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How old is too old? A contribution to the discussion on age limits for assisted reproduction technique access




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Abstract In 2012, the Czech Republic established the women’s age limit for access to assisted reproduction techniques at age 49 years. In this paper, the acceptability of this age limit from the children’s perspective in the Czech Republic is assessed. Although the necessity of balancing the interests of parents and children is acknowledged, little research has taken children’s interests into account. We have attempted to map out ‘children’s interests’, asking older children and adolescents (aged 11–25 years) how old they would prefer their parents to be: Czech respondents would prefer to have younger parents. This finding is consistent with the optimal biological childbearing age rather than with the current postponement to a later age. So far, assisted reproduction techniques have been largely regarded as a medical treatment justifying the current women’s age limit of 49 years. Had the children’s perspective been taken into account, this age limit might have been lower than 49 years. We propose that reproductive health policy should adequately reflect multiple perspectives as an integral part of a multi-layered support system of a society. 

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Introduction

Assisted reproduction techniques represent innovations allowing women to have children later in life. Although still smaller within absolute numbers of births, the fraction of all births occurring in women over the age of 40 years has been increasing across most of Europe (Beets, 2011; Schmidt et al., 2012). Despite this trend, there is substantial controversy over the feasibility of reliable childbearing over the age of 40 years, especially for first births (Billari et al., 2007; Smajdor, 2011). Women who require assisted reproduction techniques at 40 years and over are able to become mothers almost exclusively through the donation of young donors' eggs, as IVF treatments using a woman's own oocytes show lower success rates owing to a combination of low pregnancy rate cycles and high rates of pregnancy loss (Sobotka, 2013). Use of assisted reproduction techniques raises major ethical issues in relation to human rights legislation, including access rights to limited healthcare resources and the rights of gamete donors.

Discussions about acceptable use of assisted reproduction techniques have primarily referred to postmenopausal women (Banh et al., 2010); however, numerous medical, ethical and psychological issues can be related to the provision of assisted reproduction techniques to perimenopausal patients as well (Forman, 2012; Kluge, 1994). A legitimate debate about use of appropriate limits of assisted reproduction techniques examines the facilitation of conception beyond the normal reproductive lifecycle and also the relevance of parental age to child welfare (Margarita and Sheldon, 2014). Although not directly acknowledged, the quality of parenting tends to be judged in relation to parental age (Margarita and Sheldon, 2014; Pennings, 2013). Despite the generally accepted right to reproduce, Pennings (2013) recommends that parents should be able to provide adequate care until the child reaches adulthood. Moreover, the increasing health concern with pregnancies of older women linked to risks specifically related to assisted conception, are mentioned as well. Caplan and Patrizio (2010) recommends that women should prioritize risk avoidance over other values in their reproductive decision-making process. Therefore, they suggest that fertility clinics have a moral duty to prevent women over 40 years from accessing treatment. On the contrary, Smajdor (2011) argues that risk avoidance is not compatible with reproduction at all. Moreover, she added that good health or bearing children do not necessarily override other values that people may hold. In relation to this recent debate, we intended to address the issue of the role of the age limit for access to assisted reproduction techniques within the current trend of childbearing postponement.

Remaining childless by the age of 40 years can be intentional; however, women's reproductive options are almost invariably formed and constrained by circumstances beyond their control. Women's apparent postponement of motherhood is often seen as society's failure to support women in having children at an appropriate time (Smajdor, 2011). Fertility delay has been increasing as a result of female education, labour force participation and earnings. Furthermore, rising economic and unemployment uncertainty in young adulthood, and the spread of new values incompatible with parenthood, have been identified as important factors in the recent postponement transition (Basten et al., 2013). In most developed

countries, policies to reconcile work and family have been introduced to improve labour market conditions. Policies aimed at reducing the incompatibility between work and family may lead to younger ages at birth (Mills et al., 2011). Such policies are called 'tempo policies' as they address the fertility-depressing factor and may contribute to increase fertility (Lutz and Skirbekk, 2005).

Nevertheless, as women gain reproductive autonomy to postpone childbearing, there is a need to increase awareness about age-related female subfertility. Although most of the population will have little difficulty achieving a pregnancy at will, women should be counselled against delaying childbearing (Khalaf, 2013). The most troublesome factors involved in women's decisions to delay motherhood are potential misconceptions about their reproductive systems and the effectiveness of assisted reproduction techniques (Everywoman, 2013; Norcross, 2013; Wyndham et al., 2012). Much evidence suggests a declining effectiveness and increasing costs, as well as safety issues (e.g. increased medical risks for both mother and child), when assisted reproduction techniques are given to women over 40 years (Broekmans et al., 2004, 2007; Connolly et al., 2010). In addition, Leridon (2004) documented that postponing reproduction until well into one's thirties will frequently lead to a definitive loss of female reproductive potential, even after application of assisted reproduction techniques.

