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SHOULD WE SACRIFICE EMBRYOS TO CURE PEOPLE?

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Abstract: Medical stem cell research is currently the cause of much moral controversy. Those who would confer the same moral status to embryos as we do to humans consider that harvesting such embryonic cells entails sacrificing embryos. In this paper, the author analyses critically the arguments given for such a perspective. Finally, a theory of moral status is outlined that coherently and plausibly supports the use of embryonic stem cells in therapeutic research.

Key words: bioethical issues; embryonic structures; embryonic and fetal development; beginning of human life; personhood

Introduction

Stem cells have the ability to produce other cells, both identical and different. Recent research into these cells has shown the extent of their therapeutic potential: in the long term, the production of organs to replace defective ones and, in the short term, the treatment of Parkinson's disease, diabetes or cardiac diseases.

Nevertheless, this route to avoiding the suffering and death of many human beings has been the subject of heated debate. Stem cells can be found in the foetus or in different parts of the human organism, but it is those from the embryo[1] that have so far shown the greatest therapeutic potential.[2] The problem is that embryonic cells, unlike the foetal or adult ones,

[1] I will use "foetus" to refer to the being between the eighth week of human gestation and birth; and I will reserve "embryo" for the stage beginning one week after fertilization, when the zygote has been implanted in the wall of the womb, until the eighth week, in which the cerebral sulci are first perceived.

[2] Most experts tend to explain the greater therapeutic potential of embryonic stem cells by virtue of their considerable versatility. These cells are *pluripotent*, capable of forming cells of almost all tissues in the human body. By contrast, adult stem cells are only, at best, *multipotent*. That is, despite much progress in this direction, it is still not even clear whether these adult cells transdifferentiate, whether they can develop efficiently in different tissue types (but not any, that would make them *pluripotent*). Another problem with adult stem cells is that currently they do not have the same potential as embryonic stem cells to proliferate under research conditions. Regarding foetal stem cells it can be said that although they appear to be *pluripotent*, they are cells that are in the final stage of development, causing difficulties for use in research that do not occur in the embryonic ones.

can only be obtained by bringing about the destruction of the supplier, in this case the embryo.[3] And since, it is argued, especially from Catholic positions (see e. g. Doerflinger 1999; Friend 2003; Oakley 2002; Meyer 2000), that the embryos have the same moral status as adult human beings, they too deserve to live even if their death may mean we can save many people.[4]

The aim of this article is to provide an ethical defense of medical stem cell research. To this end, I shall first analyse critically the arguments given for the belief that embryos and adult human beings share the same status. Then I shall outline a theory of moral status whose coherence and plausibility will serve to justify embryonic stem cell research.

The individual identity argument

For some, killing embryos is as serious as taking the life of adult humans, simply because embryos are merely human beings in their initial phase of development. That is, we have all at one time been embryos and it is that itself which gives embryos their moral status.[5]

But, is that right? Can we show that *we* have been embryos? Those who think that we can are forced to interpret personal identity as individuality, as identity that arises from the unitary continuity spanning fertilization and the successive stages of development. But this is questionable. Although genetic continuity exists between my zygote and me, there is no numerical continuity, and therefore we are not the same individual. The zygote is not a particular individual from the first moment of its existence because in the days that follow fertilization it can split naturally and give place to clonal embryos which, although they have the same genome, can develop into different individuals. So it is in the case of twins: one could hardly maintain that they are numerically identical to the singular embryo from which they came. In other words, if as a result of intercourse a zygote is produced, which we call

[3] Some scientists believe that stem cell lines could be derived from embryos without harming them, removing cells not from the inner cell mass of an embryo at the blastocyst stage, but from eight cells, called blastomeres, of which the embryo is composed at an earlier stage. They maintain that if one of these cells is extracted in a similar way to that used in preimplantation genetic diagnosis, there would be nothing to prevent the remaining cells developing into a normal adult. See the contributions of R. Lanza and colleagues at Klimanskaya and others (2006). Nevertheless, this procedure to obtain stem cells, which would be a technical solution to the debate on stem cells, is more a possibility than a reality. Attempts to reproduce the advocated technique have always failed.

