

Article

Preconception sex selection: a survey of visitors to an internet-based health forum



Wolfgang Himmel is a sociologist who has been working in the Department of General Practice at the University of Göttingen, Germany, since 1984. He is professor and senior lecturer, teaching interdisciplinary courses on public health. His main areas of interest include involuntary childlessness, social pharmacology, public health and the doctor-patient relationship. His interest in the topic of involuntary childlessness led to a rewarding collaboration with Professor Dr Hans Wilhelm Michelmann, a reproductive specialist at the University of Göttingen's Department of Gynaecology and Obstetrics.

Dr Wolfgang Himmel

W Himmel^{1,4}, E Dahl², HW Michelmann³

¹Department General Practice, Georg-August-University, Humboldtallee 38, 37073 Göttingen, Germany; ²Centre for Obstetrics and Gynecology, Justus-Liebig-University, Giessen, Germany; ³Department of Obstetrics and Gynecology, Georg-August-University, Göttingen, Germany

⁴Correspondence: Tel: +49 (0) 551 392648; Fax: +49 (0) 551 399530; e-mail: whimmel@gwdg.de

Abstract

The aim of this survey was to explore the attitudes towards gender selection, focusing on people who were affected by infertility and also familiar with advanced technologies such as the internet. A questionnaire was posted on a German internet site targeting infertile people with a wish for a first or another child. Nearly all respondents (736, 742) were female. Most respondents (82.7%) were firmly against sex selection if the techniques used would require several treatment cycles and corresponding costs for the couple. Even if, hypothetically, sex selection could be achieved by simply taking a 'pink' or 'blue' pill before intercourse, only 19% would take this option. More respondents had some interest, if any, in conceiving a girl as first child or next child (27% girl versus 11% boy). A positive attitude towards sex selection was more likely if the respondents had a preference for either a boy or a girl (odds ratio [OR] = 12.8, $P < 0.01$) and, or had an unbalanced family (OR = 1.8, $P = 0.03$). Although this survey is based almost exclusively on answers from women, it seems reasonable to conclude that a widely available service for preconception sex selection for non-medical reasons would not cause a severe gender imbalance in Germany.

Keywords: attitude, fertilization, infertility, internet, sex preselection, sex ratio

Introduction

The desire to control the sex of one's offspring seems to be as old as recorded history (Schaffir, 1991; Bandyopadhyay and Singh, 2003), but only flow cytometry employing fluorescence-activated cell sorting (FACS) has been successfully used to separate mammalian spermatozoa (Rath *et al.*, 1999) and has proved to be effective in humans, too (Schulman and Karabinus, 2005). This technique produces a clinically significant enrichment of X- and, or Y-bearing human spermatozoa to a purity of 88% for X spermatozoa and 73% for Y spermatozoa. More than 900 children have been born following application of this approach to date, with the desired gender recorded in 92% girls and 81% boys according to the Genetics and IVF Institute (2007).

In humans, pre-fertilization gender selection helps to prevent

sex-linked, hereditary diseases (Sureau, 1999), thereby avoiding the difficult dilemma associated with preimplantation genetic diagnosis (PGD). Since the rejection of embryos tested for a particular sex using PGD could be considered to represent the first step towards eugenics, pre-fertilization gender selection may be an ethically acceptable alternative (Knoppers *et al.*, 2006).

However, all types of selection may result in sex imbalance (Hall *et al.*, 2006) and gender discrimination, or, as George (2006) puts it, an ongoing 'genocide', especially in China and India where individuals have a preference for male offspring. As early as 1996, the United Nations Children's Fund (United Nations Children's Fund, 1996) calculated that, in the Indian population alone, there is an imbalance of 40–50 million women.

In China, there will be an expected surplus of 20 million males aged between 15 and 44 years in 2010, and this is predicted to rise to 40 million in 2020 (Nippert, 2005). Globally, it is calculated that there is a shortfall of some 100 million women and sex predetermination will inevitably worsen the active discrimination already acknowledged to affect women in many parts of the world (Benagiano and Bianchi, 1999).

