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4 Procreative Beneficence: is Selection Really Better Than Genetic Modification?*

4.1 Introduction

At the beginning of the 21st century, Julian Savulescu proposed a principle intended to guide prospective parents' choices regarding the genetic makeup of their future children. The so-called Principle of Procreative Beneficence (PPB) states as follows:

Couples (or single reproducers) should select the child, of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information. (Savulescu 2001, 415)

Some years later, together with Gay Kahane, he reformulated the PPB. The new formulation reads:

If couples (or single reproducers) have decided to have a child, and selection is possible, then they have a significant moral reason to select the child, of the possible children they could have, whose life can be expected, in light of the relevant available information, to go best or at least not worse than any of the others. (Savulescu and Kahane 2009)

The new formulation clarified some points that were misunderstood in the original one (such as the meaning of “should”) but did not change the PPB’s essence. In both formulations, the PPB has been widely discussed, criticized by some and celebrated by others. PPB’s impact is perfectly understandable, due to both the intrinsic interest of the issue and its own remarkable characteristics. PPB promotes an active and intentional role for the parents in the genetic makeup of their children, which is rejected by those who think that anything is wrong but letting nature have its way. PPB applies to what Savulescu calls “nondisease genes”, thus entering into the enhancement territory, one of the most controversial in today’s bioethics. And PPB focuses on the child’s interests, and it speaks about the “best life”, always a controversial concept. If all this were not enough, according to PPB, selecting a child is not merely a right the parents have, but something stronger. The possibility

* Derek Parfit died while I was working on the final version of this paper. This paper is humbly dedicated to his memory.

of selection gives the parents a “significant moral reason”, putting them under some kind of moral obligation¹.

In this controversy between critics and supporters, I am rather in the second group. But though I generally agree with PPB, I would like to raise a different issue from the ones already mentioned, but unlike those, I do not consider it an essential part of the PPB. In this paper, after a few preliminary considerations, I examine PPB’s focus on selection, which, for reasons explained later, seems very questionable.

4.2 Some considerations on the PPB

In this section, we consider some general points regarding PPB in order to facilitate the understanding of the principle before turning to the main object of this paper.

4.2.1 Definition of enhancement

In order to understand PPB’s reference to the “best life”, it is useful to say a couple of words about human enhancement. Defining human enhancement is not an easy task². The usual strategy is to define “enhancement” by contrasting it with “treatment”, as those interventions going beyond treatment. “In broad terms, therapy aims to fix something that has gone wrong, by curing specific diseases or injuries, while enhancement interventions aim to improve the state of an organism beyond its normal healthy state” (Bostrom and Roache 2008). Those unhappy with this definition because of its relation with the concept of health, problematic by its own right, try to talk about enhancement in terms not only of health but of human capacities. In contrast, the definition offered by Savulescu and Kahane is normative, as “any change in the biology or psychology of a person in a given set of social or environmental circumstances C that increases the chances of leading a good life in circumstances C” (Savulescu and Kahane 2009).

4.2.2 The best life

Genetic testing is usually performed in order to detect what Savulescu calls “disease genes” (2001, 415), genes that causes genetic disorders or predispose to suffer from some disease. One major reason is that, until recently, only tests for chromosome abnormalities such as Trisomy 21 (Down Syndrome) or single-gene disorders (such as

¹ For a standard example of critics, refer Sparrow 2007. Refer also Birch 2005 and Stoller 2008.

² For an excellent discussion of this problem, refer Juengst (1998).

cystic fibrosis) were available, and although some of them involve cognitive deficits, they mainly concern health. Another related reason is that until recently, the genetic contribution to non-health-related traits was not well known and even strongly denied by the predominant environmentalist view (Paul 1998; Pinker 2002). But all this is gradually changing: we know more about the genetic contribution to other traits and an increasing amount of tests are becoming available. We can reasonably expect that this increasing knowledge will contribute in the near future to undermine the predominant, strongly environmentalist view.