A woman's age is a major selection criterion for access to assisted reproduction techniques in European countries (ESHRE Task Force on Ethics and Law 14, 2008). Legislation on assisted reproduction techniques, however, varies considerably by age limits. In 2008, only 10 European Union countries did not have a legal age restriction (Austria, Cyprus, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Romania and Slovakia). Ten of the 27 European Union member states applied strict age limits for women: Estonia, Greece and the Netherlands set the mother's age limit at age 50 years. Belgium, Bulgaria, Denmark and Ireland set limits at 45 years, Luxembourg and Slovenia at 43 years and Finnish public institutes at 40 years. The other seven member states (the Czech Republic, France, Germany, Portugal, Spain, Sweden and UK) did not have a specified age limit, whereas the law defined the maximum age as 'within the natural reproductive age of a woman'. The father's age is usually not considered except in France and Sweden. In addition to the age limit for access to assisted reproduction techniques, the age limit for women's treatment reimbursement from health insurance in European Union countries is lower and usually between 38 and 42 years.

When discussing the age limit for access to assisted reproduction techniques, experts stress the necessity of balancing gains and losses of the system's individual members (Pennings, 1995, 2001a, 2001b; ESHRE Task Force on Ethics and Law 3, 2002; ESHRE Task Force on Ethics and Law 12, 2007a; ESHRE Task Force on Ethics and Law 13, 2007b; ESHRE Task Force on Ethics and Law 14, 2008). These members include future children, potential parents, medical personnel providing treatment, gamete donors and society as a whole. Advocates for no age limits or higher age limits (over 50 years) rely mainly on procreative freedom expressed in reproductive rights: '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, 1995). Nevertheless, the Programme of Action of the International Conference on Population and Development (ICPD) held in Cairo in 1994 also establishes the obligation of couples and individuals to children and society, stating that 'in the exercise of this right, they should take into account the needs of their living and future children, and their responsibilities towards the community.' The European Society for Human Reproduction and Embryology (ESHRE) have discussed the couple's responsibility towards the child: '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 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 Task Force on Ethics and Law 13, 2007b). ESHRE added 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'. Therefore, special considerations must balance the welfare of the mother and that of the child (Banh et al., 2010). Accordingly, legislative regulation of assisted reproduction techniques should be in the best interest of the child as well (Thorpe et al., 2012).

Nonetheless, the question about limiting access to assisted reproduction techniques includes a few dilemmas that cannot be omitted from the general discussion. Three main areas need to be addressed: psychological, ethical and social. From the psychological point of view, as certain age groups become excluded from support by the limited access, this may lead to an increased frustration of families who are unable to reproduce naturally. From an ethical perspective, objections arise from the value of life itself being measured against the risks associated with mothers' later age (see 'the non-identity problem' (Parfit, 1984); Hamilton, 2002). We acknowledge the fact that women who have already reached the age of 40 years have restricted alternatives of either trying to conceive at an older age or giving up motherhood. Our intention remains not to engage this dilemma into this debate. Finally, although reproductive technology was previously conceived by some experts (Smajdor, 2011) to be merely a medical treatment, use of assisted reproduction techniques has recently gained a social value with demographic relevancy (Kocourková et al., 2014). Indeed, new realities are reflected in a continuous increase in the percentage of assisted reproduction technique births in most European countries, which need to be accounted for in further policy developments.

We suggest that any decision to introduce an age limit for access to assisted reproduction techniques should be a result of a broader debate about the pros and cons of providing assisted reproduction to women in their late reproductive ages, including the optimum age when couples should have a family. We want to contribute by adding the perspective of children not yet addressed in the expert discussions. Moreover, our results need to be compared with known risks related to childbearing postponement. Although the necessary balance of parents' and children's interests has been acknowledged (Kluge, 1994), no research has been published on children's interests, except for one study demonstrating that parenthood via assisted conception later in the reproductive life cycle

was not associated with a negative effect on the child's well-being (Boivin et al., 2009). In Boivin's study (2009), however, children's welfare was evaluated through their parents' responses, whereas, in the present study, children were surveyed and gave their own opinion.

In the present study, the acceptability of setting parental age limits from the children's perspective in the Czech Republic was assessed. Currently, the Czech Republic has 39 centres for assisted reproduction carrying out approximately 27,000 IVF cycles annually. Sperm, egg and embryo donation is permitted in the Czech Republic and a new law regulating assisted reproduction was implemented in 2011 (Act of the Czech Republic No. 373, 2011, Coll, 2011). The most significant change to the 2006 original act (Act of the Czech Republic No. 227, 2006, Coll, 2006) was the proposed introduction of an age limit at 55 years for women accessing treatment. There was no age limit in the 2006 previous act, stating merely one recommendation from the Assisted Reproduction Section and Ethics Committee that assisted reproduction techniques should not be offered to women over 47 years. In a statement about the new act, the Ministry of Health justified the mother's age limit as ensuring a safe pregnancy and childbirth for the mother and child. At a public meeting of the Czech Parliament Health Committee on August 23, 2011, the health minister stated that the law does not address psychosocial, ethical or demographic contexts. The Act was finally approved with an age limit of 49 years (and 364 days) in autumn 2011 and became effective on 1 April, 2012. Therefore, the Czech Republic has had a statutory age limit of 49 for women since 2012.

