Claudia M. Van der Heijde[1] / Pascal R. Collard[2,3] / Peter Vonk[2] / Frans J. Meijman[4]

Better informed is better decided: Addressing the risks of delaying childbearing for female higher educational students

[1] Department of Research, Development and Prevention, Student Health Service, University of Amsterdam, Oude Turfmarkt 151, 1012 GC Amsterdam, The Netherlands, Phone: +31 20 525 5306, E-mail: c.m.vanderheijde@uva.nl
[2] Department of Research, Development and Prevention, Student Health Service, University of Amsterdam, Amsterdam, The Netherlands
[3] Ethics of Care, University of Humanistic Studies, Utrecht, The Netherlands
[4] Department of General Practice and Elderly Care Medicine, VUmc School of Medical Sciences Amsterdam, Amsterdam, The Netherlands

Abstract:
Objective: Delayed childbearing has gradually started to become the norm for higher educational students, with possible increased future fertility risks and psychological distress as a consequence. What do female students expect from their general practitioners (GP) and other health care providers (HCPs) with regard to delaying childbearing? We also looked into indicators that can be used by HCPs to detect female university students who have issues regarding delayed childbearing.
Methods: Cross sectional study: A total of 398 female students (mean age 21.83; SD = 2.4) from at least three different universities completed the questionnaire (distributed through the Internet and at a students' health service). Potential predictors for having an issue regarding delayed childbearing were assessed with multivariate logistic regression.
Results: Thirteen percent of 398 female students experienced being childless as more or less problematic. Forty-nine percent thinks having children deserves more attention and 33% of the students expect attention from their GP regarding a possible desire to have children during contraceptive consultations. Four factors demonstrated significant associations with having an issue concerning delayed childbearing: age (these issues also occur in younger students), worrying about fertility, not opting for an abortion if pregnant and dissatisfaction with current contraceptive use.
Conclusion: HCPs should discuss delayed childbearing with female students, addressing both the decrease of fertility after a certain age (30), the limited range of fertility methods, and the possible negative physical and psychological consequences of postponement. These elements could be included into programmes of sexual and reproductive health training and into pre-conception care and pre-conception education.

Keywords: age-specific fertility rate, delayed childbearing, fertility decision making, general practitioners, health care providers, pre-conception care, university students

DOI: 10.1515/ijamh-2017-0175

Received: October 5, 2017; **Accepted:** November 30, 2017

Introduction

Over recent decades, family size and planning in developed countries has changed, as demonstrated by decreased birth rates [1]. This is partly due to women delaying the timing of first childbearing. The average age at which women give birth for the first time has increased from 26.2 in 1995 to 28.9 years in 2014 as regards the OECD-25. These changes can be explained by the introduction of oral contraceptives in 1961 and the changes in social status of women, including higher levels of education, independence and extended marital rights [2], [3]. Delayed childbearing has become more socially accepted, with subsequent negative connotations associated with younger motherhood [4]. Women in higher education in particular are inclined to postpone their first pregnancy [5] and there is not enough awareness amongst them of the age-related decline in female fecundity [6]. Balasch and Gratacós [7] talk about "a clash between the optimal biological period for women to have children with obtaining additional education and building a career" p. 187.

Claudia M. Van der Heijde is the corresponding author.

Schmidt et al. [5] have shown that delaying parenthood results in higher rates of childlessness and smaller family sizes. Serious factors contributing to these demographic changes are increased infertility and foetal death because of higher maternal and paternal ages. For women, the increased risk of prolonged time to pregnancy, infertility or pregnancy complications (e.g. abortion, ectopic pregnancy, stillbirths) starts approximately at 30 years of age and increases thereafter [5]. Research shows that women, including those in higher education, are not fully aware of the negative consequences of delayed childbearing, notwithstanding that parenthood is highly valued by them [6], [8], [9], [10]. Assumptions that all health care professionals, including physicians and nurses [11] are knowledgeable about female fertility and IVF are not always true. Assisted reproductive technologies are mistakenly overrated by females and, with the exception of egg donation, have no answer yet to age-related decline of female fertility [7], [12]. Balasch and Gratacós [7] argue that, although individual consequences might seem negligible "the impact of delaying childbearing from a public health perspective cannot be overestimated and should be in the agenda of public health policies for the years to come" p. 187.