Some national and international surveys of patients and the general population concerning their interest in gender selection have already been reported (Wertz and Fletcher, 2004; Dahl, 2005; Dahl *et al.*, 2006; Fejes *et al.*, 2006; Van Balen, 2006). All data from the Western world indicate that, at least in Europe, the sex of the first child is relatively unimportant for parents. For example, more than 90% of a German representative sample held the view that social sex selection should be strictly prohibited, while half of them would accept it for medical reasons. Accordingly, nearly all of them would not use any method for sex selection (Dahl *et al.*, 2003a). Similar rates have been recorded in a Hungarian infertility population (Fejes *et al.*, 2006). However, in the USA there does appear to be a gender preference: a total of 39% of Americans preferred their first-born child to be male, whereas only 19% preferred a girl. Even if both partners were asked independently, 37% of women still favoured having a boy first. Consistent with these results, in a US infertility population, 55% would use sperm separation to determine the sex of their child (Jain *et al.*, 2005).

To supplement the information obtained from assessing the opinions of non-selected groups of people or patients, it may also be interesting to study the attitudes of people directly affected by infertility and who are also familiar with advanced technologies such as the internet. It can be assumed that such people are not only extremely interested in assisted reproductive technologies but many of them may also have some knowledge in preimplantation genetic diagnosis (PGD) and are active in seeking advice and a solution for their unfulfilled wish for a child. Therefore, sex selection prior to conception may be a more salient issue for them and not merely a hypothetical issue as in most other surveys.

The aim of the study was to explore the attitudes of such internet users towards preconception sex selection, in particular to find out if people who desire a first or further child would like to select the sex of a child before conception, whether they would pay for this opportunity if it were available and what legal regulation of social sex selection they would prefer.

Materials and methods

To learn about the attitudes towards sex selection of persons wanting to conceive a child, a questionnaire was posted on a German internet site targeting infertile people with a wish for a first child or couples who would like to have another child.

Setting

The website www.rund-ums-baby.de (accessed 29 November 2007) provides information for parents and those who would like to be parents. The site consists of several internet forums, such as reproduction, pregnancy, birth, parenting, etc. These forums offer the possibility to visitors of asking experts about

their opinions, or they may communicate with each other with e-mail or chat rooms. The questionnaire was placed in three different forums.

'Starting a Family'

This forum deals with the problem of involuntary childlessness. It is mediated by a group of medical professionals ('expert forum') who respond online to questions posted by visitors to the site. The expert team consists of six to eight certified experts in gynaecology, urology, andrology and embryology. They work in outpatient departments, reproductive clinics or university hospitals. The experts work on an honorary basis. If patients send a query to one of them, the question (without an e-mail address) and the expert's answer are published on the website (Himmel *et al.*, 2005).

'First Child'

Here, visitors who would like to have a baby can make use of a chat room or exchange e-mails to compare experiences and to communicate with each other. In this forum, visitors have no contact with experts.

'Another Child'

This forum is designed for couples who already have one or more children and would like to have another, but have so far been unsuccessful. Similar to the above-mentioned forum, visitors to this forum may communicate with each other via the internet either relating their own experiences or to pose or answer questions, without the help of any professionals.

Each time visitors participated in one of these three forums, they were asked to take part in the internet survey.

Questionnaire

On opening the questionnaire, patients read an introductory note about the aim of the study (see Appendix). The questionnaire consisted of 17 items and was designed for 'adaptive questioning'. To guarantee the quality of the survey, the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) was followed (Eysenbach, 2004).

The survey was posted on the website from 1 December 2006 to 30 June 2007. At the beginning of the questionnaire, visitors were informed that they were not obliged to participate (informed consent) and were instructed how to exit from the questionnaire. The answers to the questionnaire were immediately separated from all other interactions (requests to experts, e-mails, chat room, etc.), so that no one knew whether a visitor had, or had not, answered the questionnaire or what her or his answers were.