[4] Some thought that this controversy would be settled thanks to a new procedure for reprogramming somatic cells which, by means of cytoplasmic factors or by direct genetic manipulation, would be reverted back to their original condition in which they were as versatile as the embryonic ones. This would turn the somatic cells into *pluripotent*, or even in *totipotent* cells (capable of generating a new finished individual.) See Zhou et al. (2009); Gao et al. (2009). However, this procedure, as the discoverers themselves have recognized, can produce carcinogenic effects, and not be of great use to therapeutic stem cell research. Also, and most importantly here, this procedure, which tries to avoid especially the controversial use of embryos, rather than solving the problem, just shifts it. So if for some the embryos deserve to be protected because they are morally equivalent to people, the same should be said of those cells that by means of reprogramming have acquired the same potential as an embryo; see Denker (2008).

[5] This is the position defended in Lee (2004a); George and Gómez-Lobo (2002); Gómez-Lobo (2004); Tollefsen (2001).

Peter, and a few days later the zygote splits into two embryos, we can no longer talk of these as being Peter. Neither would it make sense to say that Peter has suddenly disappeared and that in its place there have arisen two new beings: Paul and Steven.[6]

In addition, biologically none of us originates as a zygote. Although the zygote, given the genetic continuity between him and me, could be my predecessor, it does not imply that we are the same individual. Identity starts when the product of conception has been uniquely individuated. This occurs when the embryo begins to be an organism of our kind. For the first few cell divisions, the embryo functions less like a single integrated, energy-using unit than like a collection of single-cell organisms loosely and contingently stuck together (that's precisely why spontaneous twinning and fusion is possible, due to each cell retaining the potential, if separated, to produce a human organism). There is no specialization of cells to perform distinct tasks; nor is there significant interaction or integration among them. In this sense they are tantamount to a colony of contingently joined zygotes. They are like marbles in a bag. They don't function yet as a single, integrated organism like you or me (DeGrazia 2006, 51-52).

All these arguments constitute a serious problem for those who maintain that we are the same zygote that arises from fertilization, or that our identity begins at this moment. It would be more reasonable to maintain, then, as many Western countries' legislations do, that one begins to exist as an individual at best fourteen days after fertilization. After this period gastrulation begins (that is the germinative layers that will produce the different textiles and organs appear) and the embryonic cells lose their capacity to generate by themselves a finished individual. From this moment twinning can no longer take place naturally. The human organism is now uniquely individuated and it clearly functions as a single integrated unit. From a biological understanding of our essence, a uniquely individuated human organism is a being of our kind.[7]

There is another even more straightforward way of denying the individual identity argument. It starts by pointing out that if it makes any sense to say that we have been embryos, it is in the same sense in which we can say that some day we will be corpses.

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[6] Twinning also could be understood as that moment when Peter, who has already existed from conception, is suddenly joined by his twin Paul. But this argument is very weak, because it pinpoints the origin of these two beings, Peter and Paul, at two different points of time. This poses a serious difficulty for a position, such as the present one, that insists that human beings begin existing at the moment of conception. Would the proponents of this position maintain then that Paul, just as any one of two twins, is not human? The difficulties inherent in this individual identity argument become more apparent in the light of recent reproductive technology, which allow one first to derive two embryos from early embryo cell separation and later to fuse these two embryos to constitute a single organism called a chimera. Should we say that in this case life began as an individual that later became two and that finally turned into a single individual once again? See Kuhse and Singer (1990, 66-68), and DeGrazia (2006, 51). A more developed criticism of those who maintain that individual continuity arises at the moment of the conception can be found in Becker (1975); Smith and Brogaard (2003); Brogaard (2007); and Devolder and Harris (2007, 154).

