

Family Flourishing and Fertility Megastudy

A behavioral science-based multi-arm randomized controlled trial to increase fertility by improving family well-being

Summary

Solutions to counter fertility decline have traditionally been developed within isolated disciplines, and overwhelmingly focused on macro-level solutions. To break this siloed approach and to supplement and strengthen current programs, the Family, Flourishing, Fertility (FFF) initiative focuses on the exploration of the micro-level building on the recent innovations from psychology and behavioral sciences. We plan to drive meaningful change in family well-being and demographic trends by running a megastudy, - a large-scale field experiment that involves testing multiple interventions simultaneously - that builds on individual focused insights on decision-making and behavior change. The present document focuses on the Hungarian pilot of this global project.

First, collaborating with expert scientists in behavior change, family well-being and fertility, we identify the psychological factors that have the strongest influence on well-being and fertility rates, and develop behavioral interventions with the greatest potential impact. The programs will focus on addressing challenges in different areas of family life such as enhancing the psychological well-being of family members, improving birth-related experiences, or supporting child-rearing. We will work with Hungarian agencies to select and implement ten programs that best fit the available infrastructure. The aim is to test the effectiveness of each program (10,000 families in each intervention arm and 1,000 families in the control group) in a randomized controlled field experiment. The parallel evaluation of these interventions will enable direct comparisons of their impact on fertility behavior. Measuring individual-level covariates will allow us to explore why and when these solutions work the most effectively. As we plan to develop interventions which leverage existing family support infrastructures, they could potentially achieve comparable expected outcomes at a fraction of the cost of traditional fertility-boosting programs. Our goal with this local pilot is to lay the groundwork for a global initiative, where the micro-level insights gained and the solutions developed can be tested worldwide. This approach follows the model of other [global initiatives](#) we lead, aiming to design programs that achieve a strong fit between the solutions and the local context.

Research Background

Utilizing Behavioral Science

Findings from behavioral economics and psychology provide numerous examples showing that our decisions are often determined more by (irrational) psychological factors than by objective environmental conditions¹. Behavioral science-based programs aim to influence behavior and achieve policy goals by using these individual-level insights^{2,3}. However, in Hungary—much like in most developed countries—public policy responses to below-replacement fertility overwhelmingly centered on expensive infrastructure improvements, such as housing and financial security, to support family formation⁴. In this initiative, we propose that by increasing parenting related well-being of families using the toolbox of behavior sciences, we can also enhance fertility rates.

Parental Well-being

Childbearing and parental well-being has been shown to have a crucial role in fertility decisions, influencing whether families choose to have additional children⁵⁻⁸. Therefore, targeting decreased parenting related well-being can lead to an increase in second birth rate in numerous ways. Pregnant women are more vulnerable to stress and anxiety^{9,10}, many mothers endure traumatic birthing experiences^{11,12}. After childbirth, parents often face a loss of control over their lives, reduced free time, have less time to solve everyday challenges like financial planning or household chores, or resolve relationship conflicts¹³⁻¹⁵. They have to acquire new skills necessary for child-rearing without immediate feedback¹⁶, which can widen the gap between their expectations and perceived performance as parents¹⁷. This disconnect may lead to a persistent sense of failure. At the same time, new parents are particularly vulnerable to developing mental health issues such as anxiety¹⁰ or depression¹⁸. Additionally, with increasing migration both within and between countries, fewer parents have the support of grandparents, which has a negative effect on fertility expectations⁸. Successful interventions have demonstrated that targeted support can enhance parental well-being thus have the potential to increase childbearing intentions. Proven examples include programs that reduce prenatal stress¹⁹, facilitate healthier pregnancy behavior^{20,21}, create a better birthing environment²², improve parents' understanding of infants' sleep needs²³, and promote maternal self-care routines²⁴.

