How old is too old? A contribution to the discussion on age limits for access to ART

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Running title: How old is too old for access to ART

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Study questions: What age do children consider as the preferred age of their parents and what are their main reasons for this? What position do our findings have, and how significant are they compared to other arguments on age limitation for access to ART?

Summary answer: A substantial proportion of older children and young adults would prefer younger parents than they have. The most important reasons for this preference are those connected with the fear of premature loss of parents. Our respondents do not think of loss only as death, but also as a significant loss of physical and mental fitness resulting in the loss of a parent as a self-contained entity. The presented findings represent another strong argument in the debate on age limits for access to ART.

What is already known: ART legislation varies considerably across Europe in relation to age limits. While women's age limit for treatment reimbursement from health insurance is essentially the same (usually between 38 to 42 years), the age limit for access to such treatment is rarely defined. There are three kinds of arguments used in all discussions of these age limits: biological and psychosocial arguments and the argument of the right to freedom of choice. Male age limits are not determined, even though the correlation between age and quality of sperm is well known. The ART legislation takes into account the preferences of potential parents. Children's preferences, however, are not ascertained.

Study design, size and duration: The survey was conducted using questionnaires at the end of 2011 and early 2012 amongst 1452 older children and young adults aged 11-25 years in five Czech settlements of different size located in different regions.

Participants/materials, setting and methods: All respondents were pupils of elementary or vocational schools, or students of secondary schools or universities. Thus all the respondents were dependent on their parents. After giving their age and gender, participants were asked to state the current age of their mother, father and any siblings. In order to compare the real age of their parents with what they would wish for, respondents were asked the following question: "How old would you like your mother and father to be when you are 20 (for respondents below 16 years old) or 25 (for those 16 years old and above) if you had a magic wand?" Furthermore, their reasons for wishing for a change or no change in the future age of the respondent's mother or father were identified through the open question "Why would you like to change the age of your mother or father?"

Key results and the role of chance: In total, 89% of respondents would prefer their mother's age at their birth to have been below 30 years, and 94% of them would prefer their father's age at their birth to have been below 35 years. Although more than half of respondents verbally declared that they are satisfied with the age of their parents, one third of them would nevertheless take the opportunity to make their parents younger by using a magic

wand. 20 to 24 years is the most preferred mother's age at their birth, with 43% of children and young people preferring their mother to be of this age at their birth. While 11% of respondents opt for their mother's age at their birth to be below 20 years, only 2% of respondents are in favour of an age 35 years and above. Looking at the age of the father, similar results were obtained, although the centre of preference was around the age group of 25 to 29. Deeper analysis and research of the age limit are subjects of an additional separate study we are undertaking.

Limitations, reasons for caution: The survey data used probably represents the major limitation of this study. Any survey data comes with a sampling error, although a lot of effort went into trying to reduce it. There are also limitations in terms of the potential generalization of the results, since the data was collected exclusively in the Czech Republic, and in some respect it can also mirror its social and cultural specifics. Some caution is needed when adopting the conclusion of our debate on the need for age limits for access to ART. The significance of the arguments used is mostly judged intuitively, and can therefore be influenced by the author's subjective perception of this segment of reality.

Wider implications of the findings: Setting an age limit for ART should be part of a policy that promotes early parenthood in order to prevent further delay in fertility. Young people should be informed that the ideal age to start a family is before reaching the age of 30.

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Key words: assisted reproduction, age limit, fertility, delayed childbearing, children's preferences.

Introduction

A transition towards a late-childbearing regime is the most characteristic feature of fertility change in European countries (Kohler *et al*., 2006). This is reflected in a continuous increase in women's age at their first birth, a figure which currently ranges between 28 and 30 years in most EU countries (Eurostat, 2013) while it was 23 years in some countries two decades ago. Moreover, a sharp increase has been recorded in birth rates above the age of 35, in particular amongst childless women. When discussing trends of late childbearing, 'very late fertility' usually refers to childbearing at advanced ages, i.e. at ages 40 and above (Billari *et al*., 2007). While still smaller in absolute numbers of births, the fraction of all births occurring to women above the age of 40 has been increasing. The share of fertility rates of women aged 40 and over of the total fertility rate has recently increased to the current 3-5% in many European countries (Schmidt *et al.*, 2012). In contrast to the 1980s, very late childbearing now occurs increasingly at low parities – first or second children. Despite this trend, there is substantial controversy over the feasibility of reliable childbearing above the age of 40, especially for first births (Billari *et al*., 2007).