[7] H. Pearson (2002) shows that cell differentiation appears as early as the two-cell stage in mice embryos. If integration occurs very early in mice, is the same true of humans? If the answer is yes, then the integration does exist earlier. Yet twinning and fusion remains possible through the first two weeks. See DeGrazia (2006, 52-53).

Certainly, the embryo, the adult and the corpse are all states of the same body, but that does not mean that they are all states of the same individual. We coexist with our body, but the body begins to work before we exist and sometimes it survives on after us, going so far as even to live, as in the case of a coma or a state of alienation, a long time after we have disappeared. This is because in such conditions we are not aware of the world any more. Sometimes, as for example in progressive dementia, the loss of awareness is gradual. It is probably not easy to determine an exact moment when we can say that someone ceases to exist as such, but it is generally possible to affirm that when there is no awareness, the individual disappears. And in such cases the individual stops existing even though his body maintains the vital signs. That is because we are essentially minds.

To show that we are minds located in bodies we are usually asked to imagine the following scenario. You and your twin brother have been involved in a road accident. You sustain serious bodily injuries but your brain is unharmed. Conversely, your brother suffers brain damage but his body is left intact. Using state-of-the-art technology, the surgeons remove your twin's damaged brain and transplant yours into his body. Most people will think that the person who is in your twin's body is you, a conclusion we would not come to it we were to assume that what constitutes us basically is our body, that is, that we are essentially a human organism. If we were to assume this, we would also have to believe that having lost most of your body you would have disappeared as such. Yet we do not believe this.[8]

Just as our conception of ourselves as minds housed in bodies serves to establish when our existence ceases, so then it should tell us when our existence begins. As in the case of progressive dementia, we cannot pinpoint a precise moment, since the capacity for mental awareness is acquired gradually throughout the development of our organism. Nevertheless, it is obvious that until this capacity is acquired, we cannot meaningfully say that *someone* has started living. And since a few-weeks-old embryo does not have this capacity, we can safely say that no *person* is destroyed when we conduct embryonic stem cell research.

The species membership argument

Some may object to the personal identity argument by claiming that, regardless of whether an individual begins with the embryo, an embryo is a human being and, for that reason alone, already has the same right to life as any human being.

The main problem with this kind of argument is that it depends on the fundamental premise that membership of a category, a biological species in this case, is, *sui generis*, a sufficient reason for ascription of moral status. This premise is unacceptable if the most basic standards of rational morality are accepted. The morality of our conduct towards others cannot depend *exclusively* on which species group they belong to, but rather, on consistent, non-random, criteria, such as possible harm or exploitation caused to others by

[8] J. MacMahan (2007, 182) presents another very illustrative and, in this case non fictitious, example: that of bicephalic twins. In this case two heads, each with their own brain and their own separate mental life, share the same body. There seems no doubt that we are dealing here with two humans and only one organism. As we would never maintain in such cases that we are presented with just one human being, we must be assuming that a person is not primarily identified with the body or the organism, but with the mind.

human conduct. In other words, a description of human beings, particularly in relation to their capacity to experience harm or disrespectful treatment, enables us to attribute moral status to them. Thus, if extra-terrestrial beings, though not members of the human race, were found to have feelings, to think rationally, to be able to communicate with earthlings and enter into non-aggression and cooperation agreements, there would be sound reasons to grant them moral status. Denying them moral status on the basis of non-membership of the human race would be as unacceptable as racial or sex discrimination (see Kuhse and Singer 1990, 69-71).

It is also possible to criticize the way in which human prejudice is used, not to discriminate against people, but to insist on granting moral status to embryos who, lacking the capacities mentioned above, are merely blessed with so-called membership of the human species.