Megastudy Approach

We propose that a new methodological approach –the *megastudy*– that could substantially enhance the robustness and generalizability of our results, and which could overcome the one-size-fits all approach that is unlikely to suit all demographic groups targeted by the program.²⁵ A megastudy is a large-scale field experiment that involves testing multiple interventions simultaneously²⁶. Megastudies leverage the knowledge and resources of a large team of scientists, often from across the world, enabling studies that are much more comprehensive than could reasonably be conducted by a single research team. Such megastudies have been used in the past,

for example, to identify the most effective ways to increase gym attendance, the uptake of life-saving medical interventions²⁶ to reducing anti-democratic attitudes²⁷.

Utilizing megastudies provides three key advantages. First, it enables direct comparison of intervention effectiveness. Second, it reduces the risk of failing to identify successful fertility-boosting strategies. Third, it supports the development of data-driven, targeted program proposals at the individual level by identifying patterns in how different demographic groups respond to interventions.

Methodology Overview

Preparation Phase

The primary goal of the preparation phase is to develop the first version of programs designed to enhance fertility by improving family well-being. This phase builds upon previous groundwork, including a questionnaire and an in-depth interview study conducted with over 200 family therapists and numerous families, which identified key challenges faced by families. The preparation phase consists of four main steps:

Literature Review and Expert Consultation. We conduct a comprehensive literature review and consult experts in fields related to family experiences and fertility. This includes behavioral topics such as experiences of giving birth and parental adjustment; family dynamics topics like co-parenting, managing sibling relationships, and work-family balance; and medical or developmental concerns such as perinatal mood and anxiety disorders, parental sleep deprivation, postnatal care, and infant temperament. Additionally, we will interview researchers with expertise in the local Hungarian context to gain deeper insights.

Family Interviews. We will conduct interviews with both prospective and current parents. For individuals planning to have children, we will explore their concerns and fears about parenthood. For those who already have children, we will examine the challenges they faced during child-rearing, aspects that made the experience more difficult than necessary, and childcare skills they still feel they lack. Furthermore, we will investigate how they made past decisions about having children and how they currently approach decisions about expanding their family. These insights will help us understand how different aspects of family well-being influence childbearing decisions. This interview phase is flexible, allowing us to explore additional themes that emerge from expert consultations.

Survey on a Representative Hungarian Sample. Based on the findings from the literature review and interviews, we will design a survey to assess the prevalence and perceived impact of identified issues on family child-rearing related well-being. The survey will also examine how these factors influence the decision to have additional children.

Developing Intervention Strategies. After identifying key issues, we will collaborate with both domestic and international experts to develop targeted intervention strategies. Our selection

process will prioritize feasible, cost-effective behavioral science tools solutions that address issues with the highest potential impact on family well-being and fertility rates.

Implementation Phase

During the implementation phase, we will further develop and finalize our plans by engaging experts from both domestic and international backgrounds. A key aspect of this phase is a two-way process that ensures coordination between the necessary infrastructure and program execution. This includes:

- Establishing cooperation with government agencies involved in implementation.
- Assessing their required competencies, resources, and the relevant legal framework.
- Developing plans to support any missing organizational elements.
- Adjusting the original program concept where significant infrastructure gaps exist to better align with domestic implementation capabilities.

We aim to recruit 1,000 families for the intervention groups and 1,000 families for the control group. The study will evaluate two main outcome categories: childbearing intentions and family well-being. Measuring fertility intentions in addition to behavior has two key advantages. First, if certain interventions fail to improve childbearing intentions in the short term, we can close those experimental arms, reducing implementation costs. Second, we will be able to determine whether successful interventions enhance childbearing intentions, bridge the gap between intentions and actual behavior, or achieve both. In addition to these measures, we will also track changes in key targeted factors, such as postnatal depression and parental sleep quality, to understand the broader impact of the interventions. To assess family well-being, we will examine aspects such as personal physical and mental well-being, relationship satisfaction, the quality of the parent-child bond, and child well-being. In addition to these measures, we will also track changes in factors, such as postnatal depression and parental sleep quality, to understand the broader impact of the interventions.