Statistics

Descriptive statistics were applied to analyse the survey data in terms of means, absolute and relative frequencies and cross tabulations. Differences between nominal variables were tested for statistical significance using Pearson chi-squared, with

alpha set at $P < 0.05$. Multiple logistic regression analyses were used to determine possible factors (i.e. predictors) for attitudes towards sex selection. These analyses were performed for two options (i.e. criteria): (i) a hypothetical medical drug option (pill) to select the gender of a child by oneself before sexual intercourse (see item 3 in the questionnaire, Appendix); and (ii) the hypothetical option that this technology should be available to all couples without any restriction (see solution 1 in item 4 in the questionnaire, Appendix).

Both criteria were dichotomised with '1' representing a positive attitude towards these options and '0' for a somewhat negative attitude or a 'don't know' answer. Since respondents were asked about the sex of their children, if any (see question 17, Appendix), information could be gathered about any unbalanced sex ratios, which was defined as having a ratio of 75% or more children of a particular sex. This sex ratio (balanced versus unbalanced) was then used as the predictor for the regression analyses. All analyses were performed with SAS version 9.1 (SAS Institute Inc, 1999).

Data security and ethical approval

The webmaster for the expert forum was responsible for the handling of the data. He administered all questionnaires and all responses during the study period. Afterwards, the data were securely transmitted via a secure sockets layer connection to the Göttingen Department of General Practice without transferring any e-mail addresses. The local ethics committee of the University of Göttingen approved the study.

Results

Respondent demographics

During the study period, a total of 742 visitors filled in the questionnaire. Most often, the survey was answered by people visiting the chat forum 'Another Child' and the expert forum 'Starting a Family' (**Table 1**). For reasons inherent to a web-based survey, only a crude estimate of the response rate to this survey can be given. A total of 225 visitors to the expert forum 'Starting a family' had sent a request to this forum during the study period. It seems rather realistic to assume that the same number of people had additionally visited this section and had also been asked to participate in the survey. This would result in a response rate of about 51% (231/450 where 231 is the number of visitors to the expert forum 'Starting a family' filling the questionnaire). It is more difficult to calculate similar estimates for the remaining two forums, but based on this result it is reasonable to assume an adequate response rate was achieved.

Nearly all respondents were female (98.7–100%); most of them were married or lived together with a partner (**Table 1**). The level of education of all respondents was high. More than half of them were Catholics or Protestants. About 2% ($n = 14$) were Islamic women; these were subsumed under the category 'other'. Nearly 75% of the visitors to the forum 'First Child' were younger than 30 years, while 47.6% of visitors to the expert forum, 'Starting a family', were older than 30 years.

Apart from eight respondents, all visitors to the forum 'Another Child' had one or more children. It must be assumed that these

eight childless females were pregnant and perhaps concerned about not being able to have another child. Likewise, it cannot be ruled out that these persons, or some of them, had visited this forum for other reasons. Surprisingly, nearly one-third (30.1%) of visitors to the forum 'First Child' had one or more children; it could be that existing mothers are visiting this forum to talk with, and to give advice to, childless couples. About 60% of those visiting the expert forum, 'Starting a Family', were already parents, so that it might be the case that many of them suffer from secondary infertility. It might also be possible that parents visiting the 'Starting a Family' forum were realising that there was something that they had not known first time round, especially if they had not been aware of the site's existence.

Questionnaire responses

Most respondents (614/742; 82.7%) were not interested in social sex selection if the techniques used would require several treatment cycles and corresponding costs for the couple. Even if the costs were to be covered by a health insurance company and limited to one treatment cycle, only 13% would be willing to make use of this option; another 15% were undecided. If, hypothetically, sex selection could be achieved by simply taking a 'pink' or 'blue' pill before intercourse, only 19% would employ this option, whereas 18% were undecided and the remainder refused this option.

