

Commentary

Procreative liberty: the case for preconception sex selection

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Abstract

Preconception sex selection for non-medical reasons raises serious moral, legal and social issues. The main concerns include the threat of a sex ratio distortion due to a common preference for boys over girls, the charge of sexism, the danger of reinforcing gender stereotypical behaviour in sex selected children, and the fear of a slippery slope towards creating designer babies. This paper endeavours to show that none of the objections to preconception sex selection is conclusive and that there is no justification for denying parents the right to choose the sex of their prospective children.

Keywords: gender preferences, preconception sex selection, procreative liberty, sex ratio distortion

Introduction

Since ancient times, couples have been trying to influence the sex of their children. Following a suggestion by Aristotle, they made love in the north wind to ensure the birth of a son and in the south wind to ensure the birth of a daughter. According to a proposal made by Hippocrates, men tied a string around their left testicle to make a boy and around the right one to make a girl. In medieval times the proposed formula became even more bizarre, when alchemists recommended drinking the blood of a lion and then having intercourse under a full moon to sire a son (Kaplan and Tong, 1994).

Choosing the gender of children is no longer a fantasy. However, the prospect of a reliable method for sex selection has not only raised old hopes, but also new fears. Many people are concerned that it may lead to an imbalance of the sexes, most likely a preponderance of males. Such an overabundance of men and a shortage of women, some sociologists have predicted, will invariably cause an enormous rise in enforced celibacy, polyandry, homosexuality, prostitution, rape and other sexual crimes (Vines, 1993). Many feminists are similarly alarmed. Some have called the deliberate choice of a male child 'the original sexist sin' (Powledge, 1981). Others even went so far as to warn us of an impending 'gynocide' (Raymond, 1993). Are these fears justified? How well are they supported by empirical evidence? Most of all: does sex selection call for a legal ban? The current state of the art is reviewed below.

Types of sex selection

Currently, there are three different types of sex selection: sex-selective abortion, sex-selective embryo transfer and sex-selective insemination.

Sex-selective abortion has been made possible by prenatal diagnosis. Amniocentesis, chorionic villous sampling and ultrasound not only allow the detection of fetal abnormalities,

but also the determination of fetal sex. In principle, women may use the information to decide whether or not to terminate a pregnancy if the fetus is not of the desired sex. Using prenatal diagnosis for the sole purpose of sex-selective abortions is, however, very rare in Western societies. For example, a follow-up study of 578 patients having prenatal diagnosis at one Melbourne centre found that none of the women had a termination because of the sex of the fetus (Robinson *et al.*, 1991). Going through the traumatizing experience of an abortion is usually seen as too high a price for a child of a particular sex.

Sex-selective embryo transfer has been facilitated by the arrival of preimplantation genetic diagnosis (PGD) (Kuliev and Verlinsky, 2002). PGD is an alternative to prenatal diagnosis (PND). It offers couples who are at risk of transmitting a genetic defect and who are undergoing IVF the opportunity to have their embryos screened before they are transferred into the uterus. Since only those embryos that are free of the abnormality concerned will qualify for transfer to the uterus, PGD reduces the risk of bearing a child with a genetic disease and helps to avoid the difficult decision whether or not to terminate a pregnancy. Like prenatal diagnosis, PGD can also be used to determine the sex of the embryos. Thus, women may request transfer only of those embryos that are of the desired sex.

Sex-selective insemination has become possible with the recent development of a sperm separation technique called MicroSort Gender Selection (Genetics and IVF Institute, Fairfax, VA, USA). MicroSort relies on an identifiable difference between spermatozoa bearing X and Y chromosomes. X- and Y-bearing sperm cells differ in their total DNA content by 2.8%, because of the larger size of the X chromosome. A flow cytometric separation yields an average of 92% X-bearing and 73% Y-bearing sperm populations (Vidal, 1998). The separated sperm populations can then be used for intrauterine insemination (IUI). A separation purity of 92% for X-enriched sperm populations means that there is

now a six times greater chance of having a girl rather than a boy.

