M. P., & Chiu, S. (2011). Differences in Women's Psychological Well-being Based on Infertility Treatment Choice and Outcome. *Journal of Midwifery & Women's Health*, *56*(5), 475–480. https://doi.org/10.1111/j.1542-2011.2011.00047.x

Mirowsky, J. (2002). Parenthood and health: The pivotal and optimal age at first birth. *Social Forces*, *81*(1), 315–349.

Morgan, S. P., & Rindfuss, R. R. (1999). Reexamining the link of early childbearing to marriage and to subsequent fertility. *Demography*, 59–75.

Pedro, J., Brandão, T., Schmidt, L., Costa, M. E., & Martins, M. V. (2018). What do people know about fertility? A systematic review on fertility awareness and its associated factors. *Upsala Journal of Medical Sciences*, *123*(2), 71–81.

Quenby, S., Gallos, I. D., Dhillon-Smith, R. K., Podesek, M., Stephenson, M. D., Fisher, J., Brosens, J. J., Brewin, J., Ramhorst, R., Lucas, E. S., McCoy, R. C., Anderson, R., Daher, S., Regan, L., Al-Memar, M., Bourne, T., MacIntyre, D. A., Rai, R., Christiansen, O. B., … Coomarasamy, A. (2021). Miscarriage matters: The epidemiological, physical, psychological, and economic costs of early pregnancy loss. *The Lancet*, *397*(10285), 1658–1667. https://doi.org/10.1016/S0140-6736(21)00682-6

Rybińska, A., & Morgan, S. P. (2019). Childless Expectations and Childlessness Over the Life Course. *Social Forces*, *97*(4), 1571–1602. https://doi.org/10.1093/sf/soy098

Schmidt, L., Sobotka, T., Bentzen, J. G., Nyboe Andersen, A., & on behalf of the ESHRE Reproduction and Society Task Force. (2012). Demographic and medical consequences of the postponement of parenthood. *Human Reproduction Update*, *18*(1), 29–43. https://doi.org/10.1093/humupd/dmr040

Sunkara, S. K., Zheng, W., D'Hooghe, T., Longobardi, S., & Boivin, J. (2020). Time as an outcome measure in fertility-related clinical studies: Long-awaited. *Human Reproduction*, *35*(8), 1732–1739.

Trussell, J., & Menken, J. (1978). Early childbearing and subsequent fertility. *Family Planning Perspectives*, *10*(4), 209–218.

Van Noord-Zaadstra, B. M., Looman, C. W., Alsbach, H., Habbema, J. D., Te Velde, E. R., & Karbaat, J. (1991). Delaying childbearing: Effect of age on fecundity and outcome of pregnancy. *BMJ*, *302*(6789), 1361–1365. https://doi.org/10.1136/bmj.302.6789.1361

Wood, J. W. (1989). Fecundity and natural fertility in humans. *Oxford Reviews of Reproductive Biology*, *11*, 61–109.

Appendix 1 (Final Questionnaire)

Czech version of the module, which is part of the GGS-II wave 2 questionnaire, piloted in the Czech Republic in November 2024 and collected in the field from 01/2025.

ENGLISH VERSION

Intro

In the following questions, we will ask you about situations that can occur before the first pregnancy. If you have tried to conceive a child multiple times, we are interested in the period when you first attempted, regardless of the outcome.

Q1 At what age did you attempt to conceive a child for the first time, if ever?

……

[1] I have never attempted to conceive a child

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q1 != 1]
Q2 When people try to have a child, things can turn out very differently — someone conceives a child right away, someone after a long time, and sometimes the effort is unsuccessful. Please think back to your own experience. When you tried to have a child for the first time, how did the effort eventually turn out?

[1] This effort eventually resulted in pregnancy

[2] I am still trying to have a child

[3] After some time, I stopped trying to have a child

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q2 != 2]
Q3a Did you/your partner use any of these methods to help you get pregnant on that first occasion? Please select all of the methods you have been using.

IF [Q2 == 2]
Q3b Have you/your partner been using any of these methods to help you get pregnant? Please select all of the methods you have been using.

[1] Receiving prescribed medication

[2] Methods for ascertaining timing of ovulation

[3] In vitro fertilisation (IVF) or micro-fertilisation (ICSI)

[4] Surgery

[5] Artificial insemination

[6] Consulted a physician

[7] Other medical treatment

[8] No, no method to help with getting pregnant

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q2 == 1]

Q4a How many years or months did it take to conceive a child that first time? Please tell us the number of years and months.

If you are unsure of the precise number, please provide your best estimate. You can combine months and years (for example, 2 years and 2 months) or just use one of the two boxes below and fill 0 into the other (for example, 0 years and 26 months).

Number of months: ……..

[97] *Don't know*

Number of years: …….

[97] *Don't know*

IF [Q2 == 3]

Q4b After how many years or months did you stop trying to conceive a child that first time? Please tell us the number of years and months.

If you are unsure of the precise number, please provide your best estimate. You can combine months and years (for example, 2 years and 2 months) or just use one of the two boxes below and fill 0 into the other (for example, 0 years and 26 months).

Number of months: ……..

[97] *Don't know*

Number of years: …….