The recently established women's age limit for access to assisted reproduction techniques seems to meet the medical need. As the Czech Republic has had one of the youngest age structures for women undergoing IVF treatment (Kocourková et al., 2014), we do not suppose that new legislative conditions would significantly induce changes in assisted reproduction techniques practice in the Czech Republic. This structure stems from the age restriction at 39 years for eligibility for public health insurance financial compensation for costs associated with IVF. We want to assess, however, whether this age limit is relevant from the perspective of the offspring's welfare. The aim of the present study was to map out 'preferences of the children' and determine what parental age children, particularly older children and adolescents aged 11–25 years, considered optimal. The research question was whether their preferences were consistent with the ongoing postponement of parenthood to a later age. Consequently, the possible use of these results for informed decisions about the right timing for parenthood is discussed, as well as their relevance within the context of assisted reproduction technique legislation in the Czech Republic. The present study is an example of a quest for additional factors that need to be considered within an evidence-based effort to push for any legislative change.

Material and methods

Data sources

Two data sources have been used. First, data on births collected by the Czech Statistical Office (CZSO) were applied to

assess recent childbearing postponement in the Czech Republic using 'age-specific fertility rates' (i.e. the number of live births per woman of a given age, and 'total fertility rate' (TFR), defined as the number of children that women would have over their lifetime, if at each age they experienced the age-specific fertility rate of that year). The second data source was a Czech survey on the attitudes of older children and young adults (aged 11–25 years) about their parents' ages. The 'Preferred age for parenthood' survey was conducted between 2011 and 2012 in five Czech settlements of different sizes in different parts of the country. Survey data were collected within the research P407/10/0822 'Gamete donation in assisted reproduction: psychosocial and ethical aspects' supported by the Czech Science Foundation between 2010 and 2012. To ensure confidentiality, the recorded and anonymized data were available only to the researchers and the supervisors of this project, protected by password and stored only at the fire-walled servers set at Faculty of Science. In accordance with the Czech legislation no Ethics Committee approval was required. Furthermore, analysis were conducted within the research P404/121097: 'Is the low fertility in the Czech Republic an inevitable outcome of the new reproductive pattern?', also supported by the Czech Science Foundation between 2012 and 2014.

Data collection

All survey respondents were students at elementary schools, grammar schools, high schools, vocational institutions, colleges or universities; hence, all were dependent on their parents. Children younger than 11 years of age were not included in this survey, as they were expected to have less knowledge about their parents' ages and less experience in thinking about lifetime. After giving their ages and genders, each participant was asked to state the ages of their mother, father and siblings. The mother's and father's ages at the time of the respondents' births were calculated from the current ages of respondents and their parents.

A total of 1452 responses was received; however, preliminary data screening resulted in 18.7% of participants being excluded from quantitative analyses owing to incomplete data (e.g. missing data about the age of the respondent, mother or father) or invalid data. The final sample size after exclusion was 1181; 745 were female and 436 were male. The average age of female respondents was 19.09, and the average age of male respondents was 17.83.

The main goal was to discover what older children and young adults thought about parental ages based on their own experiences. To assess respondents' preferences relating to their parents' ages at their birth, we did not formulate a direct question (e.g. 'How old would you have preferred your parents to be when you were born?') because it was too remote for them to perceive. We could have asked: 'How old would you prefer your parents to be right now?' Our major concern was that a link to a concrete person and a present time would not allow children and adolescents to liberally express their real preferences. They might have felt embarrassed by stating that they were not satisfied with their parents. Instead, we offered a concrete point in the near future that allowed projection, making it easier for respondents to cognitively process the enquiry. Respondents were asked the following question:

'Thanks to the technological advances of contemporary medicine, people have a chance to liberally decide when they want to have children. However, children cannot choose the age of their parents. How old would you like your mother and father to be when you turn 20 (for respondents younger than 16 years) or 25 (for those aged 16 and over), if you had a magic wand?' By using a projective question that allowed a shift into the near future and a virtual world, we wanted to enable respondents to express their real attitudes and preferences (for more detail see [Konečná et al., 2014](#)). The preferred age for mothers and fathers at the respondent's birth was derived from the respondent's current age and the desired age of their mother and father when they turned 20 or 25 years of age.

To understand the context better, respondents were asked an additional open question to identify reasons for desiring a change: 'Why would you like your mother and father to be of a given age?' Using qualitative and quantitative methods, the reasons for the change or maintenance of their parents' ages were categorized in accordance with the most frequent answers. The research was based on the 1418 justifications for respondents' wishes to have a mother younger than her actual age or the same age and 1359 justifications for the father's age. As the reasons did not differ in content, the analysis was performed jointly; we therefore performed an analysis with a total of 2777 valid justifications. There were two general reasons to exclude a questionnaire: failure to answer the 'why' question by skipping it entirely or by giving an irrelevant (i.e. completely unrealistic) response. Upon reading all of the responses, several justification types were elicited (i.e. categories). Every relevant answer was assigned a short title and letters (i.e. code) for use in the following analysis. Respondents often provided more extensive answers, so statements were sometimes assigned more than one code.

Statistical analysis

Chi-square test was used to test goodness of fit and independence of categorical variables. We applied binary logistic regression to adjust for confounding factors when respondents' preferences relating to their parents' ages at their birth were assessed. Respondents' age, age of mother and father, difference between mother's and father's age, gender (male, female) and birth order (first, second and higher) were included as independent variables, whereas preference to have younger mother and father was the dependent binary variable. Adjusted odds ratios with 95% confidence intervals are presented. Survey data were analysed using the statistical software SPSS version 20.