As just described, there is as yet no convenient method for sex selection. Sex-selective abortion requires the termination of a pregnancy, sex-selective embryo transfer necessitates IVF treatment, and sex-selective insemination is still too ineffective. However, since it is very likely that MicroSort is soon to be refined, sex-selective insemination is certainly the technology of the future. As soon as this sperm separation technique develops into a safe and reliable procedure, sex selection may become more attractive to many couples. The only thing that would be needed to have a child of the preferred sex would be a visit to a clinic for IUD (Stern *et al.*, 2002).

Scientific interest in the development of a sperm separation technique has mainly arisen from the desire to prevent X-linked disorders. There are more than 500 sex-linked diseases in humans, including haemophilia, Duchenne's muscular dystrophy, Lesch-Nyhan syndrome and Tay-Sachs disease (McKusick, 1998). In most cases, the X-linked disorders are only expressed in the male offspring of carrier mothers. Thus, women who are carriers of a severe sex-linked disease often choose to have no children at all or to terminate their pregnancy if prenatal testing reveals the fetus to be a boy. A reliable sperm separation technique would allow for the exclusive conception of unaffected girls.

Sex selection for the prevention of X-linked disorders is generally regarded as morally acceptable. The ethical debate, therefore, focuses almost entirely on the so-called 'sex selection for non-medical reasons'.

The presumption in favour of liberty

Western societies are pluralistic societies. They consist of individuals with different concepts of the meaning of life, of the existence of God, and of the ways to pursue happiness. Consequently, in modern societies there will always be irresolvable differences over what is the best course for human beings. If a government tries to impose a particular morality upon its citizens, social conflict is inevitable. To avoid social tension and to deal with the moral pluralism of its citizens, the political system of modern societies ought to be based upon a 'presumption in favour of liberty': Each citizen should have the right to live his life as he chooses, so long as he does not infringe upon the rights of others. The state may interfere with the free choices of its citizens only to prevent harm to others.

The so-called 'harm principal', which was developed by Wilhelm von Humboldt and John Stuart Mill, has three important implications. Firstly, the burden of proof is always on those who opt for a legal prohibition of a particular action. It is they who must show that the action in question is going to harm others. Secondly, the evidence for the harm to occur has to be clear and persuasive. It must not be based upon highly speculative sociological or psychological assumptions. Thirdly, the mere fact that an action may be seen by some as contrary to their moral or religious beliefs does not suffice for a legal prohibition. The purpose of government is not the enforcement of morality, but the prevention of harm to others (Epstein, 1998).

With this in mind, this paper now discusses the objections to sex selection and asks whether or not sex selection violates the principle of harm.

Will sex selection distort the natural sex ratio?

As already indicated, the main objection to sex selection is that it will distort the natural sex ratio and lead to a gender imbalance in Western society, as has occurred in countries such as India, China, and Korea. However, whether or not a sex ratio imbalance poses a real threat to Western societies is, of course, an empirical question that cannot be answered by mere intuition, but only by scientific evidence. For a gender imbalance to happen, at least two conditions have to be met. First, there must be a strong preference for children of a particular sex, and second there must be a considerable demand for a service for sex selection. To ascertain whether or not these two preconditions are met, a representative survey on preconception sex selection in Germany has been conducted (Dahl *et al.*, 2003).

Using a randomized, computer-assisted telephone interview tool provided by FORSA (one of the leading German Institutes for Social Research and Statistical Analysis), 1094 men and women between the age of 18 to 45 years were asked five questions. First, participants were asked if, given a choice, they would want their first-born child to be male or female. Fourteen per cent of respondents wanted their first child to be a boy, 10% wanted their first child to be a girl, and a majority of 76% stated that they do not care about the sex of their first-born child.

Provided they wanted more than just one child, participants were asked, if, given a choice, they would want only boys, only girls, more boys than girls, more girls than boys, as many girls as boys, or whether the sex of their children would not matter to them at all. One per cent preferred only boys, 1% only girls, 4% more boys than girls, 3% more girls than boys, 30% wanted to have as many girls as boys and 58% stated that the sex of their children was of no importance.