[97] *Don't know*

IF [Q2 == 3]

Q5 Why did you stop trying to have a child at that time? Please select one main reason.

[1] I separated from my partner

[2] My economic or housing conditions changed

[3] I started focusing on something else

[4] I didn’t want a child anymore

[5] I did not want to undergo (further) infertility treatment

[6] I was unable to undergo (further) infertility treatment for health reasons

[7] I did not have enough money to pay for (further) infertility treatment

[8] Other reason

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q2 == 1]

Q6 What was the result of this pregnancy?

[1] Live birth

[2] The pregnancy is ongoing

[3] Induced abortion

[4] Miscarriage

[5] Stillbirth

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

Q7 Did you ever conceive a child without actively trying?

[1] Yes

[2] No

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q7 == 1]

Q8 How old were you when it occurred? If it occurred multiple times, report your age at the first occasion.

……..

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

IF [Q7 == 1]

Q9 What was the result of this pregnancy?

[1] Live birth

[2] The pregnancy is ongoing

[3] Induced abortion

[4] Miscarriage

[5] Stillbirth

[97] *Don't know*

[98] *I don't want to answer (Refuse)*

CZECH VERSION

Intro

V následujících otázkách nás zajímají zkušenosti, které mohou předcházet prvnímu otěhotnění. Pokud jste se o dítě pokoušel/a vícekrát, bude nás zajímat období, kdy se tak stalo poprvé, bez ohledu na to, jak to nakonec dopadlo.

Q1 V jakém věku jste se poprvé začal/a pokoušet o dítě, pokud vůbec?

……

[1] Nikdy jsem se nepokoušel/a o dítě

[97] Nevím

[98] Nechci odpovědět

IF [Q1 != 1]

Q2 Když se lidé pokoušejí o dítě, věci mohou mít velmi odlišný průběh – někdy otěhotní hned, někdy až po velmi dlouhé době a někdy je tato snaha neúspěšná.

Vzpomeňte si, prosím, jak to bylo u Vás. Když jste se poprvé pokoušel/a o dítě, jak tato snaha nakonec dopadla?

[1] Tato snaha nakonec skončila těhotenstvím

[2] Stále se pokouším o dítě

[3] Po určité době jsem se přestal/a pokoušet o dítě

[97] Nevím

[98] Nechci odpovědět

IF [Q2 != 2]

Q3a Využil/a jste Vy nebo váš/e partner/ka při této (první) příležitosti některou z následujících metod, které by Vám / Vaší partnerce pomohly otěhotnět? Označte, prosím, všechny metody, které jste použili.

IF [Q2 == 2]

Q3b Využíváte Vy nebo Váš/e partner/ka některou z následujících metod, které by Vám / Vaší partnerce pomohly otěhotnět? Označte, prosím, všechny metody, které jste použili/používáte.

[1] Užívání léků na předpis

[2] Metody zjišťující dobu ovulace

[3] Mimotělní oplodnění (IVF) nebo injekce spermie do vajíčka (ICSI)

[4] Chirurgická operace

[5] Umělá inseminace

[6] Konzultace s lékařem

[7] Jiná léčba

[8] Ne, žádnou metodu napomáhající otěhotnění

[97] Nevím

[98] Nechci odpovědět

IF [Q2 == 1]

Q4a Kolik let anebo měsíců uplynulo, než se Vám při této první příležitosti podařilo počít? Uveďte prosím počet let a počet měsíců.

Pokud si nejste jisti přesným počtem, zkuste jej, prosím, co nejpřesněji odhadnout. Při vyplňování můžete kombinovat měsíce a roky (např. 2 roky a 2 měsíce) nebo použít jen jednu kolonku a do druhé uveďte 0 (např. 0 let a 26 měsíců).

Počet měsíců: ……..

[97] Nevím

Počet let: ……..

[97] Nevím

IF [Q2 == 3]

Q4b Po kolika letech anebo měsících jste se při této první příležitosti přestal/a pokoušet o dítě? Uveďte prosím počet let a počet měsíců.

Pokud si nejste jisti přesným počtem, zkuste jej, prosím, co nejpřesněji odhadnout. Při vyplňování můžete kombinovat měsíce a roky (např. 2 roky a 2 měsíce) nebo použít jen jednu kolonku a do druhé uveďte 0 (např. 0 let a 26 měsíců).

Počet měsíců: ……..

[97] Nevím

Počet let: …….

[97] Nevím

IF [Q2 == 3]

Q5 Proč jste se tehdy přestal/a pokoušet o dítě? Vyberte, prosím, jeden hlavní důvod.

[1] Rozešel/Rozešla jsem se s partnerem/kou

[2] Změnily se moje ekonomické nebo bytové podmínky

[3] Začal/a jsem se věnovat něčemu jinému

[4] Už jsem si nepřál/a dítě

[5] Nechtěl/a jsme podstoupit (další) léčbu neplodnosti

[6] Nemohl/a jsem podstoupit (další) léčbu neplodnosti ze zdravotních důvodů

[7] Neměl/a jsme dost peněz na zaplacení (další) léčby neplodnosti

[8] Jiný důvod

[97] Nevím

[98] Nechci odpovědět

IF [Q2 == 1]

Q6 Jaký byl výsledek tohoto těhotenství?