Although childbearing increasingly begins at a later stage in the course of a woman's life, there seems to be no evidence for an increase in the age of menopause in recent years that parallels the increase in longevity and would be consistent with a rescaling of the life-course in response to prolonged life expectancies (Lee and Goldstein, 2003; Leridon, 2004). Due to postponement, more women plan to have a family at an age when they risk facing infertility once they decide to conceive. Fecundity, as well as the chance of having a healthy child, starts to decline after 30, slowly at first, but accelerating from age 35 onwards (te Velde *et al.*, 2012; ESHRE Capri Workshop Group, 2005). Fertility for men is less affected by age, but shows significant decline by their late 30s (Dunson *et al.*, 2002; Hassan and Killick, 2003; Sartorius and Nieschlag, 2010). As a result, the postponement of parenthood to ages when women and men have become less fertile has decreased the male and female reproductive potential. One solution in this situation is ART, which as such has acquired a new function. ART has been

increasingly used by those couples who have delayed childbearing until a time at which they *'unexpectedly'* face problems conceiving. As such, ART also serves to partly offset the effect of postponement (te Velde *et al.,* 2012; Leridon, 2004). However, society should take action to prevent age-related infertility (Wyndham *et al.*, 2012).

ART represents an innovation which allows women to have children later in life – not only at the end of their reproductive period, but also in the post-menopausal period. This raises difficult ethical issues in relation to human rights legislation, including rights of access to limited health care resources and the rights of gamete donors. Conflict between individual needs and social ethics should be approached with sensitivity (Hamilton 2002). Besides the cost, efficacy and safety should be taken account of, particularly with regard to the age of the women (Connolly *et al.*, 2010). Discussions regarding the acceptability of ART have mainly referred to postmenopausal women (Forman, 2012; Kluge, 1994), however it is also important to assess the social acceptability of ART when given to women at the end of their reproductive period. Discussions of men's age limits are rare. The reason for age limitation has to do with the fact that a lot of evidence suggests declining effectiveness and increasing costs, as well as safety issues, are associated with ART when given to both women and men aged 40 years and older.

ART success rate values diminish drastically over the age of 40: the chance of bearing a child may be in single percentage figures (Hamilton, 2002). The mean delivery rate amongst women aged 41-43 years varies between 2 and 7% (Ron-El *et al.*, 2000). ART yielded no deliveries amongst women aged 44 years and over, and no clinical pregnancies amongst women aged 45 and over. As such, the age of 40 can be seen as the first boundary where IVF treatment using a woman's own oocytes show low success rates due to a combination of a low pregnancy rate cycle as well as a high rate of pregnancy loss (Sobotka, 2013). Women who require ART at age 40 or above are able to become mothers almost exclusively through donation of young donors' eggs (see e.g. Fig. 43 and 44 in Centers for Disease Control and

Prevention, 2010). The former boundary seems to be relevant when taking into account the ethics of the use of donor eggs from younger women.

ART legislation varies considerably across Europe in terms of age limits. While women's age limit for treatment reimbursement from health insurance is essentially the same (usually between 38 to 42 years), the age limit for access to such treatment is rarely defined. There are three kinds of arguments used in all discussions of these age limits. The first argument is a biological one. For instance, Section 6, Part 1 of the act regulating ART in the Czech Republic (Act, 2011*)* states that: "*Artificial insemination can be performed on woman of childbearing age, where her age does not exceed 49 years, ... "*. However, the law clearly builds on absolute exemptions and goes against the initial efforts of experts highlighting the difference between menstruation and fertility (e.g. American Society for Reproductive Medicine, 2013). In fact, the definition of infertility adopted by ESHRE is also misleading in this respect, because it does not address any biological limits of fertility: "Infertility: a disease of the reproductive system defined by the failure to conceive after 12 months of regular unprotected sexual intercourse" (ESHRE, 2013).

The second argument is a psychosocial one which stresses increasing life expectancy (Pennings, 2001a) and the benefits of older parents for children (e.g., Schmidt *et al.*, 2012, Beets *et al.*, 2011, Billari *et al.,* 2011). The third kind of argument is the right to freedom of choice referring to The Universal Declaration of Human Rights (United Nations, 1948), and the right to benefit from scientific progress, as referred to in Article 15 of the International Covenant on Economic, Social and Cultural Rights (United Nations, 1966). Male age limits are not determined, even though the correlation between age and quality of sperm is well known. One of the few exceptions was a debate on men's age limits with the title *"Is there an age limit for the man in an IVF program?"* at the 14th World Congress on Controversies in Obstetrics, Gynaecology & Infertility held in Paris between November 17 and 20, 2011.

This article aims to contribute to the assessment of the effectiveness and acceptability of setting the age limit using the example of the Czech Republic. In the Czech Republic, a new law regulating assisted reproduction was adopted in 2011 (Act, 2011). The most significant change to the original Act of 2006 (Act, 2006) concerned the proposal to introduce an age limit for women accessing treatment of 55 years (which in reality means 55 years and 364 days). There was no mention of age at all in the previous 2006 Act, at which time there was only an old recommendation of the Assisted Reproduction Section and Ethics Committee that ART should not be offered to women over 47 years of age. Not many centres, however, observed it. In a statement to the new Act, the Ministry of Health gave the reason for the age limit as ensuring a safe pregnancy and childbirth for the mother and child in regard to the mother's age. The minister himself said at a public meeting of the Health Committee of the Parliament of the Czech Republic on August 23, 2011 that the law does not address the psychosocial, ethical or demographic context. The Act was finally approved with a limit of 49 years (and 364 days) in autumn 2011 and became effective on April 1, 2012. Thus, the Czech Republic had no statutory age limit until 2012.