In different studies it was found that university students prefer to graduate, get a proper job first and a relationship to share responsibilities, to be able to provide a stable environment for their children [6], [13], [14]. These preferences force them to postpone their pregnancy until a future date. This has two consequences. Firstly, the student has to put her/his possible desire for children aside for a rather long period of time and control the (potentially negative) emotions that may come with it [14], [15], [16]. And secondly, in the long run this might have possible negative physical and emotional consequences [17], [18]. In the study of Meijman et al. [14] 22% of 463 female students already suggested having an issue with delaying childbearing while in university.

The Information-Motivation-Behavioural Skills Approach [19], [20], has been deployed earlier to conceptualise the psychological determinants of sexual and reproductive behaviour. Better *informing* and educating female academics about the risks of delaying childbearing, and making them more aware about age-dependent fertility rates, may *motivate* them to different *behavioural* patterns, such as accelerating their first pregnancies and making better informed choices (for instance through better negotiation skills). These choices ultimately would lead to lower rates of pregnancy complications (physical distress) and involuntary childlessness (psychological distress). Besides health education on risks of teen pregnancies and risks of STD's, young people are not well-informed about risk factors for future infertility such as ageing and limitations of assistant reproductive technology for that matter [8], [21], [22].

In the study by Meijman et al. [14] female students with an issue concerning delayed childbearing significantly expected more attention and initiative from health care providers (HCPs) with regard to discussing the problem. Furthermore, discussing delayed childbearing should be included as part of pre-conception care by HCPs. In a RCT [22] tailored oral education increased young women's fertility knowledge, especially regarding their fertility lifespan.

The aim of this study is to determine the expectations of female university students towards their HCPs regarding the subject of delaying childbearing. Furthermore, we want to get a grip on what factors have potential for general practitioners (GP), campus nurses and other HCPs to be used as indicators to detect female students that have issues with delaying childbearing. This offers HCPs starting points for a conversation about this subject. Besides addressing psychological distress in a timely manner, this moment is very suited and should be utilised for appropriate (health) education regarding delayed childbearing and fertility issues.

Materials and methods

Procedure and participants

A semi-structured questionnaire was used in a cross-sectional survey design. Because students could participate in the study on a voluntary and anonymous basis and the study consisted of one single questionnaire, it was acquitted from Medical Ethical Review according to privacy legislation of the country where the study took place [23], [24]. The study population consisted of female university students in The Netherlands (predominantly from Amsterdam, 86%). We intended to obtain a sample that was as heterogeneous as possible with respect to age, institutions and study programme by using several distribution channels. The hardcopy version of the questionnaire was distributed in June 2013 at the Student Health Service of the University of Amsterdam and at various universities' locations. The digital version of the questionnaire was promoted through Facebook, email, Twitter, LinkedIn and the intranet of several study programmes at the universities. Seventeen percent of the respondents' completed questionnaires were hardcopies, 48% were received through Facebook and 35% through the other digital channels.

The sample consisted of 398 female university students (Table 1). At least three different universities were included. A wide range of study programmes and study phases were also represented. The average age was 21.83 (SD = 2.4). Ninety-five percent had a perceived European ethnic background. Sixty-nine percent were not

religious. Of these students, 59% were in a steady relationship, 15% lived together, 3.3% were homo- or bisexual and 0.5% had a child. Ninety-two percent of these students uses contraceptives. A half percent was trying to get pregnant. One and a half percent experienced abortion; 1.3% experienced miscarriage and 38% used the morning after pill.

Table 1: Demographic characteristics of participants.

Women (N=398)				**N**	**%**
Age, (years), mean (SD)	21.83 (SD = 2.4)		(Range 17–35 years)		
	N	%	*Religious background*		
University 1	91	23	Christian	113	29
University 2	192	48	Islam	10	3
University 3	59	15	Not religious	272	69
Other universities	56	14			
			Sexuality (hetero)	386	97
			Stable relationship (yes)	214	54
Perceived ethnic identity			*Reproduction*		
European	380	95	Have children (yes)	2	0.5
Caribbean	8	2	Experienced abortion	6	1.5
(North) African	6	1.5	Experienced miscarriage	5	1.3
Other	4	1	Took morning after pill	150	38

Instrument

The semi-structured questionnaire was developed on the basis of earlier research about developing questionnaires within the scope of student health [14], [25]. Seven GPs were interviewed regarding their experiences with students and delayed childbearing. The questionnaire was also discussed with two GPs assistants in order to obtain feedback on content and structure. Subsequently the questionnaire was pilot tested (n = 6).