Figure 1 depicts the degree to which visitors' attitudes towards sex selection using the easiest and cheapest method (i.e. the hypothetical 'pill' option) was associated with sociodemographic variables and family status. If individuals were to prefer a specific gender at all, be it a boy or a girl, many of them (34% or 43%, respectively) would opt for a pill for preconception sex selection. Most interestingly, more respondents had some interest, if any, in conceiving a girl rather than a boy as first or next child (preference for a girl: 27%, 95% CI 23.9–30.1; preference for a boy: 11%, 95% CI 9.7–14.3).

Respondents who had a family with an unbalanced sex ratio (defined as 75% or more of a particular sex) were significantly more interested in influencing the gender of an additional child compared with families with a more balanced sex ratio (32% versus 16%, $P < 0.03$). Also, people who wanted only one child had a stronger interest in influencing the gender of that child. In contrast, the effect of age and education was minimal. Only people with 10 years of education, compared with all others, were somewhat more likely to have a negative attitude towards this pill (data not shown). Logistic regression analysis separated for respondents who had children and those who did not showed no significant differences (data not shown). Comparing the answers from the three different forums, only marginal differences could be detected (data not shown); therefore, the three groups were combined for the following analyses.

Logistic multiple regression analysis confirmed the strong effect of some of the above-mentioned factors. A preference for either a boy or a girl yielded an odds ratio (OR) of 12.8 ($P < 0.01$) for a positive attitude towards sex selection (**Table 2**); this attitude was also more likely if the respondents had an unbalanced family and/or were not Christians.

Similar attitudes were found when the survey participants were offered the choice between three different legal scenarios

regarding access and use of this new technology. Approximately one-third of the respondents (236/742, 32%) would strictly prohibit social sex selection, with the consequence that doctors providing this service would face prosecution. Another 318 (43%) of the respondents would allow this technology only if the couple had convincing reasons for the selection and each case had been thoroughly evaluated. Only 150 respondents (20%) were in favour of making social sex selection available to all couples requesting it.

Those who preferred to have only one child or a child of a particular sex opted for a somewhat more liberal regulation (**Figure 2**). Again, an influence of religion was detectable, as more Catholics and Protestants disagreed with the 'pill' option compared with the rest of the respondents. However, attitudes towards governmental regulations were not associated with the sex ratio in a family. Logistic multiple regression analysis confirmed these associations (**Table 3**). A more liberal attitude was found in those who had a preference for a boy or a girl (OR = 2.6, $P < 0.01$) and, or had no religious affiliations.

Table 1. Sample characteristics of respondents to questionnaire on preconception sex selection. Values are percentages.

<i>Characteristics</i>	<i>Forum</i>		
	<i>Starting a Family</i> (n = 231)	<i>First child</i> (n = 133)	<i>Another child</i> (n = 3787)
Female	98.7	100	99.2
<i>Age</i>			
Up to 25 years	14.7	28.6	24.6
26 to 30 years	37.7	45.1	38.4
31 to. 35 years	29.4	16.5	23.3
36 to 40 years	13.0	7.5	11.1
41 years and more	5.2	2.3	2.6
<i>Family status</i>			
Single	2.2	1.5	1.9
Married	72.7	58.7	77.5
With partner	25.1	39.8	20.6
<i>Education</i>			
9 years	37.2	45.1	43.4
10 years	24.7	22.6	24.9
>10 years	35.5	24.8	25.1
<i>Religion</i>			
Catholic	32.5	23.3	32.5
Protestant	23.4	24.8	23.0
Other	11.7	10.5	15.9
None	32.4	41.4	28.6
<i>Children</i>			
Yes	59.7	30.1	97.9
No	40.3	69.9	2.1