Is, however, the recently-established limit sufficient? We believe it is not. The age limit should be reduced and applied to potential fathers as well. This study is an example of a quest for other factors that need to be taken into account in an evidence-based decision making process. The interests of parents should be balanced against the interests of the child (Kluge, 1994).

Donation of sperm, eggs and embryos is permitted in the Czech Republic. Currently, the country has 39 centres of assisted reproduction which carry out around 23,000 cycles of IVF annually. During recent years in particular, the number of cycles using donated eggs has significantly increased. With 2,208 of these cycles in 2009, it was expected to increase to 3,800 in 2011 (Řežábek, 2011). Accessibility of treatment using donated eggs is the main reason for foreign patients coming to the Czech Republic (Shenfield *et al.*, 2010).

Furthermore, the Czech Republic is one of the countries with the youngest age structure of women undergoing IVF (Kocourková and Burcin, 2012). This is, *inter alia*, the result of the age restriction in regard to financial compensation of the costs associated with IVF from public health insurance of 39 years, which means 38 years and 364 days here, as proposed by the Legal Department of the Ministry of Health of the Czech Republic in its internal unpublished document.

When setting the age limit for access to ART, the experts stress the necessity to balance the gains and losses of individual members of the system (ESHRE 2002, 2007a, 2007b and 2008; Pennings 1995, 2001a and 2001b). These members are represented by a future child, potential parents, medical personnel providing treatment, gamete donors, and society as a whole. Advocates of no or a high age limit in the preparation of the Czech Act in 2011 relied mainly on the following statement: "All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so;…" (United Nations, 1974), but overlooked how the sentence continues: "… the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities towards the community." Regulation of ART by legislation should be in the best interest of the child (Thorpe *et al.*, 2012).

The responsibility of a couple towards the child is discussed by the European Society for Human Reproduction and Embryology (ESHRE): "In natural conception, the intentional parents are responsible for the health and well-being of the child. They should provide reasonable care up to the age when the child reaches adulthood. Moreover, given the fact that they initiate the project by which the child comes into existence, they should be able to handle his or her care without constant support from others," (ESHRE, 2007b), adding that the physician’s responsibility does not end with the birth of the child "The physician carries joint

responsibility for the welfare of the child because of his or her causal and intentional contribution to the parental project".

Our research team, composed of a psychologist and demographers, all of us university teachers, has decided to map out what the "needs of the children" are, and what age of parents is considered optimal by children themselves, particularly by older children and adolescents aged 11-25 years. The research question was whether their preferences are consistent with the on-going postponement of parenthood to a later age and with the current settings of the ART legislation.

Data and methods

This exploratory survey regarding the age limit for parenthood is based on the opinion of older children and young adults aged 11-25 years. We analyse data from the survey *"Preferred age for parenthood"* that was conducted in 2011-2012 in five Czech settlements of different size from different parts of the country. All respondents were pupils or students at elementary schools, high schools or grammar schools, training institutions, colleges or universities, and thus were all dependent on their parents. Children younger than 11 years of age were not included into survey as they are expected to have less knowledge about the age of their parents and less experience thinking about lifetime. After giving their age and gender, each participant was asked to state the age of their mother, father and siblings. The age of the mother and father at their birth was calculated from the current ages of respondents and their parents. Finally, to confront the real age of their parents with their preferences, the respondents were asked the following question: How old would you like your mother and father to be when you are 20 (respondents below 16 years), or 25 (those 16 years old and above), if you had a magic wand?

Method of interviewing

We did not ask respondents about the age of their parents at their birth, because it is a very long time ago for them which they find difficult to perceive. As such, we asked about a point in the near future that they could project themselves into - how old they would like their parents to be some years from now. For those children 15 years old or younger, we asked them how old they would like their parents to be when they turn 20, and for those aged 16 and above, we asked for the ages of their parents when they turn 25, in order to obtain figure for a point in the future comparable to that of the younger respondents.

The preferred age of mothers and fathers at the birth of a respondent was derived from the current respondent's age and the desired age of their mother and father when they are 20 or 25. Moreover, the reasons behind the change or no change in the future age of the respondent's mother or father were categorized in accordance with the most frequent answers to the subsequent question: Why would you like to change the age of your mother or father?

Sample parameters

A total of 1,452 responses were received, however preliminary data screening resulted in 18.7% of participants being excluded from quantitative analyses owing to incomplete data (missing data about the age of the respondent, mother or father) or because of invalid data. The final sample size after exclusion was 1,181, of which 745 were female and 436 were male. The average age of a female respondent was 19.09 years and the average age of a male respondent was 17.83.