Apart from this, we can ask why we should, at both moral and prudential levels, care for health. As Savulescu states (2001, 417), the reason is no other than the relation between health and happiness, or health and welfare. And our welfare is much more than health. In our three main theories about well-being (Parfit 1976; Griffin 1986), health is far from being the only, or even the most important, thing. In the Objective List theory, it appears among the things that are part of our well-being; in the Hedonistic Theory, health only has an instrumental value because of the pleasures related with health and the pains caused by its absence in the Hedonistic Theory; finally in the Desire Fulfillment Theory, health plays a role because it enables us to do the things we want to do and to carry on the life we want to live.. And some of the things that contribute to our happiness depend, at least in part, on our biology. For instance, having a sunny disposition or the capacity for self-control contributes greatly to our well-being (Mischel 2015), and both seem to have a biological basis. Of course, there is no test available for many of these traits, and maybe there will never be for some of them, but, as far as we can, we have the same reason to test for them as we have to test for disease genes, and the PPB should apply to all of them.

For this reason, as Savulescu explicitly claims (2001, 2009), PPB advocates for selection not only regarding disease genes but also nondisease genes. If we admit that prospective parents have moral reasons to care not only about their future child's health but also about his/her potential for well-being, then couples should use genetic tests for nondisease traits, and selection should be allowed on this basis. For example, if the prospective parents have a choice of implanting one of two embryos that are genetically identical, except that one of them is genetically predisposed to higher intelligence, the parents-to-be are morally obliged to select the latter embryo over the other, since a more-intelligent child is likely to have a better life than a less-intelligent one, other things being equal. Now, we can turn to the aspect of PPB that I find less satisfactory because of its unduly narrowness.

4.3 Selection

There are four main ways for the prospective parents to make choices about their future children's genetic endowment: gamete selection, prenatal diagnosis and abortion, preimplantation genetic diagnosis (PGD), and manipulation of the genetic

material of the embryo. The first three are cases of selection. In this section, I try to explore the reason why PPB focuses on selection³.

4.3.1 Two (unconvincing) explicit reasons

In both versions of PPB, we can find two explicit reasons.

1. The practical reason

To begin with, there is a very sensible practical reason for favoring PGD. Once a couple⁴ undergoes an in vitro fertilization (IVF) process, there is no added cost in performing PGD. Whatever the reason for IVF (fertility problems or fear of heritable genetic conditions), couples will probably be more inclined to test not only for severe genetic conditions but also for less-serious medical conditions or even for nondisease genes. After all, some embryos are going to be discarded anyway, and it is only good sense not to make the selection by tossing the dice.

However, not everything is rosy about selection via PGD. Some conditions can only be tested on fetuses. In these cases, selection means abortion. Abortion is costlier at all levels, and for many people, it is morally problematic.

It is also very costly to undergo an IVF process. Once you are having one, there is *no additional cost* involved for PGD, but to initiate one, you have to have some very good reason, as the process is very demanding at the physical, emotional, and psychological levels (Kaliarnta et al. 2011). This means that women are not likely to be willing to undergo IVF or to face an abortion only to have a child with better prospects of a better life, but only when under a high risk of having a child with really severe genetic conditions. And this is why this first reason is unconvincing: it is only effectual for a very small portion of the population, those already having IVF for another independent reason.

2. The continuity reason

Another reason to focus on selection is continuity with generally admitted practices. We traditionally select a child when we select a partner or when we choose the moment of conception, not only for health related reasons but also for economic and social ones (Savulescu and Kahane 2009, 276): people who want to have a child usually try to choose a moment with favorable conditions, for instance, when you have economic security, or a house, or a good job, so that you can provide the child

³ The focus is on selection via PGD or prenatal testing. In the first version of 2001, the focus was even narrower, limited to PGD, and even in 2009, though mentioning prenatal screening, the main focus remains on PGD.

⁴ I completely agree with Savulescu's qualification "couples or single reproducers", but I will use "couples" for the sake of shortness.

with better conditions. And when someone has a child in suboptimal conditions, at least when these can be reasonably expected to change for the better in the near future, we think this to be morally wrong. Of course, people are not usually aware of being selective when they do all these things, but it is easy to show that they in fact are. You are here because you were born from a particular ovum and sperm. If your mother would have waited 1 year to have a child, or even just 1 month, another child would have been born, from another ovum and sperm.

This is undoubtedly true, but in order to convince people to follow PPB, it is not enough to show that to select our children is an accepted practice. The methods used to select are far from immaterial, and some of them are controversial. PGD is morally problematic for some people, and prenatal diagnosis followed by abortion is morally problematic for many. As often happens in morals, means matter.