Results

As in most East European countries, the Czech Republic has experienced a notable shift in reproductive behaviour since the collapse of the communist regime ([Kocourková, 2009](#)). Between 1986 and 2000, TFR decreased from 1.9 to 1.1 children per woman ([Figure 1](#)). An early childbearing pattern prevailed in the Czech Republic until the mid-1990s, which has been replaced by a late fertility pattern characterized by a pronounced delay of entry into parenthood. This trend towards

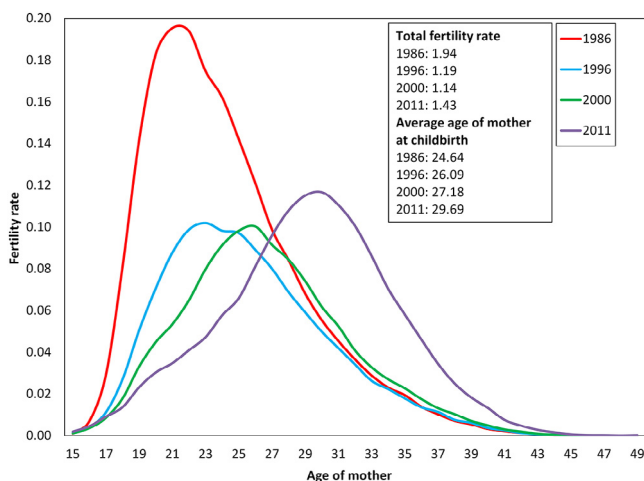


Figure 1 Age-specific profiles of fertility rates in the Czech Republic for selected years. Source: Czech Statistical Office.

later childbearing has contributed greatly to a decline in TFR. A proportion of the delayed births was expected to be eventually recuperated, especially among childless women but, since 2011, the extent of recuperation was insufficient to reach the 1986 rate, as TFR remained below 1.5 in 2011. As the past decade has demonstrated, the sharp decline in fertility rates of women aged below 25 years between 1986 and 1996 followed by a moderate increase in the fertility rates of women aged 25 years and over after 1996 indicates the creation of a new fertility model. As a result, the early childbearing pattern, with a pronounced peak in fertility rates at age 21 years, has been replaced by a late-childbearing pattern, with a peak at age 30 years (Figure 1). It was expected that most delayed births would be recuperated by the time women reached their late twenties and early thirties; however, this recuperation has been notably smaller compared with recuperation among older women. Recently, the highest increase in fertility rates occurred in women aged 32–39 years, and it is assumed that assisted reproduction technique treatments enhanced these rates (Kocourková and Fait, 2009). Since 1986, fertility rates at ages below 25 years have declined by more than 75%, whereas fertility rates at ages over 32 years have increased three-fold. As a result, the TFR share at ages 30 years and over substantially increased from 13% in 1986 to 49% in 2011 (Figure 1).

The main results are given in Table 1, where the real childbearing timing is confronted with respondent's preferences. Respondents preferred to have a mother and a father 2 years on average younger than they actually were. They also wished the difference between the age of the mother and that of the father were lower: almost 3 years in reality compared with the preferred 2.5 year difference. Results for respondents aged 11–15 years and those aged 16–25 years are presented separately, as the difference between the real age of their parents at their birth was found to be statistically significant ($P < 0.001$). Respondents aged between 11 and 15 years (i.e. born between 1996 and 2000), had on average older parents by 2 years than respondents aged between 16 and 25 years (i.e. born between 1986 and 1995). These findings reflect the onset of childbearing postponement in the early 1990s. Interestingly, all respondents preferred their mother to be

24–25 years of age on average at the time of their birth and the father 27 years, although the younger respondents' age preferences were found to be significantly higher, particularly for mothers (i.e. closer to the age of 25 years) ($P < 0.05$).

To sum up, 89% of respondents would prefer their mother's age to be under the age of 30 years at the time of their birth, and 94% of them would prefer their father's age to be under 35 years at the time of their birth. Although more than one-half of the respondents declared that they were satisfied with their parents' age (58% were satisfied with the age of their mother, and 55% with the age their father) still one-third would nevertheless have taken the opportunity to use a magic wand and make their parents younger. On average, a decrease by 6.6 years of the mother's age and a decrease of 7.5 years of the father's age were found among those who wanted to have younger parents. Differences about opinions of older children (aged 11–15 years) and youth (aged 16–25 years) were found to be statistically significant ($P < 0.001$). Younger respondents would decrease the age of their mothers and fathers more frequently than older respondents (53% versus 29% for maternal age and 54% versus 32% for paternal age). This is because the average parents' age at the birth of younger respondents is about 2 years higher than the average parents' age at the birth of older respondents (Table 1).