The questionnaire contained questions regarding delayed childbearing, contraceptive use and the need for information and (health) services on these themes amongst female university students. It also contained questions about their experiences with and expectations towards their GP or HCP regarding the choice for and use of contraceptives, including who takes the initiative to discuss the issues surrounding (delayed) childbearing and contraceptive use while enrolled at university.

Variables

The desire to have children now or in the future was identified with two questions: (1) I intend to have children in the future, with the answering categories “yes”, “no”, “I do not know” and (2) To be honest: I would like to have children now (while enrolled at the university), with the answering categories “yes”, “no”, “I do not know”, “not applicable, I already have children”. Reasons for delayed childbearing while enrolled at university were revealed by offering the respondents the opportunity to check more than one box amongst various answering categories (see also Table 2).

Table 2: Reasons supporting the choice to not have a child while enrolled at the university in percentages.

Reason to not have a child while enrolled at the university	**In percentages (N=371)**
I want to complete my education first	83
I am not ready for it	73
I want a proper job first	68
Lack of financial means	51
I do not have a proper partner	32
I would feel too tied down by a child	29
I do not have proper housing yet	26
My partner is too young	20
Combining motherhood and working life seems difficult to me	20
My partner has not graduated yet	19
My partner does not have a job yet	17

The delivery discomforts me	16
I am too young	13
I doubt if there is a future for the child	11
The idea of pregnancy is unpleasant to me	8
My partner does not want a child yet	7

Information was gathered about female students' expectations on health education regarding combining studying with motherhood and delayed childbearing including fertility issues, towards their HCP. Regarding GPs, campus nurses or HCPs attention for a possible desire to have children during contraceptive consultations (yes/no); whether students want their GP/HCP to initiate a conversation about their contraceptive use, even when visiting for other reasons (yes/no/no, invasion of privacy), and whether students want the practice to follow up on contraceptive consultations (yes/no/no, invasion of privacy) was explored. Additionally, expectations towards the educational institution were explored.

The dependent variable, *having an issue with delaying childbearing*, was determined by means of the question: I experience the fact that I do not have children now sometimes as a problem (yes/no). Indicators with potential for GPs or HCPs to detect issues regarding delayed childbearing were age, religiosity, living together with a partner (yes/no), worrying about fertility (yes/no), extent to which abortion is considered if pregnant (5-point scale from "very sure of not opting for an abortion" to "very sure of abortion"), experienced abortion (yes/no), and dissatisfaction with current contraceptives (yes/not certain/no) [14].

Data analysis

Data was analysed using IBM SPSS Statistics version 21 (Armonk, NY: IBM Corp.). The prediction of a *having an issue* regarding delayed childbearing was tested using a multivariate logistic regression, including the factors age, religiosity, living together with a partner, worrying about fertility, not opting for an abortion if pregnant, experienced abortion and dissatisfaction with current contraceptives. Female students who already had a child or who were trying to get pregnant at the time of filling out the questionnaire or who were not using contraceptives were excluded from this analysis. The results are presented as adjusted odds ratios (ORs) with 95% confidence intervals (CIs). All p-values lower than 0.05 were considered significant. We complied with the rule set by Peduzzi et al. [26] for single term main effects models, for which the ratio of the number of events per predicted variable for logistic regressions should be a minimum of 10 events per parameter.

Results

Desire to have children (in the future) and information need

Four percent of the students would like to have a child while enrolled at the university, while 6% were not sure about it. Eighty-two percent are planning on having children in the future. But 40% expect not to terminate an unplanned pregnancy. Thirteen percent perceived not having a child while enrolled at the university more or less as a problem. Forty-nine percent think having children deserves more attention. Ninety percent were interested to receive more information from the university on how to combine studying with motherhood and 3% sought actively for information on this subject.

General practitioner consultation

One-third of the students expect attention from their GP for a possible desire to have children during contraceptive consultations (33%). Twenty-one percent of the female students are not satisfied with the contraception they are using and 32% have or had difficulty with choosing contraception. Furthermore, 29% would appreciate it if the GP asks about their contraceptive use, during GP consultations for other (medical) issues. Only 1% would definitely disapprove if the GP asked about contraceptive use in this case. Additionally, 40% would appreciate it if the GP or the assistant follows up after starting a (new) contraceptive method (satisfaction, complaints, etc.). Only 2% perceived this as an invasion of their privacy.

Reasons for delayed childbearing

In Table 2 the reasons supporting the students' choice not to have children while enrolled at university are presented. Students found it important to complete their education (83%) and get a proper job (68%) before starting a family. They also often do not feel ready for it (73%). Certainty, as in sufficient financial means (51%) and proper housing (26%) also seemed to be a reason.