The potentiality argument

Someone might argue that embryos have importance not because they belong to the human species but because the faculties that would grant them moral status (sensibility and reason) are only temporarily lacking. In other words, if we do not prevent them developing, those embryos will turn into persons, that is, into beings capable of feeling, thinking, communicating, etc. And it might be added that by virtue of this inherent potentiality, one should grant embryos the same moral status as persons. This is the core of what is known as the potentiality argument.[9]

This argument seems very convincing but it has a basic logical flaw, namely that one cannot award prerogatives to something or someone on the basis of what it or he/she will turn into in the future. So it is not the same thing to put a hen into boiling water, as it is to put an egg into boiling water, even if the egg could potentially become a hen. Neither can we accept that because he is heir to the throne a prince should hold the same rights as a crowned king. Likewise, the mere possibility that an embryo could turn into a person should not require of us that we treat it like a person.[10]

I believe that this criticism cannot be refuted entirely. It can only be mitigated. And to do so one would have to minimize the space that separates the embryo from its actual possession of personhood characteristics, by claiming for example that even if the embryo does not have such characteristics, it is going to acquire them in an unavoidable way should it merely be allowed to develop. Then, given this inevitable passage from the potential to the actual it could be maintained that the embryo deserves to be considered *as if* it had already fulfilled the conditions required to grant it moral status.

For this approach to work, we need first to clarify this conception of strong potentiality that we wish to apply to the embryo. Such clarification is necessary because someone might be tempted to ridicule the principle as it is originally formulated by pushing it to the absurd

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[9] For examples of this argument, see Gómez-Lobo (2004; 2005); Knoepffle (2004); Lee (2004b). The same argument is used by Hare (1975; 1989), Pahel (1987) and Pluhar (1977), to oppose abortion.

[10] For details of the fallacy of attributing moral status on the sole basis of the entity's potential to acquire the feature that would justify such an attribution, see Boonin (2003, 45-49).

conclusion that sperms and ova too deserve the same respect as the persons into whom they might turn under certain conditions.[11]

One way of avoiding such excessive conceptual versatility is by understanding that an entity is potentially something in the strong sense of the term only if it is responsible to some degree for the development that will turn it into that thing. This is known as "active potentiality" and this clarification might help here to exclude sperms and ova (considered separately) from the principle, as they need external help to develop their potential. They need to be fertilized in order to initiate the process that will eventually produce a person. On the contrary, the embryo does have the active potentiality to turn into a person, since unlike the gametes (ova and sperms) it is configured genetically in such a way that, unless someone thwarts the process, it will become a person by itself.[12]

But a different interpretation of the facts is also possible, one that allows us to question the belief that the embryo is qualitatively more a person in potency than the gametes. One need only emphasize how the embryo too is very dependent on external factors. Despite being genetically configured to become a person, an embryo will only develop if it is healthy, if it is implanted in the womb, if it receives the suitable nutrients, if it is not exposed to dangerous substances in the womb, etc. By considering exclusively the embryo's predetermination to develop (in comparison with the passive potentiality of the sperm cells) perhaps we are ignoring the crucial role that all these extrinsic conditions play in embryonic development (Tooley 1998). In other words, if we cease to consider the embryo's gestation inside the woman's womb and all that surrounds it as something secondary, we will begin to conceive of the embryo as an entity very dependent on external factors and thus lacking the capacity to develop by itself.[13]

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[11] Aristotle (*Metaphysics* IX, 7, 1048b35-1049b1) showed many centuries ago that the concept of potentiality becomes useless when we interpret it broadly. More recently, the problem has been discussed by authors such as D. B. Annis (1984) and J. Feinberg (1974, 67-68) in a more pertinent context.

[12] J. Finnis (1995, 50) sought to differentiate types of potential and ended up pointing out that a qualitatively different one was arising when after fertilization a unitary and dynamic organism responsible for development was formed. I. Persson (2003) referred to it as an "active" or "inherent" potentiality and defined it as an internal state that grants an entity the unique ability to change itself whenever its natural development is not hindered. This is similar to what S. Buckle (1990) called the "potential to become" a person, a potential that characterizes the foetus and distinguish it from gametes, the latter only being equipped with the "potential to produce" a person. The peculiarity of the "potential to become" is that it preserves, Buckle said, some form of individual identity and so allows an entity to "undergo changes which are changes to *itself*" (*ibid*., 95).