More detailed information about how distant respondents' preferences were from reality are presented in Figure 2a and 2b. Preferred maternal and paternal ages were compared with the real distribution of births according to the age of the mother and father in the Czech Republic in 2011. The most preferred age for mothers at their birth was 20–24 years: 43% of respondents preferred having a mother of this age range at the time of their birth, whereas, in 2011, the highest proportion of children was born to women aged 30–34 years (37%). The second most preferred age for mothers was 25–29 years (mentioned by 35% of respondents). Although 11% of respondents preferred their mothers to be younger than 20 years at their birth, only 3% ($n = 3$) of respondents were in favour of the age of 35 years and above. Respondent's preferences of the mother's age at their birth did not correspond to the real maternal age observed in the Czech Republic at the time of the survey. Respondents' preferences still reflect the former reproductive regime of an early childbearing pattern in which the highest proportion of fertility was concentrated between the age of 20 and 24 years. In 2011, however, the real proportion of children born to women aged between 30 and 34 years was three times higher than the proportion of children born to women aged between 20 and 24 years (Table 2) resulting from 2 decades of childbearing postponement.

Similar results were found for paternal age, although 43% of respondents preferred their father to have been aged 25–29 years when they were born (Table 2). If paternal age groups of 20–24 years and 30–34 years are compared, respondents would have preferred younger fathers to older ones (26% versus 18%).

In Figure 3a and 3b, respondents' satisfaction with their parents' ages are shown to depend on which age group their parents belong to. When both parents were younger at the time of the respondent's birth, the proportion of a preferred decrease of the parental age was lower. Respondents most satisfied with their parents' age were those born

Table 1 The real and preferred timing of childbearing for mother and father of respondents.

	Average real age at birth of respondent's		Average preferred age at birth of respondent's		% who prefer parents below 30 years		% who prefer parents to be younger	
	mother	father	mother	father	mother	father	mother	father
Total (1181)	26.04	28.95	24.18	26.64	88.7	75.1	33.4	35.9
aged 11–15 years (228)	27.91	30.69	24.70	26.93	82.5	70.2	52.6	54.4
aged 16–25 years (953)	25.59	28.53	24.06	26.57	90.2	76.3	28.7	31.5

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

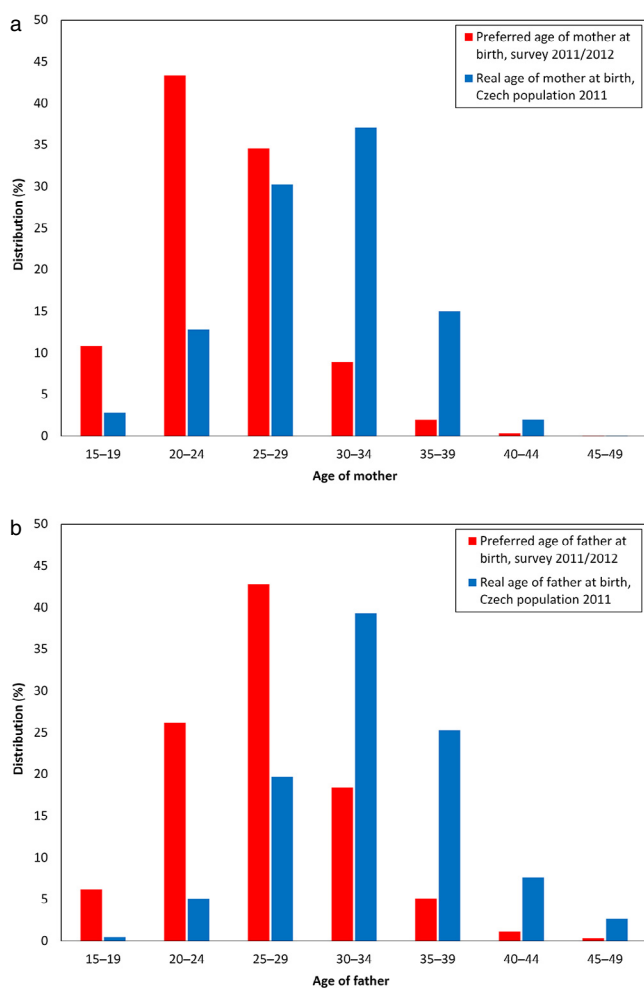


Figure 2 (a) Frequency distribution of mother's age at birth: respondents' preferred ages (data from 2011/2012 survey 'Preferred age for parenthood') versus real ages registered for the Czech population in 2011 (data from the Czech Statistical Office); (b) frequency distribution of father's age at birth: respondents' preferred ages (data from 2011/2012 survey 'Preferred age for parenthood') versus real ages registered for the Czech population in 2011 (data from the Czech Statistical Office).

to parents under the age of 20 years: 84% of them declared no change to their mother's age, and 78% declared no change to their father's age, and only 13% would have preferred an older mother whereas 17% would have preferred an older father. They did not argue in terms of their parents' immaturity but indicated their desire to let their parents enjoy more

of their youth. In this case, children were not dissatisfied with their parents' ages; on the contrary they loved their parents and wished they could have provided them with additional years of freedom. The proportion of respondents who would have opted for no change in their parents' ages sharply decreased across all age groups. With parents aged 30 years and over, the proportion of respondents who would have preferred to have younger parents at their birth prevailed. Even among women aged 30–34 years, more than 60% of respondents were in favour of a younger mother compared with only 35% who were satisfied. Results in **Table 2** confirm that maternal age is significantly associated with the preference to have a younger mother (OR = 1.15; 95% CI = 1.03 to 1.28; $P < 0.01$) and paternal age is significantly associated with the preference of having a younger father (OR = 1.21; 95% CI = 1.07 to 1.36; $P < 0.01$). Furthermore, the effect of the respondent's age was found to be statistically significant as the chance of preferring a younger mother and father decreases with increasing respondent's age (OR = 0.72; 95% CI = 0.68 to 0.76; $P < 0.001$ /OR = 0.76; 95% CI = 0.73 to 0.80; $P < 0.001$).