4.3.2 One (unconvincing) implicit reason?

There is one reason that we can refer to as “state-of-the-art reason”. Selection can be performed *now*. IVF plus PDG is readily available, whereas manipulation of the genetic material of embryos seems to be almost science fiction.

There is some truth in this. Until recently, genetic testing had been the only way to control a variety of genetic traits and conditions: chromosomal abnormalities, such as trisomy 21 (Down syndrome), single-gene disorders such as cystic fibrosis, some inherited cancer syndromes, adult-onset neurological conditions such as Huntington and Alzheimer’s diseases, sex, or even minor disabilities such as deafness.

However, the possibility of making genetic choices not involving selection probably is not so far away in the future. In the past few years, many advances have been made in gene therapy and, though its development is extremely difficult⁵, we are not unreasonably optimistic if we expect some degree of success in the near future. This optimistic view has recently gained some support since, in 2012 (Gyngell 2017), an influential paper was published proposing the clustered regularly interspaced short palindromic repeats (CRISPR)/CRISPR-associated proteins (Cas9) technology as a tool for gene editing, starting what is now known as the CRISPR revolution (Jinek et al. 2012).

Even if some conditions remain elusive to this kind of therapy, for others, we are close to success. For instance, this is the case with hemophilia. This is a heritable genetic condition that can be tested on carriers and also prenatally. If a gene therapy

⁵ The condition targeted must be well understood, the underlying faulty gene must be identified and a working copy of the gene must be available, the specific cells in the body requiring treatment must be identified and accessible, and the means for delivering working copies of the gene to these cells must also be available.

were available, to perform it would not involve selection. It would be prenatal genetic manipulation.

4.3.3 The real (explicit) reason

There is a difference between the various ways of affecting your future children's genome mentioned herein. The ones that we labeled "selection" (gamete selection, prenatal diagnosis and abortion, and PGD) are identity affecting, whereas the manipulation of the genetic material of the embryo can be considered a non-identity-affecting route. When prospective parents choose to implant one particular embryo after IVF, to have an abortion after screening and wait for the next pregnancy, or to sort sperm for fertilization, the child they are going to have as a result is a different child from the one they would have had had they made a different choice. The same can be said if they decide to postpone pregnancy until they have achieved a good economic situation. This is the reason why in these cases, we talk of selection. On the contrary, if you perform some genetic manipulation in your embryo or fetus, the child is the same one but, let us say, without propensity to suffer from asthma. The result is the same as if you have performed some gene therapy for preventing asthma in your 3-year-old child. If you treat your asthmatic child with this kind of therapy, you are not replacing him/her with a different one⁶. If your choice is affecting the identity of a (future) child, then you may face the nonidentity problem.

In Part four of his famous and very influential book, entitled "*Future Generations*", Parfit (1986) addresses some moral questions related to those of our actions that can affect people who do not yet exist. Apart from its influence on the question about the structure of our moral theories (basically whether they are to be person-affecting or impersonal), they have had a remarkable influence on bioethics. After devoting the third part of the book to the very intricate question of personal identity over time, he then asks "what would have made it true that some particular person would never have existed?" We exist, but we could have not existed. Some of the decisions we make (and not only what we properly call "procreative decisions") affect the identity of future people (and not only their number). This gives raise to the nonidentity problem that Parfit illustrates with some examples. The first one is the relevant one for us here. Imagine a teenager who decides to have a child. Due to her youth, her

⁶ Of course, in a sense, the resulting nonasthmatic child would be different from the asthmatic one, as far as our identity is built from our experiences and the kind of life we live; but the same can be said if the therapy is not a genetic one, and in both cases, the difference between "the child before" and "the child after" would not be greater than the one between the child's situations if you send him/her to secondary school or not. In this biographical sense, every parental choice influences the identity of the child, but these choices are identity-preserving ones in a relevant sense.

child will probably have a bad start in life. If she waits, she will have a child with better prospects. But it will be a different child. Should she wait? If you think so (as almost everyone does), and try to give a reason why, you will find that this reason cannot be related with any harm suffered by someone. In making this decision, she is *selecting* which child to have. If she chooses to have a child now, *this child* (A) has no reason to complain, as far as his/her life is worth living, because the only way of giving him/her the best start in life is waiting and, as a consequence, not having *him(her)*, but some other child (B). So, you can say: you exist only because you had a bad start in life, so if you are happy enough to exist, you have nothing to complain about.