[13] From this broad interpretation of the active potentiality, based not only on the internal capacity of the individual to develop but also on the independence of the external factors, we should accept that besides the embryo, the newborn cannot properly be regarded as a potential person. The human newborn, unlike those of other species, cannot survive by himself and is highly dependent on external factors. Then, the newborn could not be strictly a bearer of basic rights. As we will see at the end of the article, this conclusion does not mean, however, that the newborn, as the foetus, cannot have quasi-rights. Since they already have biological structures (morally relevant) that connect the newborn or the foetus with the person who they will become they could bear basic quasi-rights. In addition, it could be maintained that only in exceptional situations would the quasi-rights of newborns actually be overridden. The social expediency of protecting children, the emotive reactions they produce in us and thus the repulsion at the thought of mistreatment of newborns would make this scenario highly unlikely.

This strong reliance of the embryo on external factors has become more evident thanks to recent developments in reproductive technology. In the past, the only knowledge we had of a living embryo was while it was implanted in the woman's womb, and so it seemed that in order for the embryo to become a person one had only not to interfere with the gestation process. Today, as a result especially of IVF, we have living embryos that will only go on to develop if we deliberately carry out all actions needed to transfer the embryo to the womb. And even so, the probability that the embryo be successfully implanted never exceeds 20 %.

Therefore the difference in potentiality that we might wish to recognize between embryos on the one hand and gametes on the other has ceased to be significant. If at the end of the day it is a matter of probability whether one is considered a person or not, some embryos, specifically the ones used for research, will, due to their reliance on external factors, have the same (little) potential to become persons as the ovum and the sperm. This would then carry the absurd implication that if we demand the protection of such embryos by virtue of their potentiality (as some would have us do), we should rescue ova and sperms in order to save the lives of the persons they could potentially become (Singer and Dawson 1990; Singer 1980). Moreover, if we were to adopt this position, we should be obliged by recent biotechnological progress to devote ourselves to the arduous task of favouring the existence of the infinite number of "potential" persons: those who might proceed from the cells of embryos that are in their first stages as well as from all the adult cells that could acquire, either by nuclear transference or by cellular reprogramming, the capacity to generate complete individuals[14]. And this is because if the probability for these cells to produce persons with external help were equal to the probability for embryos *in vitro* to develop, then the former would deserve, according to this argument, the same protection demanded of the latter.[15]

Finally, if we accept potentiality as meaning the "probability of becoming something", we can only object to scientific research sacrificing embryos that are persons if at the same time we maintain, for the sake of coherence, that gametes and all somatic cells are also persons, something that no society would do, however, pro-life they might be (Sagan and Singer 2007; Savulescu 1999, 91; Denker 2008; and Devolder and Harris 2007, 157-160).

But apart from the difficulties of defining the potentiality concept so as to ascribe greater moral status to the embryo than to other entities like the gametes, there still remains the

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[14] It could be objected that the potential of human embryos and the potential of somatic cells are not on the same level because somatic cells only become a person through direct intervention, whether it be nuclear transfer or cell reprogramming. But in reality we understand that something has the potential to become something else if it can become this something else under certain conditions. We may then consider the above-mentioned intervention as one of these conditions. Something similar to this is defended in Savulescu (1999, 91).

