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Preimplantation Genetic Diagnosis for Social Sex Selection: Should Parental Autonomy be Limited?

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ABSTRACT

The use of Preimplantation Genetic Diagnosis (PGD) to select the sex of unborn children for social reasons raises concerns on its implications on the child born following the technique. Other than concerns on physical health, critics have further highlighted the potential consequences of the practice on the psychological state of the child. In defending this claim, the notion of 'unconditional parental love' has been advocated by the opponents of the technique to argue that parents should not be permitted to use PGD to select the sex of their child for social reasons. This paper thus aims to analyse the alleged adverse consequences of allowing parents to use PGD for social sex selection in order to determine whether such claims are sufficient to override parental autonomy. To achieve this aim, the alleged risks of PGD for social sex selection to the child's physical and psychological welfare are critically examined. It is argued that such concerns are baseless allegations that are not supported with sufficient evidence to deny parents the autonomy to select the sex of their child.

Keywords: Bioethics, preimplantation genetic diagnosis, parental autonomy

INTRODUCTION

Preimplantation Genetic Diagnosis for Social Sex Selection (PGD for SSS) has been a subject of criticism on various grounds. One of the concerns raised is the potential harm that the technique may cause to the child's physical and psychological welfare. These allegations trigger the calls to prohibit PGD for SSS on the grounds of protecting the welfare of children born from it and thus defeat the parental autonomy to procreate (The President's Council on Bioethics, 2002; King, 2003). A crucial issue, therefore, arises on the extent to which parental autonomy to use PGD for SSS to procreate a child of their desired sex should be respected. This forms the crux of this paper where the concerns about the potential harm of the PGD for SSS on the child to be born are critically analysed in order to determine whether they can sufficiently outweigh the parental autonomy to use the technique to produce a child of their desired sex. First, however, the science of PGD is briefly discussed.

PGD FOR SSS: THE STATE OF THE ART

PGD or Preimplantation Genetic Diagnosis requires the usage of two techniques; In Vitro Fertilisation (IVF) and genetic testing (Taylor, 2008). Embryos are fertilised *in vitro* and screened, normally three days after fertilisation. Selected embryos are then implanted into the uterus (Taylor, 2008). PGD is primarily used to screen embryos for genetic diseases, to find embryos with tissue-match for organ/tissue

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transplantation and to identify the sex of the embryos (Braude *et al*., 2002). The use of PGD to select the sex of embryos is usually performed to avoid the transmission of sex-linked diseases which affect male children, such as Haemophilia and Dunchenne muscular dystrophy (Chung, 1999). The sex-linked diseases are normally transmitted to the male child through a mother who is a carrier that passes the defective X chromosome to her son (Tasca & McClure, 1998). Using the genetic analysis method, the Fluorescence *in situ* Hybridisation (FISH), PGD determines the sex of embryos produced via IVF, and allows for female embryos to be selected for implantation in order to avoid the passing of these diseases to male children (Chung, 1999). Its use can also be extended to the non-medical or social reasons, where a couple wishes to conceive a male or female child for reasons other than avoiding the transmission of sex-linked diseases such as to balance the family or for cultural or religious reasons that require the birth of a child of a particular sex. However, this raises concerns about the acceptability of performing the PGD for social sex selection such as on the safety of the technique on the child's physical and psychological welfare which is explored in this paper.

PHYSICAL WELFARE OF CHILDREN: HEALTH RISKS TO CHILDREN BORN FROM PGD FOR SSS

Concerns over the welfare of the child to be born following PGD for SSS include the potential health risks as a result of being born through the procedure (Larcher, 2007). This concern arises because the procedure involves producing several embryos through IVF and extracting the cells for the purpose of screening for the X or Y chromosome which determines the sex of the embryo (Flinter, 2001). There is a possibility for the IVF to increase the risk of producing defective babies (Hansen, 2002), and there is also cause for concern on the implications of embryo biopsy for the child born through the technique (Genetics and Public Policy Centre, 2004).