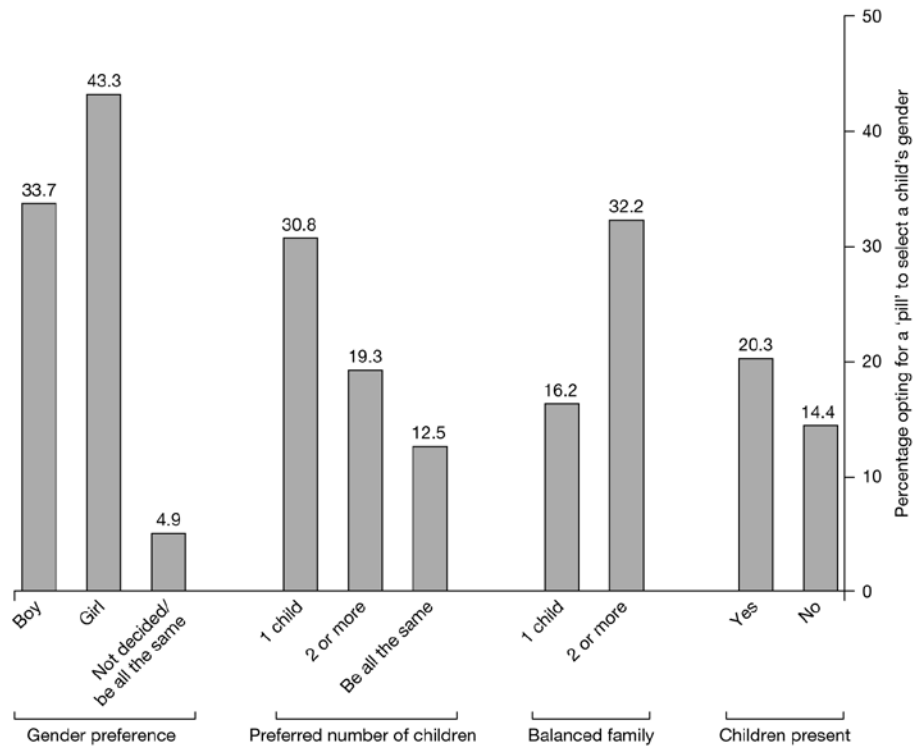


Figure 1. Factors associated with a positive attitude towards a 'pill' for sex selection.

Table 2. Predictors for a positive attitude towards a hypothetical 'pill' for sex selection^a.

Predictor	Odds ratio	95% confidence interval	P-value
10 years education	1.0		
9 years education	1.2	0.7–2.1	NS
>10 years education	1.6	0.9–3.0	NS
Catholic, Protestant	1.0		
Other, none	1.6	1.0–2.4	0.03
<i>Children</i>			
Yes	1.0		
No	1.1	0.7–1.9	NS
<i>Balanced family</i>			
Yes	1.0		
No	1.8	1.1–3.1	0.03
<i>Preferred no. of children</i>			
1 child	1.0		
2 or more	1.1	0.5–2.4	NS
<i>Preferred sex</i>			
All the same	1.0		
Boy or girl	12.8	7.8–21.1	0.01

NS = not statistically significant.

^aPeople who agree with the option 'to take a red or blue pill before intercourse for sex selection'.