Detection of *having an issue* regarding delayed childbearing

Several factors that have potential to support GPs or campus nurses during consultations in the detection of issues concerning the desire to have children [14] were included in a logistic regression (Table 3). When performing an OLS regression analysis when checking for multicollinearity, all VIFs were around 1, the largest being 1.224 (for age).

Table 3: Logistic regression results for detecting *having an issue with delaying childbearing* (n = 364).

Characteristic	B	Wald CI	p-Value	OR	95% CI
Age	0.22	9.80	0.002	1.25	1.09–1.44
Religiosity	0.75	0.89	0.344	2.11	0.45–9.91
Living together with partner	0.45	1.20	0.273	1.57	0.70–3.51
Worries about fertility	1.10	9.14	0.003	3.00	1.47–6.12
Extent to which abortion is considered if pregnant	−0.43	7.55	0.006	0.65	0.48–0.88
Experienced abortion	0.74	0.34	0.561	2.09	0.18–24.88
Dissatisfaction with current contraceptives	0.47	4.99	0.026	1.60	1.06–2.43

The analysis seems to indicate that, besides age (OR = 1.25, 95% CI: 1.09–1.44), worrying about fertility (OR = 3.00, 95% CI: 1.47–6.12), the extent to which abortion is considered if pregnant (OR = 0.65, 95% CI: 0.48–0.88) and dissatisfaction with current contraceptives (OR = 1.60, 95% CI: 1.06–2.43) can be used as indicators for the detection of issues regarding delayed childbearing. Religiosity, living together with a partner and experienced an abortion (used as factor demonstrating sloppy or careless use of contraceptives) did not show significant associations with having an issue with delayed childbearing in the logistic regression. With regard to the indicator *age*, we found that *issues* were already present in the younger group of students and not only amongst the older students. The significant effect was the result of a fast and steep decrease of the number of students who indicated that it was never a problem after the age of 20 (Figure 1).

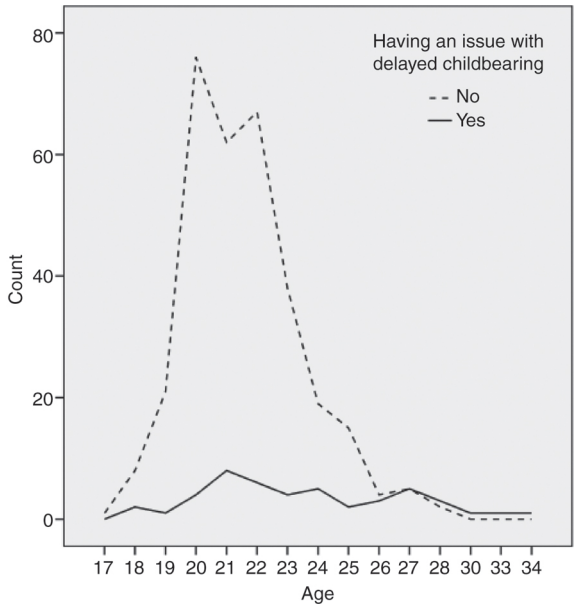

Figure 1: The number of female university students that have or do not have an issue with delaying childbearing related to their age.

Discussion

The aim of this study was to determine the expectations of female university students towards their HCPs regarding the subject of delaying childbearing and to determine potential indicators for HCPs to detect female students that have issues with delayed childbearing, to be able to offer timely health care and health education. Delayed childbearing has gradually started to become the norm [4], with increased future fertility risks as a consequence [1], [9].

Compared to 30 years ago [14] fewer female students reported that being childless was more or less of a problem to them (13% compared to 22% in 1983) [14]. This discrepancy could be explained by several factors. Nowadays students in The Netherlands go much quicker through their studies, and graduate at a younger age (the median age of the 2013 sample was 21 compared to a median age of 23 in the 1983 sample). The present sample of female students also seemed to be more driven by economic motives than the 1983 sample. Repercussions on fertility from following higher education and building a career are not always envisaged by women in higher education.

In the current study, the factors that showed significant associations with *having an issue* regarding delayed childbearing were, besides age, concerns regarding one's fertility, not opting for an abortion if pregnant, and dissatisfaction with current contraceptives. These factors are suitable to be used as indicators by HCPs for the detection of issues concerning delayed childbearing. Where the factor age is concerned, findings indicate that these issues may, unexpectedly, also occur in younger female students, thus necessitating HCPs to take this into consideration (not only discuss the topic with the older women in higher education which is now often the case).