[1] Živě narozené dítě

[2] Těhotenství stále trvá

[3] Umělé přerušení těhotenství (interrupce)

[4] Samovolný potrat

[5] Narození mrtvého dítěte/plodu

[97] Nevím

[98] Nechci odpovědět

Q7 Stalo se někdy, že jste otěhotněla / že s Vámi některá žena otěhotněla, aniž byste se aktivně pokoušel/a o dítě?

[1] Ano

[2] Ne

[97] Nevím

[98] Nechci odpovědět

IF [Q7 == 1]

Q8 Kolik Vám bylo let, když k tomuto těhotenství došlo? V případě, že se tak stalo vícekrát, uveďte věk, kdy se tak stalo poprvé.

……..

[97] Nevím

[98] Nechci odpovědět

IF [Q7 == 1]

Q9 Jaký byl výsledek tohoto těhotenství?

[1] Živě narozené dítě

[2] Těhotenství stále trvá

[3] Umělé přerušení těhotenství (interrupce)

[4] Samovolný potrat

[5] Narození mrtvého dítěte/plodu

[97] Nevím

[98] Nechci odpovědět

Appendix 2 (Pilot testing)

The pilot testing of the module was conducted in the autumn of 2024, from 29 October to 9 December, as part of the pilot study for the Czech version of the Generations and Gender Survey-II Wave 2 questionnaire. In this study, the **First Reproductive Experience** module was placed after the "Reproduction and Fertility" section. A total of 205 respondents took part in the pilot, of whom 195 completed the survey via Computer-Assisted Web Interviewing (CAWI) and 10 respondents via Computer-Assisted Personal Interviewing (CAPI). The pilot was designed so that its CAWI part would only include respondents who also participated in the Czech GGS-II Wave 1 pilot, which was conducted between December 2020 and February 2021, so that their experience as panel respondents would be authentic. However, for technical reasons, only 191 CAWI respondents had the experience of also participating in the Wave 1 pilot. The tables below are based on this subsample of Wave 2 pilot respondents.

Pilot testing was carried out in two slots. The second pilot testing was introduced in response to findings from the first pilot testing. These findings revealed issues with filters and routing, and the display of certain items on smartphones, highlighting the need for adjustments. With regard to the first reproductive experience module, problems arose in processing responses to the duration questions (Q4a and Q4b), as respondents were initially asked to enter months and years separately on different successive screens (Fig. 1). This structure occasionally led to duplication, with some respondents providing both formats (e.g., 14 months – 2 years, 60 months – 5 years).

To address this, two key adjustments were made to streamline the response format and improve clarity.

1. The program was modified so that the field for entering responses in months and years appears together on a single screen (Fig. 2).

2. The original short version of questions (*Q4a) "How many years or months did it take to conceive a child that first time?" and (Q4b) "After how many years or months did you stop trying to conceive a child that first time? Please tell us the number of years and months. If you are unsure of the precise number, please provide your best estimate."* were expanded to clarify the input format, explicitly stating: "*You can combine months and years (for example, 2 years and 2 months) or just use one of the two boxes below and fill 0 into the other (for example, 0 years and 26 months)".*

No further changes were made to the module questions between the second phase of the pilot testing and the main collection, and the adjustments to the program were successfully implemented.

Fig. 1: Original format of the duration questions (Q4a and Q4b) displayed across three screens, Czech GGS-II, wave 2 pilot (phase 1).