Savulescu thinks that this problem is the main reason to prefer selection over genetic manipulation (Savulescu et al. 2006). So, we can safely assume that, in his formulation of PPB, he focuses on selection for this reason. Savulescu claims that selection is to be favored over genetic manipulation, not only because of the practical and sensible reasons commented earlier, but also, and mainly, because it is less morally problematic. As this claim is far from obvious, I will address it in the following section.

4.4 PPB and the nonidentity problem

Savulescu's real reason to focus on selection is that it is less problematic, at a moral level, than genetic intervention. To hold that selecting is less morally problematic requires some further assumptions.

The first one refers to the possible harm to the future child (Savulescu 2001). In any choice you make, there is always the possibility of something going wrong. When you make a choice regarding the genome of your future children, with good intention of increasing their chances of leading a good life, there will always be a risk of reduced well-being. If something goes wrong, and your choice has involved selection, then the child has not been harmed, for the simple reason that if he/she would not have been selected, he/she would not have existed. He/she has not been harmed as far as his/her life is worth living. On the other hand, if your choice has involved genetic manipulation, the child has been harmed since he/she could have existed in a better condition.

The second one relates to the possibility of your child having, in the future, a fair ground for complaining, even if nothing has gone wrong. For different reasons that would take us too long to analyze here, there is a possibility of choosing a genetic trait that, later in life, your child would prefer not to have had. As in the previous case, and for the same reasons, if your choice involved selection, he/she could not reasonably complain about having it. But in the case of genetic intervention, the resulting child may complain, because without this intervention, he/she could have existed (he/she would still have been himself/herself) and have what he/she could consider a better life.

In short, as far as your child has been selected, and his/her life is worth living, there is no way for you to have done him/her harm, since the very condition for him/her to exist is to be the way he/she is. But if you have changed your child's genome, then you could have harmed him/her.

Harming someone is morally wrong in any sensible view, though not necessarily the only way of doing something morally wrong. In fact, Savulescu claims that, by not selecting the child with a better prospect of living a good life, you do something morally wrong. This is implied by saying that you have a moral reason to select such a child. But even if you do not hold (as Savulescu does not) a person-affecting view of morality (Parfit 1986), selection seems morally superior to genetic intervention as long as you hold the less-radical (and probably more reasonable) view that, though impersonal considerations also have a place in morality (i.e., that some harm can be done even if nobody is harmed, only because the world would be a worse place because of containing less happiness), nonetheless, these impersonal considerations matter less than personal ones.

I share this view of morality. I do think that impersonal considerations matter and that personal ones matter more. Nevertheless, I think this reason to favor selection over genetic enhancement is not convincing. I will explain why in the following section.

4.5 Why selection is not morally superior

My first, and less important, reason is that the previous arguments are too dependent on a controversial view of identity. For some, holding what DeGrazia calls the thesis of fragile prenatal identity (DeGrazia 2005), prenatal genetic manipulation can also be identity affecting (Zohar 1991). Though I do not support this view, it is worth keeping in mind that there is no universal agreement on this question.

The second reason relates to the alleged moral wrongness of harming someone. If I harm you by putting eggs in your breakfast, in ignorance of you being allergic to them, I do nothing morally wrong. If I send my daughter to horse-riding training courses, and if she falls and breaks her leg, or meets someone there who latter on has a bad influence on her life, I do nothing morally wrong. And she cannot fairly complain. Many prenatal, perinatal, and postnatal activities are risky for the child. Some (most) of them are taken for the sake of the child, such as medical procedures and leisure or educational activities. On some versions of consequentialism, we have moral reasons to take into account expected consequences. When our choices involve risk or uncertainty (i.e., virtually always), expected consequences and expected well-being is all we have.