The results from this study have relevance for both clinicians as well as policy makers. It is likely that female students are reluctant to discuss issues regarding personal desires to have children because it is private and off-topic. Although the notion of having children changed, and the topic of childbirth has become easier to discuss openly, delayed childbearing is still an underexposed public topic. A substantial part of these students expect initiative from their HCP to discuss the issue (one-third). Examples of adequate care from GPs and campus nurses are: a listening ear, motivational interviewing, tailored oral education [22] tailored contraception prescription and (narrative) health education (f.i. on GP's website). Future studies could also examine GPs' experiences with bringing up the subject of having children among university students and identifying potential barriers for doing so. Additionally, it is important that students become aware of the fact that their ambivalent feelings are not uncommon, which is why this topic should receive attention in higher educational institutions, preferably through health education and news media.

Finally, this topic should be included in pre-conception care policies: in Europe, a study into existing pre-conception care policies demonstrated fragmented and inconsistent recommendations [27]. Furthermore, wider policy changes, on various levels, including health, educational and work level are necessary in order to reduce the impact of important career barriers (e.g. wage penalties, inflexible working arrangements, reduced job opportunities) that can significantly impact a women's perceived ability to have children at a younger age [4].

Strengths and limitations

Anonymity of the respondents was guaranteed because the data were collected by means of a questionnaire. This is important considering the personal nature of this research. This approach attempts to decrease the social desirability bias, which in turn increases the reliability of the findings. The current study has a wide population range, as the questionnaire was distributed through different recruitment channels such as different university locations and the Internet (social media in particular).

A limitation of the study is that the study sample consisted mostly of female university students from one country, a vast majority of these women had a European ethnic background and a substantial part was not religious, thus limiting the generalisability of these results to the wider population of female university students. However, a trend towards postponement of first childbearing is evident in various Western countries [1], [6], [28], [29], [30]. It is thus likely that female university students from other Western countries also have to deal with combining education and career goals with delayed childbearing.

An overall conclusion from this study is that more attention is needed from the GP or HCP regarding contraceptive use and the possible desire to have children in the student population.

Acknowledgements

We thank all respondents that participated in this study. We also want to thank the reviewers for their useful comments to improve the article.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