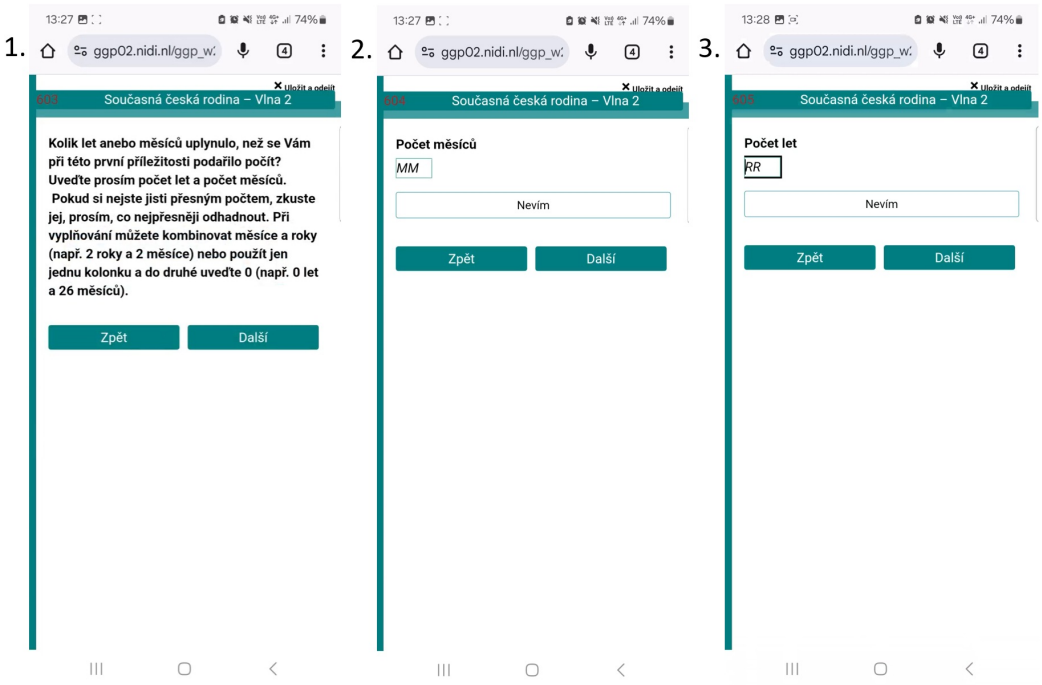

Fig. 2: Modified single-screen format of the duration questions (Q4a and Q4b), Czech GGS-II, wave 2 pilot (phase 2).

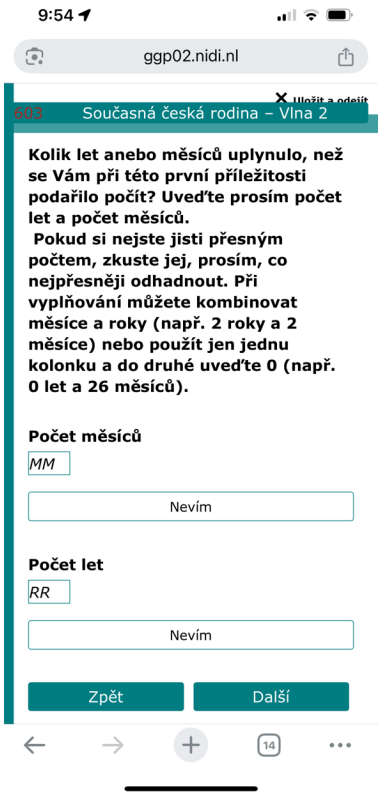

Table 1a: Descriptive statistics and categories of missing values of age at the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=191.

		Descriptive statistics of age at first attempt to conceive				Categories of missing values		
	N	Minimum reported age	Mean reported age	Median reported age	Maximum reported age	Never attempted	Don't know	I do not want to tell
All respondents	191	16	25.8	25	45	33 %	7 %	3 %
Age								
22–34	78	19	26.0	26	32	55 %	3 %	0 %
35–44	45	16	27.5	27	39	22 %	9 %	4 %
45–54	27	19	26.1	23.5	45	22 %	7 %	11 %
55–64	27	17	24.3	23	43	11 %	15 %	0 %
65–73	14	17	23.0	22	33	7 %	7 %	7 %
Gender								
Male	86	18	28.1	27	45	37 %	10 %	1 %
Female	105	16	24.3	25	34	30 %	4 %	5 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot.

Table 1b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – age at first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=191.

		Response time (in seconds)					Share of respondents	
	N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	191	1.734	12.301	8.453	63.034	10.590	0.021	0.010
Device								
PC	119	2.609	12.234	8.409	63.034	10.071	0.025	0.017
Phone	72	1.734	12.413	8.458	57.555	11.467	0.014	0

Table 2a: Percentage distribution and categories of missing values of outcome of the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=128.

		Percentage distribution of outcome of the first attempt to conceive			Categories of missing values	
	N	Pregnancy	Still trying	Gave up	Don't know	I do not want to tell
All respondents	128	85 %	4 %	6 %	2 %	3 %
Age						
22–34	35	91 %	6 %	3 %	0 %	0 %
35–44	35	77 %	6 %	8 %	3 %	6 %
45–54	21	85 %	5 %	5 %	0 %	5 %
55–64	24	88 %	0 %	8 %	4 %	0 %
65–73	13	84 %	0 %	0 %	8 %	8 %
Gender						
Male	54	78 %	9 %	7 %	6 %	0 %
Female	74	91 %	0 %	4 %	0 %	5 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 63 respondents were not asked this question due to a filter, respondents not included in the table.

Table 2b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – outcome of the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=128.

		Response time (in seconds)					Share of respondents	
	N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	128	0	14.029	12.928	37.5	7.570	0.016	0
Device								
PC	77	2.875	14.773	13.219	37.5	8.202	0.026	0
Phone	51	0	12.905	12.841	32.885	6.416	0	0

Note: 63 respondents were not asked this question due to a filter, respondents not included in the table.

Table 3a: Percentage distribution and categories of missing values of the infertility treatment methods previously/currently used at the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=128.

		Percentage distribution of the infertility treatment methods previously/currently used at the first attempt to conceive								Categories of missing values	
	N	Receiving prescription medication	Methods for ascertaining timing of ovulation	In vitro fertilisation (IVF) or micro-fertilisation (ICSI)	Surgery	Artificial insemination	Consulted a physician	Other medical treatment	No, no method to help with getting pregnant	Don't know	I do not want to tell
All respondents	128	10 %	14 %	6 %	2 %	3 %	11 %	4 %	70 %	2 %	1 %
Age											
22–34	35	3 %	20 %	0 %	0 %	3 %	11 %	6 %	71 %	0 %	0 %
35–44	35	23 %	17 %	11 %	6 %	3 %	9 %	6 %	51 %	6 %	3 %
45–54	21	14 %	19 %	14 %	0 %	10 %	24 %	0 %	67 %	0 %	0 %
55–64	24	4 %	4 %	4 %	0 %	0 %	4 %	4 %	83 %	0 %	0 %
65–73	13	0 %	0 %	0 %	0 %	0 %	8 %	0 %	92 %	0 %	0 %
Gender											
Male	54	9 %	15 %	6 %	2 %	2 %	13 %	2 %	65 %	4 %	0 %
Female	74	11 %	14 %	7 %	1 %	4 %	9 %	5 %	73 %	0 %	1 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 63 respondents were not asked this question due to a filter, respondents not included in the table.