Participants were then asked if they could imagine selecting the sex of their children by using MicroSort. In order to make an informed decision, they were told what this technology entails. Thus participants were informed that they would have to visit a Centre for Reproductive Medicine, to provide a sperm sample for separation via flow cytometry, to undergo an average of three to five cycles of intrauterine insemination, and to pay a fee of approximately €2000 per attempt. Whereas 6% of respondents could imagine taking advantage of MicroSort, 92% found it to be out of the question.

To establish whether the 92% who declined using MicroSort were in fact not interested in selecting the sex of their children or simply found the procedure to be too demanding, they were asked if they could imagine making use of this technology if it required only one cycle of intrauterine insemination and if it were covered by their health insurance. Given these less demanding circumstances, 5% were prepared to consider utilizing MicroSort, while 94% still rejected the idea of using it.

Finally, the participants were asked to imagine there was a medication to select the sex of their children. Rather than visiting a Centre for Reproductive Medicine, they could simply take a 'pink pill' to ensure the birth of a girl, or a 'blue pill' to ensure the birth of a boy. While 8% were interested in using such medication, 90% of respondents did want to do so.

According to the survey, there was no evidence of a strong preference for children of a particular sex and only a modest interest in preconception sex selection for non-medical reasons in Germany. If this holds true, a freely available service for sex selection is likely to have only a negligible societal impact.

The results of the survey are consistent with the results of other similar surveys. For example, in the course of the German General Social Survey 2000 (called ALLBUS; Terwey, 2000), 406 men and women between the ages of 18 and 45 years were asked about their gender preferences. Nine per cent said they wanted to have more boys than girls, 9% said they wanted to have more girls than boys, 47% said they wanted to have an equal number of boys and girls, and 35% said that they simply did not care about the sex of their children (Terwey, 2000).

While the German General Social Survey supports the results on gender preferences, a recent survey by the German Institute for Demoscopy supports the results on interest in sex selection. In its survey, entitled 'Bodycheck', 1044 men and women aged 16 years and older were asked about their attitudes towards the selection of offspring traits such as intelligence, sex, physical prowess, artistic talent, height, hair colour and eye colour. While 80% disapproved of the idea of creating 'designer babies', 12% approved of it, and 8% were undecided. Those receptive to the idea of choosing their offspring traits and those undecided (20% of the total sample, $n = 216$) were then asked which characteristics of their prospective children they would like to preselect. Forty-five per cent wanted to be able to choose their children's intelligence, 28% their sex, 17% their physical prowess, 12% artistic talent, 13% height, 4% hair colour, and 4% eye colour. The 28% who fancied the idea of selecting their offspring's sex constituted 6% of the entire sample, exactly as in the survey mentioned above (Institute for Demoscopy, 2002).

Another way to determine gender preferences is based on surveys among pregnant women. For example, in a UK survey, conducted at the Centre for Family Research of the University of Cambridge, 2359 pregnant women have been asked 'Do you mind what sex your baby is?' Response options were 'prefer a boy', 'quite like a boy', 'quite like a girl', 'prefer a girl' and 'no preference'. Six per cent preferred a boy, 6% preferred a girl, 12% quite liked a boy, 19% quite liked a girl, and 58% said they had no preference for a child of a particular sex (Statham *et al.*, 1993).

Similarly, in a Canadian survey, 234 first trimester pregnant women who had not yet had an ultrasound examination were asked 'What is your preference for the sex of your future child?'. Participants had to choose among five response options: 'I strongly prefer a boy', 'I prefer a boy', 'I have no preference', 'I prefer a girl', 'I strongly prefer a girl'. As there were no differences between options 1 and 2 and options 4 and 5, responses were grouped together into three categories. While 39% claimed to have no preference, 22% preferred a

boy and 39% preferred a girl (Marleau *et al.*, 1996).