Nevertheless, concerns on the potential adverse effects of IVF on the child born cannot be the basis for prohibiting the PGD for SSS. If IVF has been accepted and legally permissible for infertile couples, despite the risks it poses, a qualitative difference needs to exist for a different stance to be adopted regarding PGD for SSS (Snelling, 2008). For example, a study conducted by the Centres for Disease Control and Prevention has shown that babies born following IVF are highly likely to suffer from health problems and "genetic flaws" (BBC, 2009; Leake, 2010). Thus, prohibiting PGD for SSS on the grounds of the risk to the health of the child born following IVF cannot be defended without a similar prohibition being placed on the IVF. Although the motivations behind the use of IVF for infertile couples and its use combined with PGD for SSS are different where the former is undertaken to produce a pregnancy that would not otherwise occur whereas with the latter the IVF is only used to enable the subsequent use of PGD for SSS, the crucial point is the risks involved in the IVF are within a magnitude that can be consented to by individuals. As explained by the United Kingdom's House of Commons Science and Technology Committee (2005):

> *"In terms of assisted reproduction, it could be argued that the drugs used to stimulate egg production and the risks associated with multiple pregnancies are such that they justify state regulation. While these risks are real and significant, however, they do not obviously fall beyond the level of risk which people are legally permitted to assume. For example, a valid consent to surgery such as heart transplantation (which carries a significant risk of harm) or to involvement in non-therapeutic research projects, is regarded in law as valid so long as it has been taken by a competent individual." (House of Commons, Science and Technology Committee, Human Reproductive*

Technologies and the Law, Fifth Report of Session 2004-05, vol. I (London: The Stationary Office Limited, 2005), p. 20, para 40. Emphasis added).

Similarly, if the autonomy to opt for other 'non-compelling' medical procedures such as cosmetic or hormone replacement therapy is respected, the same attitude should be accorded to individuals exercising their autonomy to use PGD for SSS. Studies on hormone replacement therapy have shown that it can increase the risk of breast cancer (Ross *et al*., 2000), but women are, nevertheless, allowed to opt for the treatment. Cosmetic surgery such as breast enlargement is also allowed despite the risks it carries, because it has been argued that, "patient autonomy dictates that the individual may willingly undergo risks for the attainment of their perceived benefit from such procedures" (Klipstein, 2005, p. 1352). Indeed:

"The state will only go so far to protect people from themselves, and will intervene only when the risk is deemed unacceptably high or grave. The risks of assisted reproduction, if explained to and understood by, the individual concerned seem to sit firmly within those which can be consented to in law" (House of Commons Science and Technology Committee, 2005).

Moreover, scientific evidence has been advanced on the safety of the procedure of PGD, including when used to determine the sex of the embryos. The European Society of Human Reproduction and Embryology (The ESHRE Task Force, 2003) has reported that there is no evidence indicated that the process of embryo biopsy required in PGD affects the health of the embryo. In addition, it has been reported that there is no evidence pointing that PGD babies are more likely to encounter neonatal problems or defects than babies conceived without assistance (The ESHRE Task Force, 2003). It was also reported that in 2004, more than 1000 healthy babies were born using PGD (Verlinsky *et al.,* 2004). In any event, even if the embryo is damaged from the process of biopsy, it will be "non-viable," and unsuitable for implantation (Human Fertilisation and Embryology Authority, 2004), and thus will not result in a child that is affected by the damage (Deech & Smajdor, 2007). Concerns over the health of the child to be born from PGD for SSS, therefore, are insufficient to justify overriding parental autonomy in using the technique to conceive a child of their desired sex.

Furthermore, the clinical risks involved in the use of PGD for sex selection on medical and social grounds are the same, as both uses involve the same methods and procedure, and as such:

"Talking up the risks of PGD and sperm sorting in order to justify its prohibition in social sex selection, could undermine patient and public confidence in those techniques when they are performed for medical sex selection (or in the case of PGD, for the detection of single gene disorders (Tizzard, 2004).