Table 3b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – infertility treatment methods previously/currently used at the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=128.

			Response time (in seconds)					Share of respondents	
		N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
Infertility treatment methods – previously used	**All respondents**	123	1.968	30.238	11.36	2072.505	186.399	0.008	0.008
	Device								
Infertility treatment methods – previously used	PC	72	1.968	12.592	13.032	28.761	6.173	0	0
	Phone	51	2.438	55.151	10.422	2072.505	289.207	0.02	0.02
Infertility treatment methods – currently used	**All respondents**	5	4.14	7.889	8.187	13.797	3.804	0	0
	Device								
Infertility treatment methods – currently used	PC	5	4.14	7.889	8.187	13.797	3.804	0	0
	Phone	0	-	-	-	-	-	-	-

Note: 63 respondents were not asked this question due to a filter, respondents not included in the table.

Table 4a: Descriptive statistics and categories of missing values of time to first conception in months during the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=109.

		Descriptive statistics of time to first conception in months during the first attempt to conceive				Categories of missing values
	N	Minimum reported months	Mean reported months	Median reported months	Maximum reported months	Don't know
All respondents	109	0	15	4	266	6 %
Age						
22–34	32	1	9	3	48	3 %
35–44	27	0	17	3	219	4 %
45–54	18	1	30	10	266	17 %
55–64	21	0	12	5	60	10 %
65–73	0	-	-	-	-	-
Gender						
Male	42	0	18	5	266	10 %
Female	67	0	13	3	219	4 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 82 respondents were not asked this question due to a filter, respondents not included in the table.

Table 4b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – time to first conception in months during the first attempt to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=109.

	N		Response time (in seconds)					Share of respondents	
			Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	109	Months	0	10.086	7.006	122.955	13.937	0.220	0.073
		Years	0.695	6.885	4.643	83.366	9.974	0.138	0.018
Device									
PC	63	Months	0	10.205	6.029	122.955	17.674	0.095	0.079
		Years	0.695	6.912	3.881	51.768	8.541	0.111	0.032
Phone	46	Months	1.086	9.923	9.116	26.278	5.98	0.391	0.065
		Years	1.19	6.849	4.86	83.366	11.758	0.174	0

Note: 82 respondents were not asked this question due to a filter, respondents not included in the table.

Table 5a: Descriptive statistics and categories of missing values of the number of months until the respondent stopped trying to conceive (during the first attempt to conceive), Czech GGS-II, wave 2 pilot. Total number of cases N=7.

		Descriptive statistics of the number of months until the respondent stopped trying to conceive (during the first attempt to conceive)				Missing values
	N	Minimum reported months	Mean reported months	Median reported months	Maximum reported months	Don't know
All respondents	7	24	205	117	564	43 %
Age						
22–34	1	-	-	-	-	100 %
35–44	3	203	384	384	564	33 %
45–54	1	-	-	-	-	100 %
55–64	2	24	27	27	30	0 %
65–73	0	-	-	-	-	-
Gender						
Male	4	30	266	203	564	25 %
Female	3	24	24	24	24	67 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 184 respondents were not asked this question due to a filter, respondents not included in the table.

Table 5b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – number of months/years until the respondent stopped trying to conceive (during the first attempt to conceive), Czech GGS-II, wave 2 pilot. Total number of cases N=7.

	N		Response time (in seconds)					Share of respondents	
			Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	7	Months	1.306	9.283	9.626	17.5	6.339	0.429	0.286
	7	Years	0.856	7.341	7.125	15.139	5.65	0.429	0
Device									
PC	3	Months	1.306	9.895	13.982	14.397	7.441	0.667	0.333
		Years	0.856	9.984	13.957	15.139	7.927	0	0
Phone	4	Months	2.141	8.824	7.826	17.5	6.542	0.25	0.25
		Years	1.737	5.359	5.522	8.657	3.119	0.75	0

Note: 184 respondents were not asked this question due to a filter, respondents not included in the table.

Table 6a: Percentage distribution and categories of missing values of the reasons to stop trying to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=7.