Furthermore, a qualitative and quantitative analysis of the reasons for the desire for a change or no change in the future age of the respondent's mother and father was performed. The analysis was based on the 1,418 justifications of respondents' wishes to have a mother younger than her actual age or the same age, and 1,359 justifications for the father's age. As the reasons did not differ in content, the analysis was performed altogether so that we performed an analysis with 2,777 valid justifications in total. There were two general reasons for excluding a questionnaire: failure to answer the question "why" by skipping this question,

or giving an irrelevant (completely unrealistic) response. An example of an irrelevant answer is, for instance, the sentence: "If I had a magic wand, I would buy a bike". Upon reading all the answers we elicited several types of justifications (categories). Every relevant answer was assigned with both a short title and letters (code) for use in the following analysis. Respondents often provided more extensive answers, so sometimes one statement was assigned more codes.

Results

The survey results were compared with the empirical data describing age distributions of mothers and fathers at birth of their children as provided by the official statistics. Simultaneously, the reasons for the preferred changes in parents' age were traced and analysed.

Preferred vs. real age of parents

The main results which relate to the timing of childbearing are given in Figure Ia and Ib.

In total, 89% of respondents would prefer their mother's age at their birth to be below 30 years and 94% of them would prefer the father's age at their birth to be below 35 years. Although more than half of respondents declared they were satisfied with the age of their parents (58% were satisfied with the age of their mother and 55% with the age of their father), one third of them would nevertheless take the opportunity to make his/her parents younger by using a magic wand. In sum, the respondents unambiguously prefer younger parents. The age of 20 to 24 years is the most preferred mother's age at birth with 43% of children and youth preferring to have a mother of this age at their birth. The second most preferred mother's age at birth is 25-29 years (mentioned by 35% of respondents). While 11% of respondents opt for an age for their mother of below 20 years, only 2% of respondents are in favour of an age above 35 years. An age for the mother at birth of above 40 is hardly considered by our

respondents since only 3 of them gave this age as the preferred mother's age at birth. With respect to the age of a father, similar results were found although the centre of preference was around the age group of 25 to 29 years. This age group was mentioned by 43% of respondents. If we compare the father's age groups of 20-24 and 30-34, respondents would prefer younger fathers to older ones (26% versus 18%). As for the age of a mother, only 17 respondents would find an age of 40+ to be the preferred father's age at birth.

Figures IIa and IIb show the dependency of respondents' satisfaction with the age of their parents on the age of their parents. The lower the age of the mother and father at the birth of respondents, the lower the probability of a preferred decrease in the parent's age. Those most content with the age of their parents were those who were born to parents aged below 20 years (82% declared no change with regards to the age of a mother and 79% with regards to the age of a father). Only 10% of them would like to have older mother and 10% of them would like to have older father. These children and young adults did not argue in terms of the immaturity of their parents, but rather their own wish to let their parents enjoy their youth more. So in this case it was not that the children were dissatisfied with the age of the parents, but rather that they like their parents and would like to provide them with some additional years of freedom. The proportion of respondents who would opt for no change with respect to their mother's and father's age sharply decreases across all age groups. From parents at 30 and over, the proportion of those who would prefer to have younger parents at their birth prevails. Even amongst the age group of 30 to 34 years, more than 60% of respondents were in favour of a younger mother compared with only 34% who were satisfied.

Reasons for preferring younger parents

Interestingly, the most important reasons for respondents are those connected with the fear of premature loss of both mother and father (Table Ia, Ib). The respondents did not imagine this loss just in terms of death, but also as a significant loss of physical and mental fitness. This

implies the loss of a parent as self-contained entity providing the child or young adult with reassurance and help.

These reasons represent around one quarter of all answers and were expressed in the following way: “I do not want my parents to die”, “I am afraid of their ageing and death” or “I do not like the idea of old parents”. The second most important group of reasons were found to be those related to interrelationship and communication. Respondents were aware of the risk of a lack of understanding between them and parents when there is big age difference. These were amongst the typical answers: “in order to understand each other better”, “in order to trust my mother”. “I want my mother to be my friend”, “I do not want my father to be a grump who only watches the TV” or “I want my father to be cheerful, and not to think about what will happen to his family when he dies”. The fear of reduced physical activity was found to be particularly important in regard to the father’s age. Respondents would like their father to be good at sport, to be willing and able to play with them or to do other activities together as skiing and playing football. Finally, respondents were also aware of the risk of having no grandparents or very old grandparents. These answers included: “I would like my children to have young grandparents”, “I want my children to rejoice in having grandparents”, “I want my mother to enjoy her grandchildren” or “I am happy to have grandparents and I also experienced great-grandparents and I wish my children to have the same good fortune”. Justifications for maintaining the age of parents were analysed separately. Results are not presented as they were not significantly different from those based on the justifications of having younger parents.

Discussion

The recent increase in the use of ART, together with the long-term trend towards later childbearing, puts the issue of an acceptable childbearing age in current society under

question. Although there is a biological limit for fertility, social expectations may limit the timing of fertility as well. In this study, we analysed the opinions of young people and older children, those whose perceptions are usually overlooked despite the fact that they have to cope with the increased age of their parents compared to previous generations. We documented that they have a consistent idea regarding a desirable age for their parents which rather showed up the negative perceptions of the recent postponement of childbearing into older ages. The key finding is that a large majority of pupils and students aged 11 to 25 would prefer a mother of age below 30 and a father of age below 35 at his/her birth.