In addition to our pilot plans, we also aim to conduct a three-year follow-up survey outside the pilot to examine childbearing behavior, provided the implementing authorities allow it.

Lead Researchers

Dr. Barnabás Szászi is an Assistant Professor at Eötvös Loránd University, Hungary. He earned dual degrees in Economics and Psychology from Corvinus University of Budapest and Pázmány Péter Catholic University, and completed his Ph.D. in Experimental Psychology at Eötvös Loránd

University. His research focuses on designing and applying behavioral interventions that foster social mobility and improve the health and happiness of vulnerable populations. One of his key interests is examining the generalizability of behavioral interventions, specifically how context, design decisions and individual differences shape their effectiveness. Advancing these themes, he has led or participated in more than 10 international big-team science projects leading thousands of researchers. His work has been published in leading interdisciplinary, psychology and social science journals, including *Proceedings of the National Academy of Sciences (PNAS)*, *Nature Human Behaviour*, and *Perspectives on Psychological Science*. His contributions have been recognized by several research awards and scholarships, including the Fulbright Scholarship, National Excellence Program, Bolyai, Campus Mundi, Eötvös, Rosztóczy Foundation, Hungarian Central Bank awards, and the prestigious Roska Tamás Award. He has been invited to lecture at renowned institutions across Europe and North America, such as Harvard University, the University of Pennsylvania, University of Innsbruck, Columbia University, and NYU. In 2016-2017, he was a visiting student at Columbia University in New York, and conducted research during short-term visits at the University of Oklahoma and Princeton University. Most recently, he was a Fulbright scholar at Harvard Business School during the 2023/24 academic year.

Péter Szécsi is a policy analyst at the Hungarian Supervisory Authority for Regulatory Affairs and a Ph.D. candidate at Eötvös Loránd University, Hungary, with his dissertation defense expected in June 2025. His research examines how contextual factors influence decision-making in high-risk contexts, such as poverty and gambling. He is particularly interested in uncovering the factors that shape these effects, going beyond simple cause-and-effect relationships to reveal deeper patterns using advanced analytical approaches. He has played a key role in two, and participated in seven large-scale, multi-lab collaborations and has led multiple laboratory research projects. Additionally, he contributed to a randomized controlled trial investigating the impact of unconditional cash transfers. He has developed extensive expertise in evidence synthesis, applying advanced statistical approaches through conducting two meta-analyses. Péter has also conducted research as a visiting scholar at Aarhus University. His work has appeared in top social science journals, including *Nature Human Behaviour*, *Scientific Reports*, and *Advances in Methods and Practices in Psychological Science*. His contributions have earned him research grants and scholarships, such as the New National Excellence Program and the Sapere Aude Junior Prize. Beyond his research, he has taught courses on data analysis and statistical inference at Eötvös Loránd University.

References

1. Tversky, A. & Kahneman, D. Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *science* **185**, 1124–1131 (1974).
2. Hallsworth, M. A manifesto for applying behavioural science. *Nature Human Behaviour* **7**, 310–322 (2023).
3. Benartzi, S. *et al.* Should governments invest more in nudging? *Psychological science* **28**, 1041–1055 (2017).
4. United Nations Department of Economic and Social Affairs, Population Division. World Population Policies 2021: Policies related to fertility. *UN DESA/POP/2021/TR/NO. 1*. (2021).
5. Pertold-Gebicka, B. & Spolcova, D. Family Size and Subjective Well-Being in Europe: Do More Children Make Parents (Un)Happy? *The Economic and Social Review*.