To sum up, children would have preferred to have younger parents, particularly those whose parents were aged 30 years and over at the time of their births. This finding is in clear contrast to the recent changes in timing of childbearing (**Figure 1**). In addition, as younger respondents, particularly those aged 11–15 years, have gained more experienced with increasing parental ages, their preferences for younger parents turned out stronger.

Five main reasons why respondents would have preferred having a younger mother or father were identified (**Tables 3 and 4**). Significant differences were found in the proportions of these reasons and between the distribution of reasons regarding the preference of having a younger mother and a younger father ($P < 0.001$). The most important reason stated by respondents for desired younger parental ages is connected with their fears of premature loss of both their mother and father. The respondents did not imagine this loss just in terms of death but also as a significant loss of physical and mental fitness. The finding implies parental loss as the loss of a self-contained entity providing the child or young adult with reassurance and support. This reason represents about 26% of all answers relevant to a mother's age and 24% of all answers relevant to a father's age. It was expressed in the following ways: 'I do not want my parents to die'; 'I am afraid of their ageing and death'; and 'I do not like the idea of old parents'. The second most important group of reasons related to inter-relationship and communication. Respondents were aware of the risk of a lack of understanding between children and parents when there was a significant

Table 2 Binary logistic regression analysis adjusted for all variables: preference to have younger mother or younger father.^a

	Preference to have younger mother			Preference to have younger father		
	Odds ratio	95% CI	P-value	Odds ratio	95% CI	P-value
Gender						
Male	1.00			1.00		
Female	0.98	0.74–1.28	0.86	1.02	0.79–1.33	0.86
Birth order						
First	1.00			1.00		
second and more	0.98	0.74–1.30	0.91	1.04	0.79–1.36	0.81
Age of respondent	0.72	0.68–0.76	<0.001	0.76	0.73–0.80	<0.001
Age of mother	1.15	1.03–1.28	<0.01	0.95	0.84–1.08	0.43
Age of father	1.03	0.93–1.15	0.53	1.21	1.07–1.36	<0.01
Difference between father's and mother's age	0.98	0.86–1.13	0.80	0.92	0.79–1.07	0.26

^aRespondents aged 11–25 ($n = 1181$). Source: Authors' computations based on survey 2011/2012 'Preferred age for parenthood'.

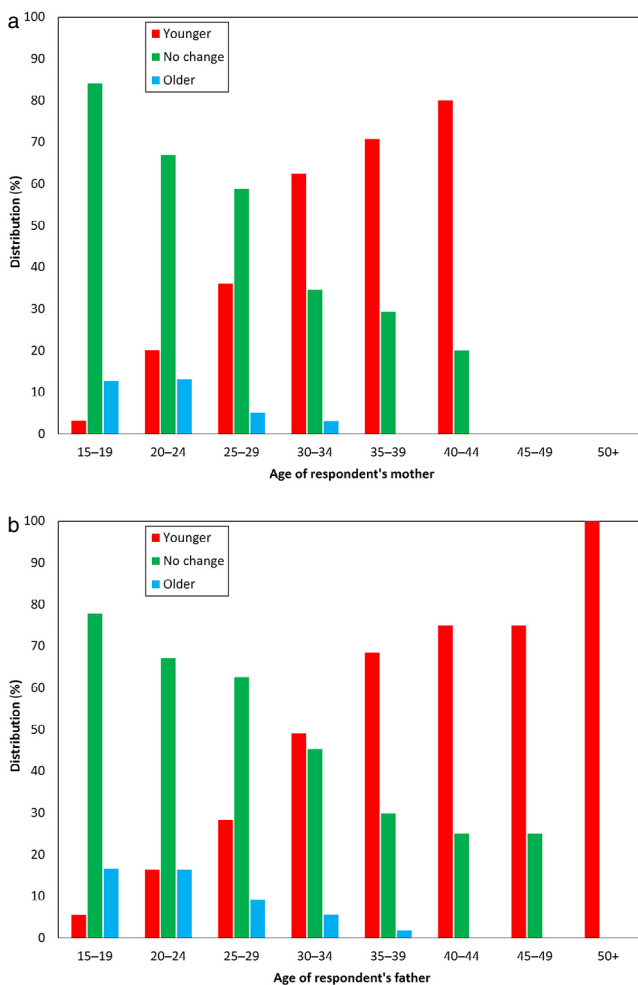


Figure 3 (a) Frequency distribution of respondents' preferences for their mother's age at birth; (b) frequency distribution of respondents' preferences for their father's age at birth.

age difference. These statements were among such typical answers as: 'I want us to understand each other better'; 'I want to trust my mother'; 'I want my mother to be my friend'; 'I do not want my father to be a grump who just watches TV';

and 'I want my father to be cheerful and not 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 share other physical activities (e.g. skiing and playing football). Finally, respondents were also aware of the risk of having no grandparents or very old grandparents for their own children, including the following statements: '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'; and 'I am happy to have grandparents and also to have experienced great-grandparents, and I want my children to have the same good fortune'.