[15] J. Harris (1998) thinks the criticism is more straightforward. He contends that "the egg and the sperm taken together but as yet un-united have the same potential as the fertilized egg" (*ibid.*, 50). And to the possible objection that there is a difference between an individual's potential and the potential to become an individual, Harris replies that such an objection only makes sense if one starts with an almost mystical reverence for the individual. Thus, he wonders: "why is it right to protect individuals with the requisite potential but not pairs or multiples of individuals with the requisite potential?" (*ibid*., 51).

serious theoretical problem of asking us to treat an entity as if it had characteristics that it does not yet have, even though it is very probable that it will acquire them in the future. To get a good grasp of the problem let us imagine the scenario, conceived by M. Tooley (1998, 123), where an ovum and a sperm possess the strong potentiality to become a person, a potentiality which we usually restrict to embryos. They would have acquired this strong potentiality upon an encounter in an artificial womb recently activated to allow this and giving rise, first, to fertilization and in approximately nine months, to the birth of a human baby. The question posed by this situation would then be: is it morally condemnable to destroy the gametes' strong potentiality to become persons by disconnecting the machine before fertilization takes place? If we think that in itself it is not incorrect to do so, as indeed many defenders of the potentiality argument could, then the supposed high probability for embryos to turn into persons should not be a reason either to grant embryos the same right to exist as people.

Argumentative soundness and common sense

Having thus shown the inconsistencies in the arguments usually presented for granting a similar status to embryos and persons, I will now give reasons in favour of the opposite thesis, namely that embryos and persons do not share the same status, and I shall show that from this thesis we can better face the controversy surrounding the therapeutic use of embryonic stem cells.

Firstly, in order to determine who possesses moral status we have to find the right criterion by which to judge the matter. We have already seen that the criterion of belonging to the human species and that of being potentially a person are of no use to us. To find a reasonable criterion I propose we start from the ethical principle, extensively recognized as the most basic, that our conduct has ultimately to be commanded by respect for others or by the rule not to harm others. If this is the foundation of ethics, it would be logical to hold that in principle something has moral status when it can be an object of such due respect or of proscribed harm. And if we take these concepts in a very broad sense, we can say that only those objects will be objects of respect or harm if they have some interest in something, to the effect that they display preferences informed by what they conceive to be a source of benefit or harm to them. Even when we say that someone has a right to live, we assume that his life is valuable to him. Only in this way can we make sense of someone wishing to take his life, since it has lost value in his eyes, or can we disregard the life of that, such as a microbe or a plant, which cannot value it.

In other words, moral status would belong only to those who possess the ability to be aware of what they are interested in. And in the world as we know it, all sentient beings have the ability to experience at least feelings of pleasure and pain, a fundamental factor in the determination of self-interest. Indeed all sentient beings see pain as something that is bad for

[16] On whether the animals really feel, see DeGrazia (2002, 39-66).

[17] Among the authors who have argued for the ability to feel as a criterion for granting a being moral status are M. Tooley (1972; 1983), J. Feinberg (1984), P. Singer (1990), B. Steinbock (1992) and D. DeGrazia (1996).

them[16] and this is sufficient reason to assign them moral status.[17] We would assign it to them, therefore, because they are moral patients, that is, individuals who can be damaged by my actions, irrespective of whether or not they are capable of behaving morally.

Now then, the fact that all sentient beings have moral status does not mean that they share it in equal measure. It is true that we should feel an obligation towards every one of them not to cause them unnecessary suffering because every one of them repels such suffering as a form of harm inflicted upon them. But it is also true that not all sentient beings have a high enough level of consciousness to perceive as harmful other types of action, such as those that might result in their death. Therefore, granted that my reasoning has thus far been right, we could not properly talk of a duty to protect the life of those beings that cannot value their lives, those who do not perceive their ceasing to exist as something negative. It is this way of determining what type of protection a being deserves (by virtue of the degree to which it can experience harm inflicted) that constitutes the bedrock of my thesis: that some sentient beings, those who are aware of what it would entail to lose *their* lives, possess greater moral status than those whom it can only cause pain.

On the basis of theses awareness criteria, we can correctly argue that embryos at the initial stages of development lack moral status. They do not feel because they lack the necessary physiological mechanisms to be aware at least to a minimum extent of pleasure and pain. Neither, of course, can they wish to continue to exist. To argue therefore that because of its nature *alone* we should not cause an embryo suffering nor take its life is as nonsensical as to hold that rocks have a right not to suffer and a right to live.