		Percentage distribution of the reasons to stop conceiving								Categories of missing values	
	N	I separated from my partner	My economic or housing conditions changed	I started focusing on something else	I didn't want to have a child anymore	I did not want to undergo (further) infertility treatment	I was unable to undergo (further) infertility treatment for health reasons	I did not have enough money to pay for (further) infertility treatment	Other reason	Don't know	I do not want to tell
All respondents	7	15 %	0 %	14 %	14 %	14 %	0 %	0 %	0 %	0 %	43 %
Age											
22–34	1	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	100 %
35–44	3	34 %	0 %	33 %	0 %	0 %	0 %	0 %	0 %	0 %	33 %
45–54	1	0 %	0 %	0 %	100 %	0 %	0 %	0 %	0 %	0 %	0 %
55–64	2	0 %	0 %	0 %	0 %	50 %	0 %	0 %	0 %	0 %	50 %
65–73	0	-	-	-	-	-	-	-	-	-	-
Gender											
Male	4	0 %	0 %	25 %	25 %	25 %	0 %	0 %	0 %	0 %	25 %
Female	3	33 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	67 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 184 respondents were not asked this question due to a filter, respondents not included in the table.

Table 6b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – reasons to stop trying to conceive, Czech GGS-II, wave 2 pilot. Total number of cases N=7.

		Response time (in seconds)					Share of respondents	
	N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	7	2.625	11.693	7.537	27.441	10.681	0	0
Device								
PC	3	7.537	15.019	11.786	25.735	9.52	0	0
Phone	4	2.625	9.198	3.362	27.441	12.182	0	0

Note: 184 respondents were not asked this question due to a filter, respondents not included in the table.

Table 7a: Percentage distribution and categories of missing values of pregnancy results, Czech GGS-II, wave 2 pilot. Total number of cases N=109.

		Percentage distribution of pregnancy results					Categories of missing values	
	N	Live birth	The pregnancy is ongoing	Induced abortion	Miscarriage	Stillbirth	Don't know	I do not want to tell
All respondents	109	91 %	3 %	1 %	4 %	1 %	0 %	0 %
Age								
22–34	32	84 %	10 %	0 %	6 %	0 %	0 %	0 %
35–44	27	96 %	0 %	0 %	4 %	0 %	0 %	0 %
45–54	18	94 %	0 %	0 %	6 %	0 %	0 %	0 %
55–64	21	90 %	0 %	5 %	0 %	5 %	0 %	0 %
65–73	11	91 %	0 %	0 %	9 %	0 %	0 %	0 %
Gender								
Male	42	93 %	2 %	0 %	5 %	0 %	0 %	0 %
Female	67	89 %	3 %	2 %	4 %	2 %	0 %	0 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot. 82 respondents were not asked this question due to a filter, respondents not included in the table.

Table 7b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – pregnancy results, Czech GGS-II, wave 2 pilot. Total number of cases N=109.

		Response time (in seconds)					Share of respondents	
	N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	109	2.157	6.801	5.734	35.91	4.275	0.028	0
Device								
PC	63	2.157	7.093	5.734	35.91	5.098	0.048	0
Phone	46	2.458	6.402	5.662	16.704	2.79	0	0

Note: 82 respondents were not asked this question due to a filter, respondents not included in the table.

Table 8a: Percentage distribution and categories of missing values of the unplanned pregnancy, Czech GGS-II, wave 2 pilot. Total number of cases N=191.

		Percentage distribution of the unplanned pregnancy		Categories of missing values	
	N	Yes	No	Don't know	I do not want to tell
All respondents	191	22 %	71 %	4 %	3 %
Age					
22–34	78	21 %	74 %	1 %	4 %
35–44	45	18 %	80 %	2 %	0 %
45–54	27	22 %	70 %	0 %	8 %
55–64	27	30 %	52 %	18 %	0 %
65–73	14	36 %	64 %	0 %	0 %
Gender					
Male	86	15 %	74 %	5 %	6 %
Female	105	29 %	68 %	3 %	0 %

Note: respondents were 18–69 at wave 1 pilot, were 22–73 at wave 2 pilot.

Table 8b: Descriptive statistics of time to answer and shares of respondents returning to the question and editing previously provided responses – unplanned pregnancy, Czech GGS-II, wave 2 pilot. Total number of cases N=191.

		Response time (in seconds)					Share of respondents	
	N	Minimum	Mean	Median	Maximum	S.D.	Returning to the question	Editing previously provided response
All respondents	191	0	40.295	8.422	5545.232	400.629	0.037	0.021
Device								
PC	119	0	58.815	8.547	5545.232	507.453	0.042	0.017
Phone	72	2.214	9.686	8.407	23.112	4.52	0.028	0.028

Appendix 3 (Cognitive testing)

Czech version of the module for cognitive testing in the period 14/07/2024 - 01/08/2024 – this is NOT the final version of the module (see appendix 1 for final version)

ENGLISH VERSION

q1. At what age did you attempt to conceive a child for the first time, if ever?

Age: ……..
[1] I have never attempted to conceive a child

IF [q1 != 1]

q2. When you first tried to conceive a child, did this attempt end in pregnancy?

[1] Yes
[2] We are still trying
[3] No, and we gave up trying
[4] Don't know

IF [q2 == 1]

q3a. Did you/your partner use any of these methods to help you get pregnant on that (first) occasion? Please select all of the methods you have been using.

IF [q2 == 2]

q3b. Have you/your partner used any of these methods to help you get pregnant? Please select all of the methods you have been using.

IF [q2 == 3 or 4]

q3c. Did you/your partner use any of these methods to help you get pregnant on that occasion? Please select all of the methods you have been using.