Statistically significant differences were found between the answers of male and female respondents ($P < 0.001$) as well as between the answers of respondents having a mother or father under the age of 30 years at their birth and those with a mother or father aged 30 years or older at their birth ($P < 0.05$ and $P < 0.001$, respectively). Male respondents put more emphasis on maternal physical abilities (14%), whereas female respondents focused more on psychological aspects (28% for the mother, 21% for the father). Female respondents need more emotional understanding from both their mother and father compared with male respondents. Finally, those having a father aged 30 years or older at their birth tended to be more afraid of psychological and physical ageing; those having a father younger than 30 years at their birth more frequently stated their fear of his premature loss. Justifications for maintaining the age of parents were analysed separately. Results are not presented, as they were not significantly different from the justifications for having younger parents.

Discussion

The recent increase in use of assisted reproduction techniques, linked to the long-term trend towards later childbearing, raises the question of the appropriate childbearing age in society today. Although fertility has a biological limit, social expectations may also limit its timing. In this study, the opinions of young people and older children were analysed.

Table 3 Reasons for preferring a younger mother, proportions in % (*n* = 517).

	Total (<i>n</i> = 517)	Males (<i>n</i> = 198)	Females (<i>n</i> = 319)	Children with a mother under 30 years at their births (<i>n</i> = 305)	Children with a mother 30 or above at their births (<i>n</i> = 212)
Fear of the premature loss of the 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 a grandmother for their own children	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 4 Reasons for preferring a younger father, proportions (%) (*n* = 557).

	Total (<i>n</i> = 557)	Males (<i>n</i> = 207)	Females (<i>n</i> = 350)	Children with a father under 30 at their births (<i>n</i> = 222)	Children with a father aged 30 years or above at their births (<i>n</i> = 335)
Fear of the premature loss of the 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 a grandfather for their own children	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

Authors' computations based on survey 2011–2012 'Preferred age for parenthood'.

To the best of our knowledge, these perceptions have not yet been considered. Within the sample, respondents were aged 11–15 years (i.e. children born in the second half of the 1990s who undoubtedly have experienced increased parental ages compared with those born before 1990 or in the early 1990s). Despite some significant differences, both groups were found to have a clear idea about their parents' optimal ages, which is not fully consistent with the recent childbearing postponement. In addition, the preferred age for mothers at childbirth corresponds to the optimal biological age (Beets et al., 2011; te Velde et al., 2012). The key finding is that a significant majority of young adolescents (aged 11–25 years) would prefer a mother aged under 30 years and a father aged under 35 years at the time of their birth. Nevertheless, we acknowledge that children's wishes and preferences may not necessarily concur with their interests. Therefore, children's wishes to have young parents were further assessed whether they were rationally justified or not.

Although findings about the effects of delayed parenthood on parents and children were not uniform, advantages are usually stressed. Later parenthood is associated with a more stable family environment, a higher socioeconomic position, higher income and better living conditions as well as better parenting practices (Beets et al., 2011; Billari et al., 2011; Schmidt et al., 2012). Children of older parents show better educational, intellectual and psychological outcomes (Schmidt et al., 2012). Better parenting practices in families with older mothers have been attributed to the so-called maternal maturity hypothesis (Hofferth, 1987), as older mothers have accrued life experiences as well as financial and social

resources that promote a more responsive family environment (Bornstein et al., 2006). It is also argued that a history of infertility may play a role in better parenting: a greater warmth and involvement with children has been observed in older parents, which could result from side-effects of a so-called 'hard-to-achieve pregnancy' (van Balen, 1998). Furthermore, a positive association of older maternal age and greater odds of surviving to an unusually advanced age was found (Sun et al., 2014). Interestingly, prolonged or delayed fertility may be a marker of slower ageing.

These positive consequences and implications, however, have limits owing to parents' biological ages. Although Boivin et al. (2009) showed that parenting later within the reproductive life cycle was not associated with poorer child outcomes in early and middle childhood, they did not differentiate between mothers of advanced and very advanced ages, as they took the age of 38 years as a genuine biological marker to define older mothers, including those of perimenopausal and postmenopausal ages. Parenthood imposes both physical and emotional demands that older parents may have difficulty meeting. Although biological age may differ from chronological age (Alvigi et al., 2009), from the age of 45 years onwards, people become physically weaker, easily losing energy and possibly facing age-related health problems that may negatively affect children's wellbeing in terms of emotional and behavioural factors. Pennings (2001b) suggested the cut-off age to be approximately 50, as most people in their seventies are no longer able to cope with the quite substantial efforts that a child requires. If we use the 'healthy life years' indicator (also called 'disability-free life expectancy'), a significant number of people

in their sixties are not sufficiently healthy to fully meet their responsibilities. At present, healthy life year values at birth in the European Union are, on average, 15 years shorter for men and 20 years shorter for women than the overall life expectancy (Eurostat, 2013). Although the current life expectancy at birth (2011) in the European Union is 77.4 years for men (74.8 years in the Czech Republic) and 83.2 years for women (81.1 years in the Czech Republic), both men and women are able to live without any limitations as far as their activities are concerned, from birth for an average of 62.0 years (62.9 years in the Czech Republic) (Eurostat, 2013).