Given this, concerns over the safety of PGD on the physical health of the child born should be dealt with by scientific evidence, and by obtaining the informed consent of the couple, not by a total prohibition of the technique (Savulescu, 1999). This is because:

"We enter a dangerous realm when we regulate so personal and intimate an aspect of our lives as reproduction because of fuzzy claims about sexism or nebulous fears for the health of yet-to-be conceived children" (Stock, 2001).

PSYCHOLOGICAL WELFARE OF CHILDREN: THE IMPLICATIONS OF PGD FOR SSS ON PARENTAL LOVE

Concerns have also been raised about the psychological welfare of the child as possible grounds for State intervention in restricting

the parental autonomy to procreate using PGD (Roberts, 2002). This concern stems from the argument propounded by the opponents of the procedure that the practice endangers the unconditional parental love that parents should have for their offspring, and that this may have damaging consequences on children (The President's Council on Bioethics, 2002; King, 2003). It has been argued that, traditionally, parental love has been assumed to be "unconditional" where the purpose of having children is for parents to love and care for them regardless of any traits including his/her sex (Stankovic, 2005). For instance:

> *"Children are not made but begotten. By this we mean that children are the issue of our love, not the product of our wills. A man and a woman do not produce or choose a particular child, as they might buy a particular brand of soap; rather they stand in relation to their child as recipients of gifts" (The President's Council on Bioethics, 2002).*

Allowing parents to select the sex of their children grants them a sense of control over the reproduction process, and hence alters the traditional concept of parenthood where parents are usually satisfied with any child that is born to them (Nuffield Council on Bioethics, 2002). This, therefore, fundamentally challenges the traditional notion of procreation and parenthood by apparently rendering parental love conditional upon the child fulfilling the desire of the parents (The President's Council on Bioethics, 2002, p. 759). As King (2003) argues:

> *"By choosing the characteristics of our children, we turn reproduction into just another consumer experience and this degrades its profound existential significance. Because babies are human beings, not things, it is critical that much is left to chance in their process of coming into being. The act of choosing tends to turn them into just another human-designed consumer object. When we choose or design our children, the relationship becomes one of designer and object, where the latter is inevitably in a subordinate position."*

Selecting the sex of one's child is, therefore, claimed to be morally wrong because, "children should be accepted and loved unconditionally" (British Medical Association, 2004). This apprehension over the practice of PGD for SSS is also shared by members of the public, as is evident from the public consultation exercise held in the United Kingdom in 2003. Here, PGD for SSS was criticised by the members of the public surveyed for treating the child as a means to an end that "…interferes with the unconditional love owed by parents to their children" (Human Fertilisation Embryology Authority, 2003). Suzie Leather stated (when she was the chair of the UK Human Fertilisation and Embryology Authority) that, "the public view was really that great value should be put on the unconditional nature of parental love (BBC, 2008)." There is an intuitive belief held by the public that parents should simply "…accept any child that comes along," and ought not to "pick and choose" their children (Herrisone-Kelly, 2007). An issue thus arises as to whether this intuition is well-founded. On what basis can the intuition or notion that parents should accept any child that comes along and not choose the characteristics of their child such as its sex, be defended? More importantly, can this claim of violation of unconditional parental love undermine the parental autonomy in using the PGD for SSS?