[1] Receiving medication
[2] Methods for ascertaining timing of ovulation
[3] In vitro fertilisation (IVF) or micro-fertilisation (ICSI)
[4] Surgery
[5] Artificial insemination
[6] Consulted a physician
[7] Other medical treatment
[8] No, no method to help with getting pregnant

IF [q2 == 1]

q4a. How long did it take you to become pregnant on this first occasion?

Number of years: ……..
Number of months: ……
[-1] Don't know

IF [q2 == 3]

q4b. After how long did you stop trying to conceive a child that first time?

Number of years: ……..
Number of months: ……
[-1] Don't know

IF [q2 == 3]

q5. Why did you stop trying to have a child at that time? Please select one main reason.

[1] I separated from my partner
[2] I did not want to undergo (further) infertility treatment
[3] I did not have enough money to pay for (further) infertility treatment
[4] I started focusing on something else
[5] Other reason

IF [q2 == 1]

q6. What was the result of this pregnancy?

[1] Live birth
[2] I am currently pregnant / My partner is currently pregnant.
[3] Induced abortion
[4] Miscarriage (spontaneous pregnancy loss before the 24th week of gestation)
[5] Stillbirth (pregnancy loss after the 24th week of gestation)
[-1] Don't know

q7. Did you ever conceive a child without actively trying?

[1] Yes
[2] No
[-1] Don't know

IF [q7==1]

q8. How old were you when it occurred? If it occurred multiple times, report your age at the first occasion.

Age: ……

IF [q7 == 1]

q9. What was the result of this pregnancy?

[1] Live birth
[2] I am currently pregnant / My partner is currently pregnant.
[3] Induced abortion
[4] Miscarriage (spontaneous pregnancy loss before the 24th week of gestation)
[5] Stillbirth (pregnancy loss after the 24th week of gestation)
[-1] Don't know

CZECH VERSION

q1. V jakém věku jste se poprvé pokoušel/a o dítě, pokud vůbec?

Věk: ……..
[1] Nikdy jsem se nepokoušel/a o dítě

IF [q1 != 1]

q2. Když jste se poprvé pokoušel/a o dítě, skončila tato snaha těhotenstvím?

[1] Ano
[2] Stále se snažíme
[3] Ne a přestali jsme se pokoušet
[4] Nevím

IF [Q2 == 1]

q3a. Využil/a jste Vy nebo váš/e partner/ka při této (první) příležitosti některou z následujících metod, které by Vám / Vaší partnerce pomohly otěhotnět? Označte, prosím, všechny metody, které jste použili.

IF [Q2 == 2]

q3b. Využíváte Vy nebo Váš/e partner/ka některou z následujících metod, které by Vám / Vaší partnerce pomohly otěhotnět? Označte, prosím, všechny metody, které jste použili/používáte.

IF [q2== 3 or 4]

q3c. Využil/a jste Vy nebo Váš/e partner/ka při té příležitosti některou z následujících metod, které by Vám / Vaší partnerce pomohly otěhotnět? Označte, prosím, všechny metody, které jste použili.

[1] Užívání léků
[2] Metody zjišťující dobu ovulace
[3] Mimotělní oplodnění (IVF) nebo injekce spermie do vajíčka (ICSI)
[4] Chirurgická operace
[5] Umělá inseminace
[6] Konzultace s lékařem
[7] Jiná léčba
[8] Ne, žádnou metodu napomáhající otěhotnění

IF [q2 == 1]

q4a. Jak dlouho trvalo, než se Vám při této první příležitosti podařilo počít?

Počet let: ……
Počet měsíců: ……
[-1] Nevím

IF [q2 == 3]

q4b. Po jak dlouhé době jste se při této první příležitosti přestal/a pokoušet o dítě?

Počet let: ……
Počet měsíců: ……
[-1] Nevím

IF [q2 == 3]

q5. Proč jste se tehdy přestal/a pokoušet o dítě? Vyberte, prosím, jeden hlavní důvod.

[1] Rozešel/Rozešla jsem se s partnerem/kou
[2] Nechtěl/a jsme podstoupit (další) léčbu neplodnosti
[3] Neměl/a jsme dost peněz na zaplacení (další) léčby neplodnosti
[4] Začal/a se věnovat něčemu jinému
[5] Jiný důvod

IF [q2 == 1]

q6. Jaký byl výsledek tohoto těhotenství?

[1] Živě narozené dítě
[2] Jsem v současné době těhotná / Partnerka je v současné době těhotná
[3] Umělé přerušení těhotenství (interrupce)
[4] Samovolný potrat (spontánní ztráta těhotenství před 24. týdnem těhotenství)
[5] Narození mrtvého dítěte/plodu (ztráta těhotenství po 24. týdnu těhotenství)
[-1] Nevím

q7. Stalo se někdy, že jste otěhotněla / že s Vámi některá žena otěhotněla, aniž byste se aktivně pokoušel/a o dítě?

[1] Ano
[2] Ne
[-1] Nevím

IF [q7==1]

q8. Kolik Vám bylo let, když se to stalo? V případě, že se tak stalo vícekrát, uveďte věk, kdy se tak stalo poprvé.