The most important reason that respondents indicated a desire for younger parents, was fear of premature parental loss. Indeed, late parenthood significantly reduces the chance that both parents will survive until their children reach adulthood. A child born to a 45-year-old mother can expect to lose his or her mother 20 years earlier than a child born to a 20-year-old mother (Schmidt et al., 2012). In the Czech Republic, parents who have a child at the age of 45 years have a higher probability of dying before their child's 18th birthday – a 7% and 14% probability for the mother and father, respectively. Furthermore, the probability of dying by the time the child turns 30 years (i.e. the average age for parenthood may reach 22% for mothers and even 40% for fathers in the Czech Republic). The age at which a child loses his or her mother is important for the child's life performance. Parental loss at a young age may influence a range of later-life outcomes, from education to health and longevity (Myrskylä and Fenelon, 2012). Losing a parent is a devastating trauma for a child; a motherless child may also place a significant burden on society (Smajdor, 2011).

Psychological aspects were the second most important reason that respondents preferred having younger parents. When parents are too old (i.e. 45 years and over), negative consequences on the parent-child relationship or family well-being can be expected to prevail, particularly when there is a combined effect of advanced female and male ages. A very advanced parental age may deepen emotional distance and complicate communication between parents and children, as well as between grandparents and grandchildren. Children may experience isolation and stigma from having significantly older parents (Forman, 2012). An overly wide age gap between parents and children may increase discrepancies in their values, beliefs and interests, potentially resulting in mutual misapprehension and disaffection. Furthermore, older parents may face accrued child-rearing problems when their children become teenagers (Schmidt et al., 2012), or offspring may assess these parents rather negatively regarding their abilities. Finley (1998) reported that adolescents born to fathers who were aged 40 years or older evaluate the parental quality of their fathers as being lower than that of fathers who were aged 30–39 years at birth. Moreover, advanced parental age may be associated with negative offspring health outcomes (Myrskylä and Fenelon, 2012).

Finally, children perceived physical activities and recreational time with their parents or grandparents as important. The presence of grandparents also remains advantageous for parents, as specifically grandmothers may provide child care. The postponement of childbearing is relevant owing to the postponement of retirement age, although this postponement has its limits because of increased health risks as parents and grandparents age.

In this context, we considered whether lower parental involvement in children's activities and poorer understanding between children and parents actually resulted from older parental ages or whether children were looking for a substitutive reason for these complaints, higher parental age readily offering itself as a justification. There are certainly numerous very young parents who do not provide adequate attention to their children and whose family relationships are not ideal. According to Fergusson and Woodward (1999), children of teenage mothers have been shown to have less favourable psychosocial outcomes compared with mothers aged over 30 years. Our view is that if a higher parental age is only a substitutive reason, then the observed relationship is clear between higher parental ages and children's willingness to reduce parental ages using a magic wand. At the same time, children might put parents' passivity and poor parental understanding into context with very low parental ages. Children of very young parents, however, generally did not prefer higher parental ages.

There were some limitations. Respondents were not selected from those conceived using assisted reproduction techniques but from all children and young adults of a given age category. Nevertheless, this selection corresponded with the research aim of getting an idea about children's preferences for parental age across societal categories. Because of the specific approach selected for questioning respondents, insufficient information was collected about their household situations or family environments. Therefore, further detailed and sophisticated analyses of the survey data could not be made. Furthermore, no direct link was found between children's preferences and interests; therefore, we have to be careful about drawing normative conclusions from children's preferences. In addition, we would like to emphasize that our conclusions about young people and older children are based on findings about attitudes of that given group. We, therefore, avoided judging the interests of a specific group of people without directly asking them about their opinions. Finally, caution is certainly needed in generalizing these results, as all study data were collected in the Czech Republic, a country with a relatively specific reproductive history that once had a long-term tradition of early parenthood.

As parental age may play an important role in children's lives, we are convinced that people should also be aware of children's perspectives before intentionally or non-intentionally delaying parenthood. According to our results, Czech children showed a preference for having younger parents. This finding is consistent with the optimal biological age period for childbearing. Moreover, our finding also reflects the reproductive behaviour of early childbearing, which prevailed in the Czech Republic until the mid-1990s.

So far, assisted reproduction techniques have largely been regarded as a medical treatment, justifying the current women's age limit of 49 years in the Czech Republic. As childbearing postponement has been one of the main reasons for the increasing use of assisted reproduction techniques, however, it becomes relevant to seek a balance between the reproductive autonomy of individuals and children's wellbeing. Although arguments exist that society should not interfere in people's parenting plans, we claim that society bears shared responsibility for the risks that come along with extending the biological optimum. In addition to the health concerns, setting an assisted reproduction age limit seems to be

a legitimate interest to society itself. Declining effectiveness, increasing cost, safety issues, quality of parenting and, last but not least, the children's views all argue for lowering the age limit. We believe that reproductive health policy should adequately reflect multiple perspectives as an integral part of a multi-layered support system of a society.

Conflict of interest statement

The authors report no financial or commercial conflicts of interest.

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