QUESTIONING THE NEED FOR 'UNCONDITIONAL' PARENTAL LOVE

The notion of unconditional parental love suggests that parental love has to be based on the mere fact that the child is biologically theirs, and parents cannot choose any trait of their child such as its sex, as the basis of parenting. However, it is questionable whether and why parental love has to be of this nature. Selecting

the traits of children *prior* to birth implies that the love that parents have for their child is not unconditional, and is instead dependent upon the child fulfilling the chosen trait (Watt, 2004). Indeed, Watt (2004) states that:

> *"Central to the notion of good parenthood which many of us share is unconditional acceptance. Parents who make their love and care conditional on their child displaying certain features are seen as unparental in the way they behave."*

However, merely taking steps to actualise their preference of a child's sex is insufficient to accuse these parents of not having unconditional love towards their child because what matters is the unconditional acceptance shown by parents to the child *after* he/she is born *regardless* of his/her characteristics such as sex. Unconditional parental love does not mean that parents should merely accept any child they engender, and should not take steps to select any particular trait that they prefer in a child. Parental love need not be 'unconditional' in the sense that parents should not be precluded from selecting the sex of children, because there is no reason to suggest that parents who select the sex of their child only love the child if the child has the desired sex, and will not otherwise do so. Supporting this argument, Davis (2008) makes the following analogy:

> *"Many parents use infant safety seats to protect an actual child, and many pregnant women avoid alcohol to protect a potential child. There is no reason to think that making the possibility more remote makes it more likely that, if C had trait U, you would not love C as much."*

Love is still unconditional if parents accept and love a child once born, even if it does not exhibit their chosen traits. Taking Davis's (2008) analogy again:

> *"Even now the odds that your next child will become severely brain-damaged due to injury, or a quadriplegic in a car accident, are extremely remote. However, parents would not be less inclined to continue loving their child simply because the undesirable condition was unlikely before it materialized."*

Moreover, before the advent of modern sex selection techniques such as PGD, attempts to conceive children of a preferred sex by various traditional means, such as timing, and the position adopted during sexual intercourse was not uncommon. Yet, parents who practised these techniques were not accused of lacking in genuine unconditional love for their child. Given this, "does that mean that the moral judgment or lack of justification of a social and medical attitude depends more upon its efficiency than on the underlying principle?" (Sureau, 1999).

There is nothing inherently wrong with parents attempting to select the sex of their child prior to birth through PGD because:

> *"If it's not wrong to wish for a bonny, bouncing, brown-eyed baby girl, why or how would it become wrong if we had the technology, the choice, to play fairy godmother to ourselves and grant our wishes" (Harris, 2007).*

Furthermore, if the use of technologies such as PGD, ultrasound, or amniocentesis to ensure the birth of a healthy baby is accepted, and managed to escape the claim of the breach of unconditional parental love, it is difficult to defend the discriminatory attitude expressed against the practice of selecting the sex of children through PGD. As stipulated by Green (2008):

> *"[T]hese fears underestimate the power of parental love. The panels of prenatal tests that are commonly used today do not seem to have eroded the*

quality of parenting. Parents seeking an able child love a disabled one."

Thus, there is no basis upon which to question the parental love of those who select the sex of their child, because there is no reason to believe that parents who do so only love their child for his/her sex. As such, McDougall's attempt at defending the traditional notion of unconditional parental love is refuted. Arguing from a virtue ethics perspective, a virtuous parent, according to her, should exhibit traits that are conducive to the "flourishing of the child" (McDougall, 2005). Included in these virtuous traits is the "trait of acceptance," which, according to McDougall, relates to the requirement for parents to accept any child that is born to them due to the unpredictable nature of children's characteristics. In her view, without this trait, parents would cease to love a child who, for example, was born healthy but later developed a disease or a child whose hair was brown at birth but subsequently darkened (McDougall, 2005). McDougall offers the following hypothetical scenario in support of her view:

"Reflection indicates that sex is indeed a characteristic that falls within the scope of the parental virtue of acceptance. Imagine, for example, that there exists a particular type of bacterial infection that results in a complete change in a child's sex. On infection, girls become normal boys and boys become normal girls...It seems intuitive that parents who rejected their daughter once she became a son, or vice versa, would act wrongly, just as parents who rejected their child once some other medical condition had radically affected his or her characteristics act similarly wrong" (McDougall, 2005).