Věk: ……..

IF [q7 == 1]

q9. Jaký byl výsledek tohoto těhotenství?

[1] Živě narozené dítě
[2] Jsem v současné době těhotná / Partnerka je v současné době těhotná
[3] Umělé přerušení těhotenství (interrupce)
[4] Samovolný potrat (spontánní ztráta těhotenství před 24. týdnem těhotenství)
[5] Narození mrtvého dítěte/plodu (ztráta těhotenství po 24. týdnu těhotenství)
[-1] Nevím

Report: Cognitive testing of the module in the Czech Republic

All items in the survey module underwent cognitive testing. We interviewed eight respondents aged 25–46, comprising five women and three men, who represented a range of educational backgrounds, including elementary, secondary, and tertiary education (see the questionnaire used for cognitive testing just above in this appendix). Additionally, we tested the revisions more informally among close acquaintances, focusing mainly on the two key questions of the module – Occurrence and timing of first attempt to conceive a child (age of the respondent) and Outcome of that attempt (q1 and q2) – which had been revised based on the feedback received during the initial interviews.

General observations

Overall, respondents demonstrated a good level of comprehension. However, as questions became longer and more complex, they faced increasing difficulty in understanding them. Individuals with lower education levels and less advantageous positions in the job market often exhibited poorer comprehension, encountering greater difficulty in understanding the questions. In one case, the core intent of the questions was entirely misunderstood. Respondents did not perceive any of the questions overly sensitive and expressed no reluctance in answering them, even regarding topics such as infertility, infertility treatment, unplanned pregnancy, miscarriage, and abortion. Respondents claimed that they would provide similar responses in real life as well. Finally, respondents strongly distinguished between an active plan to conceive and an unplanned pregnancy.

Cognitive misperceptions

Generally, q2 (“When you first tried to conceive a child, did this attempt end in pregnancy?”) was the least understood question. Respondents provided various interpretations of the storyline behind the answer options, some of which were mutually exclusive.

First, there were three interpretations regarding the timeframe of the first attempt: (1) relating success only to the first menstrual cycle in which they tried to conceive, (2) the period from the start of trying to a certain point that seemed “normal” to respondents (e.g., 3, 6 or 12 months), and (3) the duration from the start of trying until either pregnancy or the present moment. Only the third interpretation aligns with the intended meaning of the question. When fertilization took a long time, some respondents were unsure on what to choose, and “yes” did not seem intuitive to them.

Second, the option “No, and we gave up trying” were also subject to three interpretations: (1) allowing the situation to unfold naturally, with the belief that conceiving may be difficult due to intense active effort, yet still hoping for pregnancy, (2) actively deciding to stop trying to have a child and resuming contraception, and (3) stop trying naturally and starting medical interventions, such as IVF, or other

methods, which might eventually result in pregnancy. The third interpretation of giving up trying, did not align with the logic of the questionnaire and should instead be categorized under the "still trying" answer option.

As a result of the inherent uncertainty in the term "when you first tried to conceive a child", we added an introduction at the beginning of the module, with an intention to emphasize our focus on the first attempt: *In the following questions, we will ask you about situations that can occur before the first pregnancy. If you have tried to conceive a child multiple times, we are interested in the period when you first attempted, regardless of the outcome.*

Additionally, we revised the wording of q2 to better guide respondents in relation to the question and its answer options and with some respondents we cognitively tested the wording: *When people try to have a child, things can turn out very differently — someone conceives a child right away, someone after a long time, and sometimes the effort is unsuccessful. Please think back to your own experience. When you tried to have a child for the first time, how did the effort eventually turn out? [1] This effort eventually resulted in pregnancy, [2] I am still trying to have a child, [3] After some time, I stopped trying to have a child, [4] Don't know.* Although some respondents were less willing to read such an extensive text, their stated understanding of the question improved. They were better able to match specific possible scenarios to the corresponding answer options, leading us to follow the structure of this modified question for the final version.

Minor issues

Several respondents classified food supplements like magnesium as medication (q3). In response to this, we added the term "prescribed" to the answer option "receiving prescribed medication".

Additionally, the phrase "How long did it take…" in q4a and q4b was replaced by " How many years or months…", because some respondents had difficulty understanding the purpose of the two text fields in this question. This confusion resulted in some mistakenly entering their age in the "Number of years" field, as the terms for age and number of years are nearly interchangeable in Czech.

Several answer options, including primarily health reasons, economic and housing conditions and not wanting a child after a point were added as possible reasons for stopping attempts to conceive (q5).

In q6 and q9, the option "(Partner) currently pregnant of that first attempt" was replaced with "The pregnancy is ongoing" to avoid implying an ongoing partnership between the respondent and the pregnant individual.

Following the cognitive testing, for the final version of the module the option "Miscarriage (spontaneous pregnancy loss before the 24th week of gestation)" was simplified to "Miscarriage"

since the 24-week threshold varies across countries. For example, in the Czech Republic, the legal definition sets this threshold at 22 weeks. To account for these differences, the Czech version of the questionnaire excluded the specific gestational limit. We recommend reviewing national legislation when adapting this module in other countries and adjusting this option accordingly.