Of course, the possibility of harming our child (and of doing something morally wrong and of our child having fair grounds for complaining) puts some limits on what you can do (genetically or otherwise) to your child. You need good reasons to

think that something (a course, a medical procedure, or a diet) is going to be good for him/her. You need good reasons to think that to give him/her certain genetic traits is going to be good for him/her, that is, it is going to give him/her the best (or as good as) probability of living the best (or as good as) possible life. Probably you also have to make sure that your idea of a good life is not too controversial or parochial, so that your child could share it in the future, or that the genetic choices you make for him/her (or his/her training, diet, and so on) are not going to put the child in a very narrow path (that is, he/she will have a wide set of alternatives to choose his/her own life in the future and develop and exercise his/her autonomy) amid all the caveats you wish to make. But this is a *good thing*. In fact, I consider that one of the most unpalatable consequences of selection, and of the reasons offered in support of its alleged superiority, is that it lets parents too easily off the hook: they can do a lot of otherwise-morally-questionable things and, after all, they are not harming anyone; the child cannot complain. It is a good thing because it would properly stress the fact that in making these kinds of choices, we are in the arena of parental autonomy, where we have a certain consensus about the limits: children are not parents' property and they cannot do to them whatever they fancy.

My third reason is that genetic intervention, unlike selection, does not sound eugenic. This is a very important point. Any time you talk about PPB, the first question asked is always the same: is this not eugenics? This question is not unreasonable. Leaving apart the various and widely discussed, undesirable and seriously morally unacceptable characteristics of old eugenics (compulsory, racist, state directed, and so on), its goal is considered by many as, to say the least, highly problematic, as far as it is intended neither to cure nor to enhance people and people's lives, but to replace them. Selection means to decide to bring some people into life instead of others (if you select by PGD) and, for many people, if selection is performed via abortion, it involves eliminating one person and replacing him/her with another one. I think this is the reason why although some people accept selection to avoid some devastating genetic conditions, they strongly oppose selection when the condition is not so extreme, not to mention the possibility of selecting, as the PPB asks, for nondisease genes.

But genetic intervention does not, in any sensible view, eliminate people. Because it is not identity affecting, it *changes people*. In this respect, it is similar to therapy, and we usually accept therapy for not very critical conditions, and addressing nondisease genes is not dissimilar to schooling, training, and other widely accepted child-rearing practices. Of course, some people can still oppose genetic interventions but for reasons unrelated to the eugenic complaint.

4.6 Conclusion: a defense for an extension of PPB

PPB focuses on cases of selection. But it is silent on genetic interventions. Many philosophers seem to think that selection is less morally problematic⁷. I am not sure at all whether this view can be easily accepted by nonphilosophers. I know better than to generalize from my personal experience, but I always find it easier to convince people about gene therapy than about selection, even when talking about enhancement. But maybe this is because I probably argue for it more persuasively. In this paper, I have tried to explain my reasons, and now I only want to stress a couple of issues.

There can be some reasons to choose selection over genetic intervention or the other way around, and probably different people have different reasons. But the moral superiority of selection is questionable. In fact, it is more than questionable, at least if we focus on the children's well-being, as PPB does. The nonidentity problem can be easily used to make controversial choices about future people, including our own children. You can discharge your responsibility saying "if you were not deaf, have achondroplasia, be without clitoris, suffer from depression and so on, you would simply not exist at all"⁸. And this seems quite dangerous to me, and contrary to what I think is the very spirit of PPB. If you think, as I do, that PPB is a reasonable principle, and you consequently think controversial choices should not be made for the children⁹, I think the nonidentity problem does not provide a reason to consider selection morally superior.

There seems to be no good reason not to extend PPB to cover those cases that do not involve selection but genetic intervention. And doing so has some advantages. Firstly, this method would be less costly than selection both via abortion and via PGD. It would be less painful both physically and psychologically for the parents and would also be less morally problematic, since it does not involve abortion or embryo destruction. Secondly, we could also show continuity with generally admitted practices, such as giving vaccines to your child, sending him/her to school, or caring about his/her diet or physical activity. Thirdly, it does not sound eugenic, or is at least less eugenic. While eugenics tried to eliminate some people or not to let some people to be born, genetic intervention, being identity preserving, aims to change people for the better.

If my arguments are sound, we should extend PPB, changing its formulation accordingly to include not only selection but also genetic intervention. It would read as follows:

"If couples (or single reproducers) have decided to have a child, and it is possible to choose which kind of child to have, then they have a significant moral reason to choose the genetic endowment that, in light of the relevant available information, gives the child the best chance of having the best possible life."

⁷ Among the many, refer Smolensky 2008.

⁸ For a more detailed account, refer Smolensky 2008 and Cohen 2009.

⁹ It is an open question whether some other moral considerations can override PPB, among them – and prominently – the well-being of parents.

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