I concur with McDougal's hypothesis that good or virtuous parents should have the "trait of acceptance" which is essential in securing children's development, but question whether this trait of acceptance should preclude parents from having preferences about their child's characteristics, and in turn forbid them from acting upon those preferences before the child is born. It is conceded that parental love towards a child should not cease upon any changes in the child's characteristics or features after the child is born, as described in the examples given by McDougall above. However, that should not necessarily prevent parents from choosing the traits of their child before he/she is born. Rejecting a child due to a change in his/her attributes after the child is born cannot be equated with choosing not to have a child with the undesired attributes in the first place. It is erroneous to assume that just because it is wrong for parents to stop loving their child, for example, once the sex of a child changes due to an illness, or when a child initially born healthy later develops a serious disease, as in the examples cited by McDougall, it is equally wrong for parents to attempt to prevent the undesired characteristics such as the sex or a disease. The crux of the matter is that there is an underlying difference between accepting the child's characteristics after the child is born, which McDougall argues strongly for, and choosing the desired characteristics before birth. The latter does not necessarily imply that parents who attempt that action are guilty of not acting virtuously, or of not genuinely loving their child. For this allegation to succeed, it must be supported with concrete evidence that those parents do not intend to love and care for the child if the child turns out contrary to their expectation, that is, not having the desired sex, which is refuted below.

Additionally, theory on the need for unconditional parental love on the basis of the unpredictability of children's characteristics is now irrelevant in the context of sex selection because:

"Claims that parents ought to accept children of any hair colour, level of intelligence, or height may

(currently) be justified, because those characteristics remain at present unpredictable…But how are we to justify the claim that parents ought to accept children of either sex now that the sex of our children is not unpredictable?...[W]hy is the general parental virtue of acceptance still taken to be applicable to the specific case of sex in the wake of the discovery of reliable sex selection techniques?" (Herrisone-Kelly, 2007)

PGD has been hailed as a "more reliable way" of identifying the sex of children when compared to other methods such as sperm sorting (Human Fertilisation and Embryology Authority, 2003). It is stated that, "When performed by skilled clinicians and scientists sexing embryos by PGD has a relatively low misdiagnosis rate (less than one per cent on average)" (Human Fertilisation and Embryology Authority, 2003). In the light of this, McDougall's argument that parents ought not to choose the sex of their offspring on the grounds that those who do so might not love the child if he/she does not live up to parents' expectations, is flawed. With PGD, it is unlikely that parents will not get a child of the chosen sex due to the *reliability* of the technique.

Nevertheless, concerns have been raised on the 'fate' of the child in the event PGD fails to deliver one of the desired sexes:

"If I choose or design a child with certain traits, won't I feel pleased if I succeed and disappointed if the child fails to live up to specification? I may not give my failed product up for adoption, but won't our relationship be tarnished by my sense that this is not what I ordered?" (Green, 2007)

However, even if PGD fails to deliver the child of the chosen sex, it is unlikely that parents will reject this child because "Parental Love Almost Always Prevails" (Green, 2007). Equally, some parents will not ever love their child regardless of his/her attributes. It cannot, therefore, be assumed that parents who, for example, choose to have a girl only love her because she is a girl, and would not have loved her if she had been a boy.

Glover (1995) argues that in 'normal' reproduction, parents may wish for a child of a particular sex but, in some events, their desire is not met. In this situation, the disappointment that these parents may feel at first will normally be extinguished with the arrival of their new baby. The frustration that parents may feel when the child turns out not to be of their desired sex may be stronger for parents who undergo PGD, due to the burdens and ordeal that they must go through from the procedure rather than conceiving without assistance. Indeed, "how parents might look upon offspring when they enter the process with the belief that a certain kind of child is owed to them and after they have paid a high price for that child?" (Ryan, 1992). However, to suggest that parents who resort to PGD to select the sex of their child will only love their child if he/she is of their chosen sex is implausible, especially when they have spent much time and money on an expensive and burdensome procedure. Additionally, given their experience with PGD, it is arguable that these parents may not wish to undergo the procedure again simply because their first attempt failed to deliver a child of their desired sex. On this argument, I differ with Davis (2009) who opines that:

"The more time, money, and travel that a parent invests in directed procreation, and the more inconvenience, physical discomfort, and medical risk that the parent bears, the more I fear that parent will feel entitled to the desired result. As market forces and medical research make such investments relatively trivial, the less I fear the effect…If choosing the sex or any other trait of one's children was as simple and inexpensive as choosing a bar of soap, I would be much less worried."