Interestingly, the preferred mothers' age at childbirth corresponds to the most optimal biological age (te Velde *et al.*, 2012, Beets *et al.*, 2011). Menopause is the uppermost limit for the reproductive life-span of women. Since age at menopause is on average about 50-51 years, the age of 50 seems to be a relevant limit for ART. However, the ability of a woman to conceive and undergo a pregnancy resulting in a live birth ends several years before reaching the menopause. Besides the average age at menopause, Leridon (2004) made an estimate of other two markers of a woman's transition into post-reproductive life. The first one is at 41.2 years for the delivery of the last birth and the second one is 44.7 years for the onset of sterility. Conception *per se* is not a criterion of success in ART. It is only the so-called take-home baby rate which shows the relation between numbers of live births and IVF cycles behind them.

Our results suggest fertility postponement is not positively perceived by offspring. However, are children's wishes to have young parents rationally justified?

Although there are no uniform findings as regards the effects of delayed parenthood on both parents and children, advantages are usually stressed. Later parenthood is associated with a more stable family environment, a higher socio-economic position, higher income and better living conditions as well as better parenting practices (Schmidt *et al.*, 2012, Beets *et al.*, 2011, Billari *et al.,* 2011). Children of older parents show better education, intellectual and

psychological outcomes (Schmidt *et al.*, 2012). However, these positive consequences and implications have limits that are given by the biological age of parents. Parenthood imposes both physical and emotional demands that older parents may have difficulty in overcoming. Although biological age can be different from chronological age (Alviggi *et al.*, 2009), from the age of 45 people become physically weaker, easily lose energy and could face age-related health problems that may negatively impact the child. Pennings (2001b) suggested the cut–off age to be approximately 50 years, since most people in their 70s are no longer able to cope with the quite substantial effort demanded by a child. However, if we take into account the indicator known as Healthy life years (also called Disability-free life expectancy), a significant number of people in their 60s are not sufficiently healthy to meet their responsibilities fully. At present, the values of Healthy life years at birth in the EU are, on average, 15 years shorter than the overall life expectancy for men and 20 years shorter for women (Eurostat, 2012). While the current life expectancy at birth (2011) in the EU is 77.4 years for men (74.8 in the Czech Republic), and 83.2 years for women (81.1 in the Czech Republic) both men and women are able to live without any limitations in their activities from their birth for an average of 62.0 years (62.9 in the Czech Republic) (Eurostat, 2013).

The most important reason for children and youth to have younger parents was fear of their premature loss. Indeed, late parenthood significantly reduces the chance that both parents will survive until their children reach adulthood. In the Czech Republic, having children at the age of 45 entails a probability of dying before the child's 18 birthday of 7% for the mother and 14% for the father. Furthermore, the probability of not surviving until the child is 30, the average age for parenthood, can reach 22% for mothers and even 40% for fathers in the Czech Republic. The age at which a child loses its mother is important for the child's life performance. A child born to a mother aged 45 can expect to lose the mother at twenty years younger than a child born to a mother aged 20 (Schmidt et al. 2012). Parental

379 loss at a young age may influence a range of later-life outcomes from education to health and
380 longevity (Myrskyla and Fenelon, 2012).

381 To have living grandparents and enjoy time with them is perceived to be important for
382 children. The presence of grandparents is also important for parents, as the grandmother in
383 particular can be available for childcare help. The postponement of childbearing is relevant
384 due to the postponement of retirement age; however, it has its limits due to an increase in
385 health risks with age.

386 Psychological aspects were the second most important reason why respondents prefer
387 having a younger parent. When parents are too old, i.e. 45 years and more, it can be expected
388 that negative consequences on the parent-child relationship or family well-being may prevail,
389 particularly when there is a combined effect of advanced female and advanced male age. A
390 very advanced age of parents may deepen emotional distance and complicate communication
391 between parents and their children, as well as between grandparents. Children may experience
392 isolation and stigma from having significantly older parents (Forman 2012). Too big an age
393 gap between parents and their children may increase discrepancies in their values, beliefs and
394 interests that may result in mutual misapprehension and disaffection. Furthermore, older
395 parents may experience more child-rearing problems when their children become teenagers
396 (Schmidt *et al.*, 2012), or they may be assessed rather negatively by their offspring in terms of
397 their parents' abilities. Finley (1998) reported that adolescents born to fathers who were aged
398 40 or over evaluate the parental quality of their father as being lower than that of fathers who
399 were aged 30-39 at birth. Moreover, advanced parental age may be associated with negative
400 offspring health outcomes (Myrskyla and Fenelon 2012).