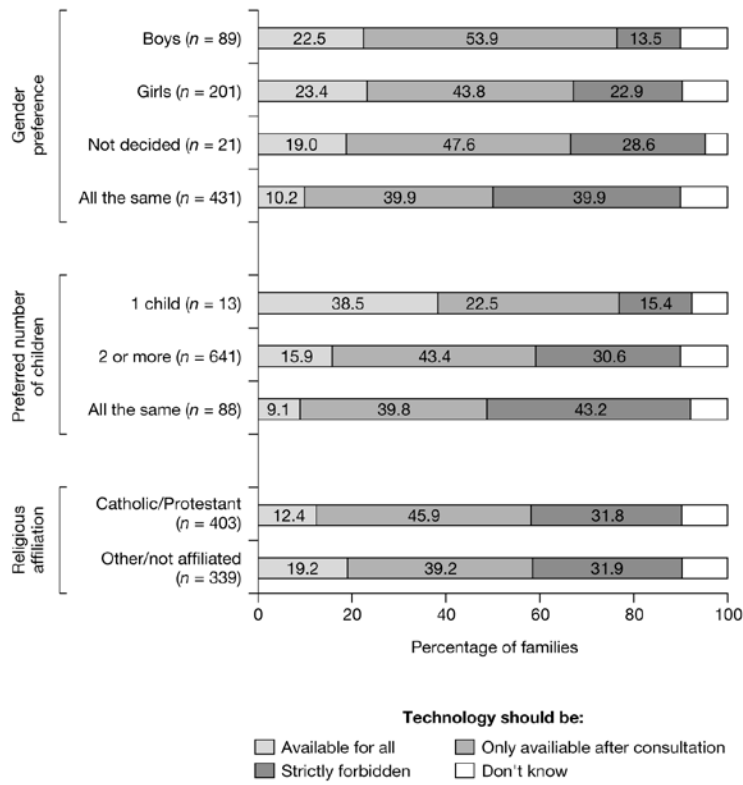


Figure 2. Factors associated with different attitudes towards regulation of sex selection.

Table 3. Predictors for a positive attitude towards a liberal regulation^a.

Predictor	Odds ratio	95% CI	P-value
10 years education	1.0		
9 years Education	1.8	1.0–3.2	NS
>10 years education	1.7	0.9–3.1	NS
Catholic, Protestant	1.0		
Other, none	1.6	1.1–2.5	0.02
Children			
Yes	1.0		
No	1.7	0.4–0.9	0.02
Balanced family			
Yes	1.0		
No	1.0	0.5–1.9	NS
Preferred no. of children			
1 child	1.0		
2 or more	1.6	0.7–3.4	NS
Preferred sex			
All the same	1.0		
Boy or girl	2.6	1.7–3.9	0.01

NS = not statistically significant.

^aPeople who opt for solution 1 'This new technology should be available to all couples'.

Discussion

Most respondents to the internet survey showed a distinct reservation regarding preconception sex selection. Even if such selection would be possible simply by taking a pill, less than 20% of the respondents would do so. Furthermore, the vast majority of respondents supported a strict legal regulation for any preselection technique. Only a small proportion of respondents were in favour of allowing access for everyone to techniques enabling the predetermination of a child's sex without any restriction.

Strengths and limitations

This survey targeted visitors to the website www.rundumbaby.de and comprised a sample of people, predominately women, who have a definite interest in conceiving and who are strongly motivated to become pregnant. Consequently, it is reasonable to assume that many of them have already made up their mind about sex selection and other related issues, and are well informed about assisted reproduction techniques. Therefore, their answers may reflect a well-thought-out rather than a superficial position on these topics. Also their attitudes can be considered to be important for assessing the true need for pre-fertilization gender selection.

The questionnaire considered different scenarios that would enable the gender selection of a child. This was done deliberately to lower the inhibition threshold of the interviewees.

In contrast to earlier studies on attitudes towards sex selection, this study also considered not only the number of children, if any, of the respondents but also their gender and the preferred family size as well as sociodemographic variables. Consequently, this study could determine the possible influence of these factors on attitudes towards sex selection, especially the role of a gender imbalance.

In the interests of anonymity, the method for gathering responses deliberately avoided registering computer internet protocol (IP) addresses. Therefore, it is rather difficult to calculate valid response rates to this internet survey. Moreover, although the three forums differ in the people and issues they address (infertility or a further child), the method cannot exclude that some or even many women visited several forums. Therefore, it may have been a matter of chance as far as where the questionnaire was first detected and answered. This may explain why the answers from the three forums did not significantly differ, although the persons that these forums address are different in their family situation.