Perhaps even more instructive than surveys are data published by so-called 'gender clinics'. Worldwide, there are about 75 centres that offer some method of sperm sorting followed by intrauterine insemination. According to The London Gender Clinic, within its first 18 months it had been consulted by only 809 couples. Of the 809 couples, 468 were of Indian origin, 259 European, 29 Chinese and the remaining 55 of other ethnic origins. The majority of European couples were seeking sex selection to 'balance their family', i.e. they already had two or three children of the same sex and wanted to have at least one child of the opposite sex: 'Our study shows that well over 95% of couples came for this sole purpose. They are predominantly men and women in their mid-30s nearing the end of their reproductive life and having on average 2-3 children of the same sex' (Liu and Rose, 1995). Similarly, the Gender Clinic of New York City reported that all of the 120 American couples seeking sex selection were doing so for family balancing purposes: 'They selected girls when they had boys at home and boys when there were only girls' (Khatamee *et al.*, 1989). Likewise, Gametrics Limited in Alzada, Montana, which detailed the collective experience of 65 Gender Clinics says: 'The overwhelming majority had two or more children of the same sex and desired a child of the opposite sex' (Beerink *et al.*, 1993). Finally, a report from the Genetics and IVF Institute in Fairfax, Virginia, which is currently conducting a clinical trial on the safety and efficacy of MicroSort, states: 'The majority of couples (90.5%) in our study were seeking gender preselection for family balancing purposes, were in their mid-thirties, had two or three children of the same sex, and desired only one more child' (Fugger *et al.*, 1998).

Provided the data from the USA, the UK, Canada and Germany are applicable to other industrialized nations, it can only be concluded that the widespread fear of a sex ratio distortion is unjustified. The available evidence suggests that a readily available service for preconception sex selection will have only a negligible societal impact, and is unlikely to cause a severe gender imbalance. At least in Western societies there is no indication of a strong preference for either sex. What couples interested in gender selection are longing for is simply a balanced family.

The evident desire for a balanced family not only undermines the objections of those who prophesy disastrous social consequences such as enforced celibacy and increased sexual violence, it also debunks the far-fetched idea of an impending 'gynocide', since all these terrifying visions presuppose at least a significant preference for sons, not to mention considerable changes in the Western political system.

The situation in India

Even more untenable is the claim of some feminist writers who assert that a legalization of sex selection will invariably lead to the same disturbing state of affairs as in India (Holmes, 1985). As is well known, female feticide and female infanticide are widespread in India. All over the country, clinics for sex determination mushroomed which offer pregnant women ultrasonography and selective abortions for a charge of 500 rupees. For example, between 1982 and 1987, the number of

these clinics increased from fewer than 10 to 248 in Bombay alone. According to a 1998 study, of 8000 elective abortions, 7997 were abortions of female fetuses. The common practice of sex-selective abortions has led to a serious imbalance of the sexes. The proportion of females to males has dropped from 935:1000 in 1981 to 927:1000 in 1991. In certain communities of the Northern state of Rajasthan the sex ratio has plummeted to 600:1000, one of the lowest in the world (Kusum, 1993).

Because of public protestations and determined campaigns by action groups such as the Forum Against Sex Determination and Sex Preselection (FASDSP), on January 1, 1996, the Indian parliament finally took legal action. The Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act bans sex determination for non-medical reasons and imposes penalties on doctors who reveal the sex of the fetus. Doctors who violate the law are fined up to 50,000 rupees and face jail terms of up to 5 years. Practitioners convicted of this charge twice may permanently lose their professional license (Kumar, 1996).

Despite these legislative measures, however, sex-selective abortions continue. Since there is consensus that the law has failed, the Indian Medical Association as well as the Medical Council of India have recently threatened that they will launch independent investigations against doctors suspected of being involved in sex determinations for selective abortions (Mudur, 1999, 2002).