401 In this context, we considered whether the reasoning of lower parental involvement in
402 children's activities, and poorer understanding between the child and parent is really
403 determined by the older age of parents, or whether children are looking for a substitutive
404 reason, and higher parental age readily offers itself as justification. Certainly there are many

very young parents who do not give attention to their children, and even where the relationships in their families are not ideal. Our view is that if higher parental age is only a substitutive reason, then the observed relationship between a higher parental age and their children's willingness to reduce it using a magic wand is clear. At the same time, children could put parents' passivity and poor parental understanding into context with a very low parental age. But the children of very young parents did not tend to wish for a higher parent's age.

Therefore, we believe that parental age plays a very important role in the lives of their children, and as such should be taken into account properly when making a decision about parenthood, as well as when discussing age limits for access to ART.

Conclusion

Children would prefer to have younger parents, and this is consistent with the optimal biological age for childbearing and also reflects the former reproductive regime which held sway in the Czech Republic until the mid-1990s. We do not think that society should interfere in peoples' parenting plans. But we do believe that when biological limits are extended with the use of reproductive medicine, society shares responsibility for the outcomes. When setting conditions, the interests of all parties or stakeholders must be taken into account. And children are definitely one of these parties.

Setting an age limit for ART should be part of a policy that promotes early parenthood in order to stop further delay in fertility. Young people should be informed that the ideal age to start family is before reaching 30.

We advocate that improving the living conditions of young families is a much better way to allow people to have children. It is definitely better and more effective than mentally,

physically and materially demanding assisted reproduction, even without taking into account the ethically-problematic donation of gametes.

Authors' roles

H.K.: research conception and design, preparation of the questionnaire, data gathering, qualitative data analysis, contribution to writing the article and revising it for important intellectual context, final approval of the article text. J.K.: qualitative and quantitative data analysis, conception, design and writing the main body of the article, final approval of the article text. B.B.: data management, quantitative data analysis, search for literature and information resources, information processing, assistance in wording the article, final approval of the article text. T. K.: assistance in research design, data gathering, quantitative data analysis, contribution to writing the article and revising it for important intellectual context, final approval of the article text.

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Figure Ia: Frequency distribution of age of mother at birth: preferred age by respondents versus real age registered for the Czech population in 2011

Sources: Authors' computations based on survey 2011/2012"Preferred age for parenthood" and the Czech Statistical Office

Figure Ib: Frequency distribution of age of father at birth: preferred age by respondents versus real age registered for the Czech population in 2011

Sources: Authors' computations, based on survey 2011/2012"Preferred age for parenthood" and the Czech Statistical Office

568 Figure IIa: Frequency distribution of respondent's preferences regarding the age of a mother
569 at his/her birth

570 *Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"*
571

572 Figure IIb: Frequency distribution of respondent's preferences regarding the age of a father at
573 his/her birth.

574 *Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"*
575

576 Table Ia: Reasons for having a younger mother, proportions in % (N=517)

577 *Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"*

578

579 Table Ib: Reasons for having a younger father, proportions in % (N=557)

580 *Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"*

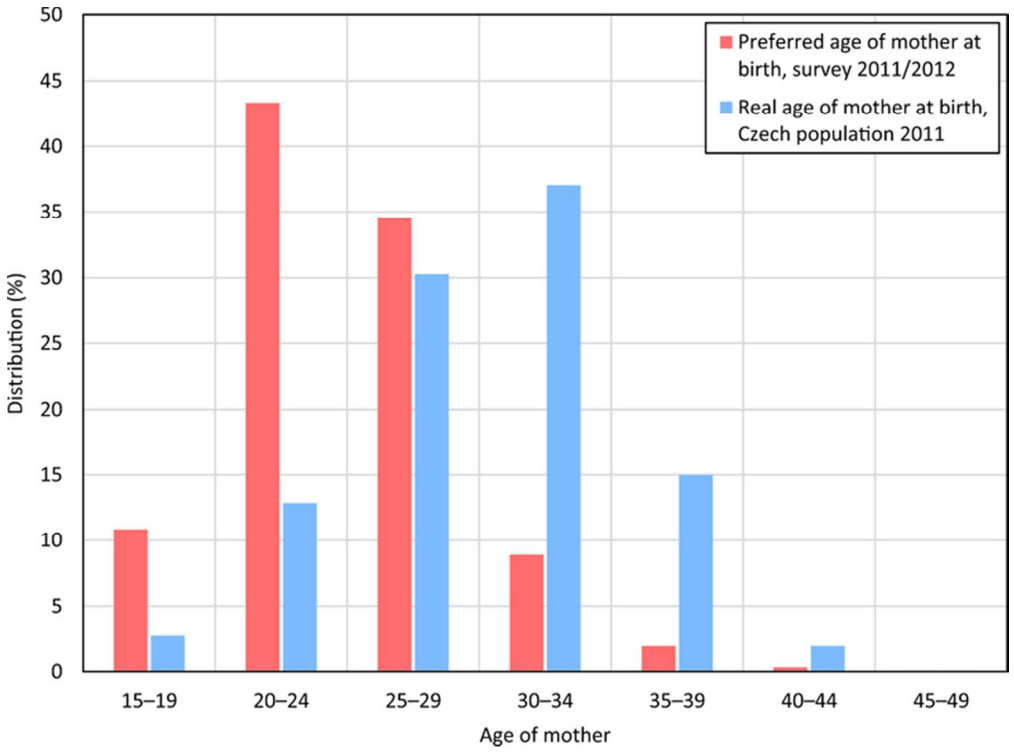

Figure Ia: Frequency distribution of age of mother at birth: preferred age by respondents versus real age registered for the Czech population in 2011
67x49mm (300 x 300 DPI)