Although there was a satisfactory response rate, one must be cautious in drawing general conclusions from the data since the survey was nearly exclusively answered by women. However, it is known, from studies on childbearing decisions among US couples, that wife and husband influences equally affect a couple's childbearing intentions and that gender inequality, if any, may be irrelevant to childbearing decisions (Thomson, 1997). Accordingly, women's attitudes regarding preconception sex selection may have, at least, the same influence as male attitudes about family planning.

Interpretation of the study

In line with other studies from Europe, this internet sample revealed only limited interest in preconception sex selection. For example, in a Dutch non-specified internet sample, about 20% of the respondents would use 'simple' methods for sex selection purposes (Van Balen, 2007). An UK survey found that more than 70% of respondents had negative attitudes towards sex selection (Dahl *et al.*, 2003b). This is especially true of Germans for whom more than 80% considered such selection negatively (Dahl *et al.*, 2004; Dahl, 2005). Surveys from the USA report more open-mindedness toward sex selection with, for example, 52% of infertile women were willing to visit a sperm selection clinic (Jain *et al.*, 2005). In a US student sample, more than 20% would use sperm selection (Swetkis *et al.*, 2002). This contrasts with 90% of respondents to this survey who would not use sperm selection methods or were undecided and, even with the easiest, hypothetical situation of simply taking a pill to determine the gender of a child, less than 20% would use such a method. This may reflect a strong sensitivity in Germany to any form of selection, which may date back to eugenics and historical abuse of genetic tests in Nazi Germany (Hall *et al.*, 2006).

These results showed more women with a gender preference for their future child or a gender imbalance among existing children were interested in a preconception sex selection. The association between interest in sex selection and gender preference is more or less trivial. Interestingly though, this gender preference is not exclusively directed at having a boy; rather, a majority of respondents would prefer, if at all, a girl. This is in line with a preferential change for a daughter among women in the Western world (Van Balen, 2006); and even Spanish and Irish men have a slight preference, if at all, for a daughter. These views contrast to results from a study done in Pakistan, where Zubair *et al.* (2007) reported that even women prefer boys. Since the views expressed in this survey do not show a preference for males, preconception sex selection in Germany will not result in a gender imbalance or even reinforce sexism, an important criterion for Purdy (2007) to allow or ban sex selection. At the same time, there is no indication that a slight preference for girls, as expressed by the respondents, follows selection pressures according to the Trivers–Willard model, with the danger of fostering the development of a permanent underclass with a female-biased sex ratio (Cronk, 2007).

The association between gender imbalance – which was defined very extremely as a 75% excess of one sex – and interest in sex selection in this sample seems to be acceptable and is in line with recommendations of geneticists and genetic counsellors, given nearly 10 years ago, who would perform prenatal sex selection for a couple with four girls who want a boy (Wertz and Fletcher, 1998).

The vast majority of the respondents to this survey voted for a ban of any invasive form of sex selection, except for medical reasons. This is in accordance with a study conducted for the Human Fertilisation and Embryology Authority (HFEA) in Great Britain (Corrado and Collao, 2003). In this study, there was widespread agreement that sex selection should be regulated. More than two-thirds (68%) believed this, while 17% supported the opposing view. Furthermore, only 14% agreed that prospective parents should have the right to choose their child's sex, while 69%

opposed this. As could be expected, those who had a stronger gender preference for a future child more often expressed such a liberal attitude, be it for a boy or a girl.

It is noteworthy that 'classical factors' such as education and age of the respondents had nearly no influence on their attitudes towards preconception sex selection and its regulation. Only religion had a moderate influence towards a more liberal attitude. However, most respondents, whether Christians or not, would leave their future child's sex to chance.

Conclusion

Widely available services for preconception sex selection for non-medical reasons would be rather unlikely to cause a severe gender imbalance in Germany. If, in rare cases, women have a real preference for a child of a particular sex, they seem to favour a girl rather than a boy. Therefore, even a liberal regulation of preselection would obviously, in contrast to India and other Asian societies, not result in a threat to the female gender. However, it should be borne in mind that predominantly women participated in the present survey.