[1] OECD. SF2.3 Age of mothers at childbirth and age-specific fertility. OECD Family Database 2016. Paris: OECD. http://www.oecd.org/social/-family/database.htm Accessed on 24 February 2017.
[2] Benzies K, Tough S, Tofflemire K, Frick C, Faber A, Newburn-Cook C. Factors influencing women's decisions about timing of motherhood. J Obstet Gynecol Neonatal Nurs. 2006;35:625–33.
[3] De Graaf A. De vruchtbaarheid van vrouwen in de twintigste eeuw. [The fertility of women in the twentieth century] In: Boonstra OW, Doorn PK, Van Horik MP, Van Maarseveen JG, Oudhof J, editors. Twee eeuwen Nederland geteld. Onderzoek met de digitale Volks-, Beroeps- en Woningtellingen 1795–2001. 2007. Symposium publicaties 2. Den Haag: DANS; 2007. p. 99–128.
[4] Kearney AL, White KM. Examining the psychosocial determinants of women's decisions to delay childbearing. Hum Reprod. 2016;31:1776–81.
[5] Schmidt L, Sobotka T, Bentzen JG, Nyboe Andersen A. Demographic and medical consequences of the postponement of parenthood. Hum Reprod Update. 2012;18:29–43.
[6] Lampic C, Skoog Svanberg A, Karlström P, Tydén T. Fertility awareness, intentions concerning childbearing, and attitudes towards parenthood among female and male academics. Hum Reprod. 2006;21:558–64.
[7] Balasch J, Gratacós E. Delayed childbearing: effects on fertility and the outcome of pregnancy. Curr Opin Obstet Gynecol. 2011;24:187–93.
[8] Cooke A, Mills TA, Lavender T. 'Informed and uninformed decision making'–women's reasoning, experiences and perceptions with regard to advanced maternal age and delayed childbearing: a meta-synthesis. Int J Nurs Stud. 2010;47:1317–29.
[9] Gossett DR, Nayak S, Bhatt S, Bailey SC. What do healthy women know about the consequences of delayed childbearing? J Health Commun. 2013;18:118–28.
[10] Peterson BD, Pirritano M, Tucker L, Lampic C. Fertility awareness and parenting attitudes among American male and female undergraduate university students. Hum Reprod. 2012;27:1375–82.
[11] García D, Vassena R, Prat A, Vernaeve V. Poor knowledge of age-related fertility decline and assisted reproduction among healthcare professionals. Reprod BioMed Online. 2017;34:32–7.
[12] Hashiloni-Dolev Y, Kaplan A, Shkedi-Rafid S. The fertility myth: Israeli students' knowledge regarding age-related fertility decline and late pregnancies in an era of assisted reproduction technology. Hum Reprod. 2011;26:3045–53.
[13] Chan CH, Chan TH, Peterson BD, Lampic C, Tam MY. Intentions and attitudes towards parenthood and fertility awareness among Chinese university students in Hong Kong: a comparison with Western samples. Hum Reprod. 2015;30:364–72.
[14] Meijman FJ, Nemere S, Van der Waal J, Ketting E. Anticonceptie en Kinderwens: een oriënterend onderzoek naar een paradoxaal verschijnsel. [Contraception and the desire to have children: an orientating research towards a paradoxical phenomenon]. Huisarts Wet. 1983;26:172–80.
[15] Brase GL, Brase SL. Emotional regulation of fertility decision making: what is the nature and structure of "baby fever"? Emotion. 2012;12:1141–54.
[16] Van Luijn HE. Het vrouwelijke dilemma: besluitvorming van vrouwen met een ambivalente kinderwens. [The female dilemma: decision making of women with an ambivalent desire to have children]. Tilburg: DSWO Press; 1996.
[17] García- Blanco AC, Monferrer A, Grimaldos J, Hervás D, Balanzá-Martínez V, Diago V et al. A preliminary study to assess the impact of maternal age on stress-related variables in healthy nulliparous women. Psychoneuroendocrinology. 2017;78:97–104.
[18] Schardt D. Delayed childbearing: underestimated psychological implications. Int J Childbirth Educ. 2005;20:34–7.
[19] Fisher JD, Fisher WA. Changing AIDS-risk behavior. Psychol Bull. 1992;111:455–74.
[20] Fisher WA, Fisher JD. A general social psychological model for changing AIDS risk behavior. In: Pryor JB, Reeder GD, editors. The social psychology of HIV infection. Hillsdale, NJ, US: Lawrence Erlbaum Associates Inc.; 1993. p. 127–53.
[21] Dunson DB, Baird DD, Colombo, B. Increased infertility with age in men and women. Obstet Gynecol. 2004;103:51–6.
[22] García D, Vassena R, Prat A, Vernaeve V. Increasing fertility knowledge and awareness by tailored education: a randomized controlled trial. Reprod BioMed Online. 2016;32:113–20.
[23] Wet bescherming persoonsgegevens 2000. [Law for the protection of personal information 2000]. (2000, 6 juli). http://wetten.overheid.nl/BWBR0011468/2017-03-10. Accessed on 17 May 2017.
[24] Wijzigingswet Burgerlijk Wetboek, enz. (geneeskundige behandelingsovereenkomst 1994 (2006, 1 februari) [Medical treatment agreement 1994] http://wetten.overheid.nl/BWBR0007021/2006-02-01. Accessed on 17 May 2017.
[25] Boot CR, Donders NC, Vonk P, Meijman FJ. Development of a student health questionnaire: the necessity of a symbiosis of science and practice. Glob Health Promot. 2009;16:35–44.
[26] Peduzzi PN, Concato J, Kemper E, Holford TR, Feinstein AR. A simulation study of the number of events per variable in logistic regression analysis. J Clin Epidemiol. 1996;49:1373–9.

[27] Shawe J, Delbaere I, Ekstrand M, Hegaard HK, Larsson M, Mastroiacovo P, et al. Preconception care policy, guidelines, recommendations and services across six European countries: Belgium (Flanders), Denmark, Italy, the Netherlands, Sweden and the United Kingdom. Eur J of Contracept Reprod Health Care. 2015;20:77–87.
[28] Berryman J, Thorpe K, Windridge K. Older mothers: conception, pregnancy and birth after 35. London: Pandora Press; 1995.
[29] Sutcliffe A, Baki Y. What is known about children born to older parents? In: Bewley S, Ledger W, Nikolaou D, editors. Reproductive ageing. Royal College of Obstetricians and Gynaecologists Study Group. UK: Cambridge University Press; 2009. p. 173–82.
[30] Bretherick KL, Fairbrother N, Avila L, Harbord SH, Robinson WP. Fertility and aging: do reproductive-aged Canadian women know what they need to know? Fertil Steril. 2010;93:2162–8.