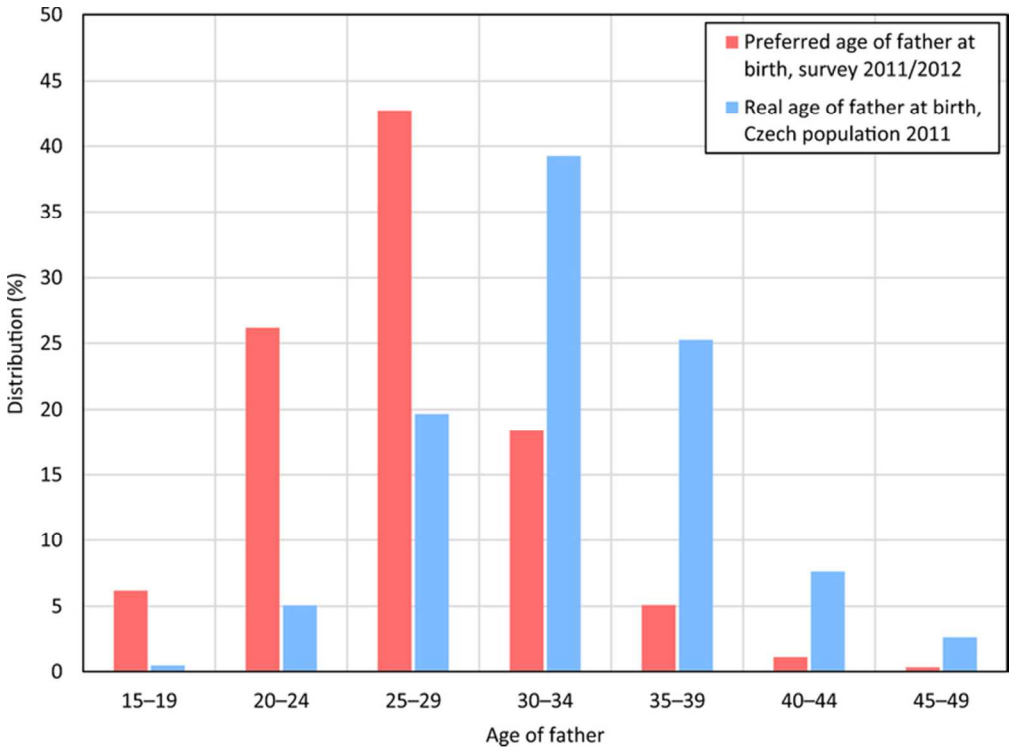

Figure Ib: Frequency distribution of age of father at birth: preferred age by respondents versus real age registered for the Czech population in 2011
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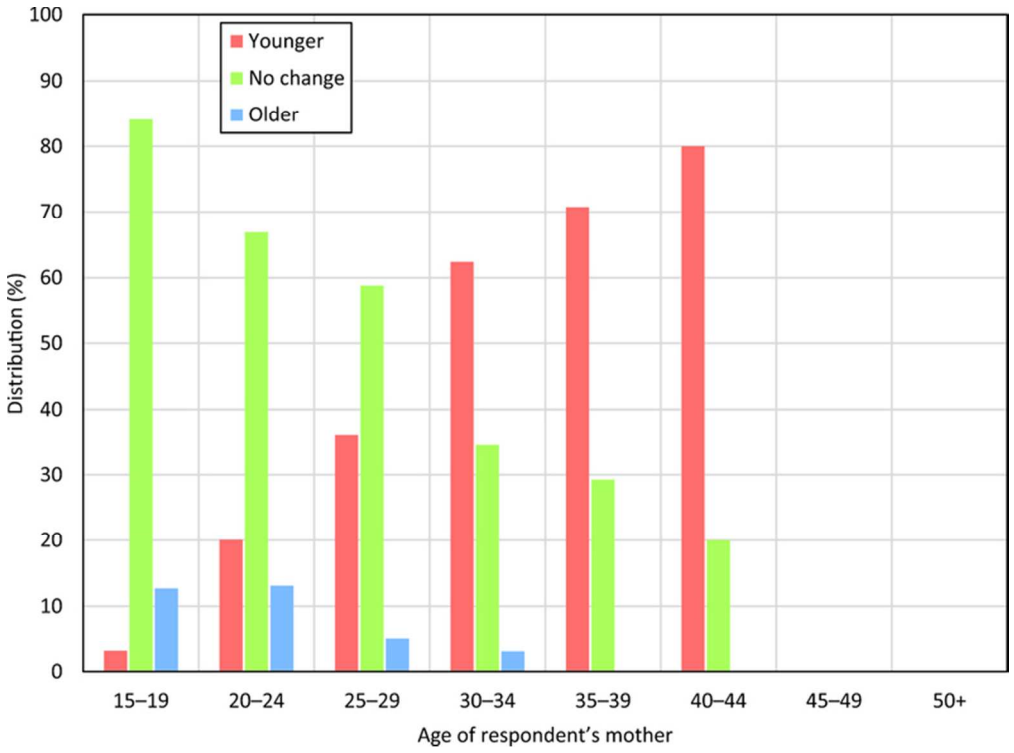