There are religious as well as economic reasons for why so many Indians prefer boys over girls. According to Hinduism, a man who has failed to sire a son cannot achieve salvation. Only a male descendant can perform the last funeral rites to ensure the redemption of the departed soul (Bumiller, 1990). Furthermore, Indian custom has it that the parents of a girl are expected to pay a dowry for her marriage. The dowry payments are considerable. They extend from 25,000 up to 500,000 rupees. This corresponds to the average income for 3 years. To marry off one or more daughters is therefore a huge financial burden. Since boys may mean prosperity, but girls may mean poverty, Indian couples have a strong incentive for sex-selective abortions. Clinics for sex determination have taken advantage of this dilemma when they advertised their services with the slogan 'Invest 500 rupees now, save 50,000 rupees later' (Kusum, 1993).

As should be sufficiently clear from all this, the situation in India cannot be compared with that of Western nations. To argue that the legalization of sex selection in countries such as Germany, the UK or the US will invariably lead to the same state of affairs as in India is therefore wildly inappropriate. To go so far as Benagiano and Bianchi (1999) recently did, and to call for a global ban on sex selection because it may be misused in other parts of the world, is similarly inadequate. The people of one country cannot be punished for the crimes committed by another.

Other objections

Some people fear that sex selection is the first step down a road that will lead to the creation of 'designer babies'. Once parents are allowed to choose the gender of their children, they will soon be allowed to choose their eye colour, their height or

their intelligence. However, these so-called 'slippery slope' arguments need not cause too much concern, as it is perfectly possible to draw a legal line permitting some forms of selection and prohibiting others. Thus, if selection for sex is morally acceptable but selection for, say, intelligence is not, the former can be allowed and the latter not.

As already noted, some writers think that sex selection is 'inherently sexist'. For example, Tabitha Powledge (1981) argues that 'we should not choose the sexes of our children because to do so is one of the most stupendously sexist acts in which it is possible to engage. It is the original sexist sin'. To do so, she continues, is deeply wrong because it makes 'the most basic judgment about the worth of a human being rest first and foremost on its sex'. However, this argument is deeply flawed. It is simply false that all people who would like to choose the gender of their children are motivated by the sexist belief that one sex is more valuable than the other. As has been seen, almost all couples seeking sex selection are simply motivated by the desire to have at least one child of each sex. If this desire is based on any beliefs at all, it is based on the quite defensible assumption that raising a girl is different from raising a boy, but certainly not on the belief that one sex is 'superior' to the other.

Another constantly recurring objection to sex selection is that choosing the gender of children is to 'play God'. This religious objection has been made to all kinds of medical innovations. For example, using chloroform to relieve the pain of childbirth was considered contrary to the will of God as it avoided the 'primeval curse on woman'. Similarly, the use of inoculations was opposed with sermons preaching that diseases are 'sent by Providence' for the punishment of sin and it is wrong of man to escape from such divine retribution. Since even fundamentalist Christians ceased to regard the alleviation of pain and the curing of diseases as morally impermissible, it is hard to take this objection seriously. What was once seen as 'playing God' is now seen as acceptable medical practice. More importantly, the objection that sex selection interferes with the 'divine purpose' is an explicit religious claim. As modern pluralistic societies are based on a separation of state and church, no government is entitled to pass a law to enforce compliance with a specific religion. People who consider the option of sex selection as contrary to their religious belief are free to refrain from it, but they are not permitted to use the law to impose their theology upon all those who do not share their religious world view.

Some people are opposed to sex selection because they have the feeling it is somehow 'unnatural'. Like the objection that choosing the gender of children is playing God, the claim that sex selection is not natural most often expresses an intuitive reaction rather than a clearly reasoned moral position. That a particular human action is unnatural in no way implies that it is morally wrong. To transplant a heart to save a human life is certainly unnatural, but is it for that reason immoral? Surely not! Thus, if one has to decide whether an action is morally right or wrong, the issue cannot be decided by asking whether it is natural or unnatural.

Conclusion

Since it cannot be established that sex selection would cause any harm to others, a legal ban seems ethically unjustified. However, that sex selection ought not to be banned does not preclude regulating its practice. For example, to limit sex selection services to licensed centres subject to monitoring by health authorities seems entirely appropriate. This would not only guarantee high scientific standards and high quality professional care, but it would also enable detailed research on possible demographic consequences and thus allow action if, contrary to expectations, significant imbalances were to develop.

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