If sex selection methods were to become simple and inexpensive, parents may be inclined to 'reject' the child that fails to conform to their expectation, because they can attempt to produce another child. The Ethics Committee of the American Society for Reproductive Medicine (2001), in evaluating the concern on the welfare of the child born from sex selection, concludes that there is insufficient evidence to prove that parents will treat the child badly if their attempt at sex selection fails. In any event, the likelihood of untoward parental attitudes towards their child if sex selection fails can be mitigated by appropriate counselling in order to prepare parents for any possibilities. It is, however, conceded that there are parents who may react negatively towards their child if he/she fails to meet their expectations or for any other reasons, but 'bad' parents exist in every society which can be manifested in many different ways.

There is no reason why parental love should remain 'unconditional,' in that there is no reason to suggest that parents should merely accept any child that is born to them and be precluded from choosing the sex of their child. What matters is for parents to accept and love their child regardless of his/her sex, *after* attempting to select its sex through PGD. Just because parents have selected certain traits does not necessarily imply that they will love their child any less. Indeed, even when the child's sex is not selected prior to birth, there is no guarantee that he/she will be 'unconditionally' loved by his/her parents because, "[n]ot all parents forge good relationships with their children whose personality, for example, they may find difficult, and many parents will bond best with those children whose attributes they particularly value" (McLean & Mason, 2003). Even if social sex selection defeats the unconditional parental love that parents should have for children, the accusation itself is not sufficient to legally prohibit PGD for SSS. Without sufficient proof of harm to children, parental autonomy is a more persuasive argument in favour of PGD for SSS than the counter-argument that allowing PGD is destructive of unconditional parental love. As argued by Gavaghan, it is pertinent to uphold parental autonomy in using PGD to select children's characteristics because such decisions are meaningful to the individuals involved and indicate the, "...values and priorities or view of what it is that makes life important" (Gavaghan, 2007).

CONCLUSION

Concerns about the welfare of children born after PGD for SSS may qualify as sound justification for state intervention to override parental autonomy in selecting the sex of their unborn child, if supported by sufficient evidence. This stems from the argument that the state has an important role in protecting the vulnerable from harm arising from the conduct of others. In the context of PGD for SSS, children born after the technique represent the vulnerable people whose interests need to be adequately protected by the state from the conduct of parents choosing their sex through PGD. On this basis, this paper has reviewed the claim that PGD for SSS endangers the welfare of the child born after the technique, due to the risks of the technique and concerns about the psychological implications on such children.

The authors have argued that the risks to the safety of the child born after PGD for SSS are not sufficient to outweigh parental autonomy in utilising this technique to produce a child of their desired sex. Although there are risks, their magnitude is such that parents should be allowed the choice of whether they wish to undertake the procedure and run the risks. Meanwhile, claims about the adverse consequences on the child's psychological state are similarly and largely speculative as well as unsustainable. In reaching this conclusion, the notion of unconditional parental love, which forms the main basis upon which the use of PGD for SSS is opposed as being detrimental to the child's welfare, has been analysed and refuted. It is concluded that there is nothing inherently wrong with parental conduct in selecting the sex of their child through PGD, as such an action does not imply that the love that parents have for the child is conditional and dependent upon the child fulfilling the parents'

desires. In the light of these findings, it is concluded that parental autonomy to produce a child of their desired sex through the use of PGD should be respected.

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