Figure IIa: Frequency distribution of respondent's preferences regarding the age of a mother at his/her birth
67x49mm (300 x 300 DPI)

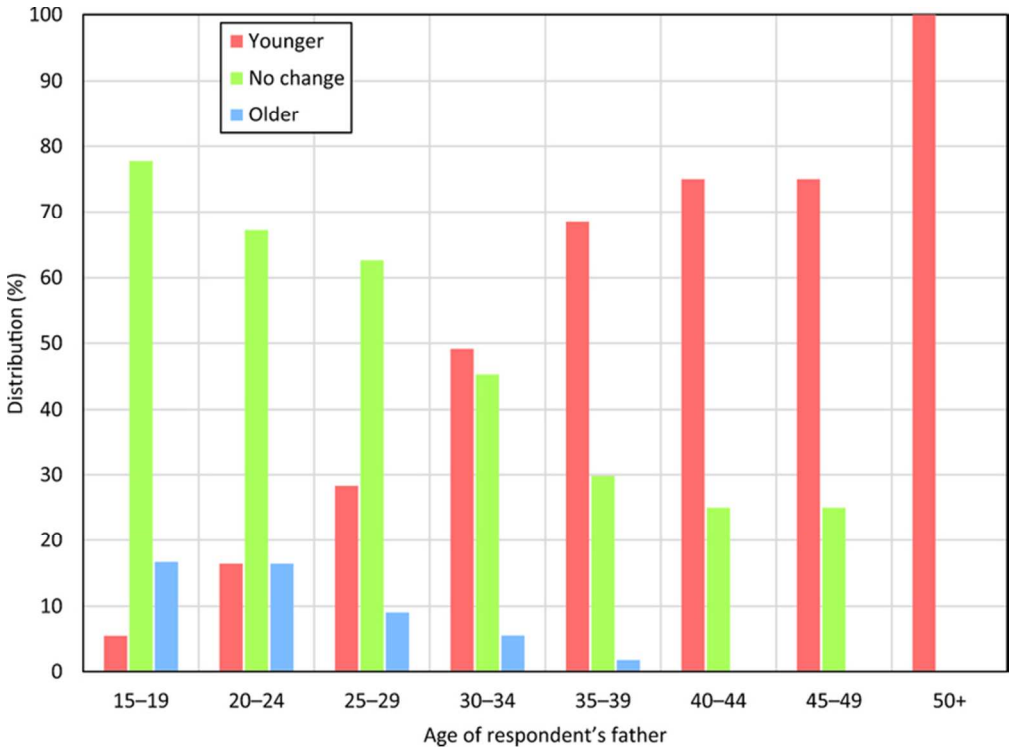

Figure IIb: Frequency distribution of respondent's preferences regarding the age of a father at his/her birth
67x49mm (300 x 300 DPI)

Table Ia Reasons for having younger mother, proportions in % (N=517)

	Total (N=517)	Boys (N=198)	Girls (N=319)	Those having mother below 30 at her / his birth (N=305)	Those having mother 30 and more at her / his birth (N=212)
Fear of premature loss of mother	26.3	24.2	29.1	26.6	25.9
Psychological aspects	23.2	6.1	27.6	23.3	23.1
Reduced physical activity	9.1	13.6	11.0	8.2	10.4
Fear of not having grandmother	6.8	4.6	8.5	5.2	2.4
Financial aspects	2.7	4.0	1.6	2.9	9.0
Others/no answers	31.9	47.5	22.2	33.8	29.2

Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"

Table Ib Reasons for having younger father, proportions in % (N=557)

	Total (N=557)	Boys (N=207)	Girls (N=350)	Those having father below 30 at her / his birth (N=222)	Those having father 30 and more at her / his birth (N=335)
Fear of premature loss of father	23.5	23.7	23.4	25.2	22.4
Psychological aspects	18.3	14.0	20.9	14.9	20.6
Reduced physical activity	11.3	9.2	12.6	9.9	12.2
Fear of not having grandfather	5.6	3.4	6.9	5.4	3.9
Financial aspects	3.6	4.3	3.1	3.2	5.7
Others/no answers	37.7	45.4	33.1	41.4	35.2

Source: Authors' computations based on survey 2011/2012 "Preferred age for parenthood"