Acknowledgements

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Appendix: the questionnaire

New technologies in reproductive medicine – what do you think about them?

The Department of General Practice and the Department of Obstetrics and Gynaecology, University of Göttingen, are investigating how the general public judges new technologies in reproductive medicine.

Why this investigation?

With the help of newly developed technologies, couples will soon be able to choose the gender of their children as sperm can now be separated in the laboratory according to their sex chromosome. If a couple desire a son or a daughter, only the sperm which will lead to the birth of the appropriate sex will be used. Because not every treatment will result in pregnancy, couples have to expect on average 3 to 5 treatment cycles. Each of these treatments will cost approximately € 2,500 – and have to be covered by the patients.

At present, this technique is allowed in Germany only to prevent sex-linked, hereditary diseases. Presumably, it will take 2 to 3 more years to investigate this new technology of preconceptional

gender selection for safety and reliability. This gives society enough time to evaluate if, and under what conditions, this new technology should be offered to patients. Consequently, this is why we would like to know your opinion about the following issues.

We ask you to answer the following questions which will not require more than 5 min. Your answers will be kept strictly confidential. There will be no storage of personal data. Regardless of whether you choose to fill out the questionnaire or not, your question to the expert forum will be answered anyway. The experts – or any other person – will not find out if, or what, you have answered.

Questions

1. If the technique, described above, were to be allowed in Germany, would you like to select the gender of your child even with the risk of several treatment cycles and the respective costs?

YES (Skip to question 3) NO I DON'T KNOW STILL UNDECIDED

2. Suppose there is only one treatment cycle necessary with costs to be covered by insurance, would you use the described possibility of sex selection?

YES NO I DON'T KNOW STILL UNDECIDED

3. Imagine there is a medical drug which allows you to select the gender of your child by yourself. Instead of going to a clinic, you could simply take a red pill for a girl or a blue pill for a boy before sexual intercourse. Would you make use of this possibility?

YES NO I DON'T KNOW STILL UNDECIDED

4. In our society we have three different solutions at hand to regulate the use of this new technology for gender selection:

Solution 1: This new technology should be available to all couples.

Solution 2: This new technology should be available only after a detailed hearing of the couple. A decision is then made for each case after a thorough evaluation of the couple's situation.

Solution 3: The use of this new technology should be prosecuted. Doctors contravening these regulations must reckon with a prison sentence or high penalty and the loss of their licence.

From your point of view, for which of these solutions should our society decide?

SOLUTION 1 SOLUTION 2 SOLUTION 3 I DON'T KNOW

5. In case you decide for a child in the near future, which gender would you prefer?

BOY GIRL I DON'T KNOW STILL UNDECIDED I HAVE NO PREFERENCE

6. For me, the most perfect size of a family includes

– one child: continue with question 7

– two children: skip to question 8

– three children: skip to question 9

– four children and more: skip to question 10

– I don't care about the number: skip to question 11

7. Preferably this child should be

– a boy

– a girl

– I don't care about the gender

8. Preferably both children should be

– one boy and one girl

– both girls

- both boys
- I don't care about the gender
- 9. Preferably these three children should be
 - predominantly boys
 - predominantly girls
 - I don't care about the gender
- 10. These four or more children should include
 - at least two boys
 - at least two girls
 - I don't care about the gender
- 11. This child or among these children there should be
 - at least one boy
 - at least one girl
 - I don't care about the gender
- 12. Your age
 below 18 years 18–25 years 26–30 years 31–35 years 36–40 years above 40 years
- 13. Your sex
 Female Male
- 14. The highest level of qualifications attained
 no graduation secondary school junior high high school diploma technical college university
- 15. Religion
 Catholic Protestant Muslim others none
- 16. Do you already have children?
 Yes No
- 17. If you already have children, what is their gender?
 I have boys and girls.

Sincere thanks for your support!

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