6. Margolis, R. & Myrskylä, M. Parental Well-being Surrounding First Birth as a Determinant of Further Parity Progression. *Demography* **52**, 1147–1166 (2015).
7. Le Moglie, M., Mencarini, L. & Rapallini, C. Is it just a matter of personality? On the role of subjective well-being in childbearing behavior. *Journal of Economic Behavior & Organization* **117**, 453–475 (2015).
8. Luppi, F. & Mencarini, L. Parents' subjective well-being after their first child and declining fertility expectations. *Demographic Research* **39**, 285–314 (2018).
9. Dunkel Schetter, C. Psychological science on pregnancy: stress processes, biopsychosocial models, and emerging research issues. *Annual review of psychology* **62**, 531–558 (2011).
10. Dennis, C.-L., Falah-Hassani, K. & Shiri, R. Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. *Br J Psychiatry* **210**, 315–323 (2017).
11. O'Brien, C. & Newport, M. Prioritizing women's choices, consent, and bodily autonomy: From a continuum of violence to women-centric reproductive care. *Social Science & Medicine* **333**, 116110 (2023).
12. Bell, A. F. & Andersson, E. The birth experience and women's postnatal depression: A systematic review. *Midwifery* **39**, 112–123 (2016).
13. Javadifar, N. & Nedjat, S. Journey to Motherhood in the First Year After Child Birth.
14. Khajehei, M. Parenting challenges and parents' intimate relationships. *Journal of Human Behavior in the Social Environment* **26**, 447–451 (2016).
15. Barclay, L., Everitt, L., Rogan, F., Schmied, V. & Wyllie, A. Becoming a mother — an analysis of women's experience of early motherhood. *Journal of Advanced Nursing* **25**, 719–728 (1997).
16. Leahy-Warren, P. & McCarthy, G. Maternal parental self-efficacy in the postpartum period. *Midwifery* **27**, 802–810 (2011).
17. Lazarus, K. & Rossouw, P. mothers' expectations of parenthood: the impact of prenatal expectations on self-esteem, depression, anxiety, and stress post birth. *INTERNATIONAL JOURNAL OF NEUROPSYCHOTHERAPY* **3**, (2015).
18. Cooper, P. J. & Murray, L. Fortnightly review: Postnatal depression. *BMJ* **316**, 1884–1886 (1998).
19. Matvienko-Sikar, K. & Dockray, S. Effects of a novel positive psychological intervention on prenatal stress and well-being: A pilot randomised controlled trial. *Women and Birth* **30**, e111–e118 (2017).
20. Smith, S. M., Bais, B., M'hamdi, H. I., Schermer, M. H. & Steegers-Theunissen, R. P. Stimulating the Uptake of Preconception Care by Women With a Vulnerable Health Status Through mHealth App-Based Nudging (Pregnant Faster): Cocreation Design and Protocol for a Cohort Study. *JMIR Research Protocols* **12**, e45293 (2023).
21. Walker, R., Kumar, A., Blumfield, M. & Truby, H. Maternal nutrition and weight management in pregnancy: A nudge in the right direction. (2018).
22. Nilsson, C. *et al.* Effects of Birthing Room Design on Maternal and Neonate Outcomes: A Systematic Review. *HERD* **13**, 198–214 (2020).
23. Skuladottir, A., Sigurdardottir, A. O. & Svavarsdottir, E. K. The 'Better sleep better well-being' intervention for parents of infants with moderate sleep problems: A quasi-experimental study. *Nordic Journal of Nursing Research* **42**, 85–92 (2022).
24. Plum, J. SELF-CARE PRACTICES, MENTAL WELL-BEING AND MOTIVATION AMONG MOTHERS: A CROSS-SECTIONAL ASSESSMENT AND SELF-CARE INTERVENTION PILOT STUDY. (2023).

25. Chu, J. Y. *et al.* Academics are more specific, and practitioners more sensitive, in forecasting interventions to strengthen democratic attitudes. *Proc. Natl. Acad. Sci. U.S.A.* **121**, e2307008121 (2024).
26. Milkman, K. L. *et al.* Megastudies improve the impact of applied behavioural science. *Nature* **600**, 478–483 (2021).
27. Voelkel, J. G. *et al.* Megastudy testing 25 treatments to reduce antidemocratic attitudes and partisan animosity. *Science* **386**, eadh4764 (2024).