We can only begin speaking about the right of a foetus (not of an embryo) not to suffer, when at any one moment between the twenty-fourth and the thirty-eighth week of gestation, the foetus begins to experience its first sensations.[18] We might even recognize a certain status before it actually experiences such sensations, given that around its twenty-fourth week the foetus already possesses the necessary cerebral structures to be aware firstly of pain and later of itself. The emergence of such physiological structures could then justify one's maintaining that *someone* might turn out to be harmed in the future if the foetus' life is not now respected. Since this ability to be aware can be developed by the foetus in its latter stages so that it becomes a neonatal and an adult without substantial changes to its properties, we might say that the fact that the physical conditions to be conscious are met suggests that a potential identity already exists. It can be said that this foetus and the person it will become are the same individual and that although the right to live does not properly obtain until one is capable of perceiving the harm of dying, the person in potency would have an interest in this foetus' life not being taken.

According to the above, we should not only recognize the full right of most developed foetuses not to suffer; we should even acknowledge a quasi-right for them to live (a right that might however be invalidated should it conflict with the full moral demands of other beings). By contrast, an embryo does not possess the necessary structures and cerebral functions to be conscious. Therefore, and because one cannot be sure whether at any one time the natural process of twinning might not occur, the embryo cannot become a neonate without

[18] For scientific support for this assertion regarding the emergence of awareness, see for example Seller (1992); or Burgess and Tawia (1996).

substantial changes. This being the case, it makes no sense to argue that protecting the embryo's life might be a way of fulfilling one's duty to respect the right to life of *someone* who has not yet been born.

Now this does not mean that embryos do not have any value whatsoever. As we have seen, in and of themselves they have no moral status. But there may be an indirect reason why we should ascribe value to them and advocate their protection, a reason unrelated to their own characteristics. I am referring to the fact that they can be part of a reproductive project. When this is the case, the embryos deserve protection because they are motivated by a deeply rooted desire in human beings to leave offspring, a desire that is fundamental to their happiness and also necessary for the preservation of the group. However, this is not the case with embryos used in research: these are either created specifically for such ends or they are what is left over from infertility treatment and as such would have no value simply because nobody wants them to satisfy their desire to procreate.

In conclusion, if the embryos neither meet the minimal conditions for attributing them moral status, nor are necessary for reproduction, we have a significant basis for not objecting to them being sacrificed for the ends of scientific research, these ends being to improve the health and save the lives of many people.

However my proposal would not only appear to be acceptable from a rational point of view. It is also, I believe, consistent with bottom-line common sense: most people accept that activities are carried out in which embryos are treated very differently to how we treat people. Such is the case with artificial reproduction. Only the widely-held belief that an embryo is not worth the same as a person can make sense of why fertility treatment is legally permitted. For such treatment involves generating hundreds of thousands of embryos that we know will not survive. And not only are such treatments allowed, but society does nothing to prevent the death of the remaining embryos, something that would be unthinkable if the embryos mattered as much as us.[19]

To see more clearly how deep-rooted this conviction—that embryos are *not* equal to humans—really is, imagine that laboratories storing hundreds of cryogenic persons were discovered in a country after decades of despotic rule. These people, bereft of surviving relatives, had been kidnapped for use in some gruesome genetic experiment. Imagine also that in order to restore these frozen people to life, other living people had to be connected to the latter's circulatory system for nine months and endure discomfort similar to that suffered by women in pregnancy[20]. If this situation were real, not only would many feel that measurements should be taken to save the lives of those frozen people by distributing burdens equitably, but some of them would even donate their bodies to this end.

So why the same not happen with the frozen embryos does stored in assisted reproduction clinics? To what is our passivity due? Why do even their 'parents' not take interest in them? Moreover, why do the most ardent pro-life activists not offer their bodies for gestation of the

[19] J. Harris (2003, 362) argues that natural procreation also suggests that embryos are morally inferior to persons. Since in every coitus up to five embryos are miscarried, some already in the blastocyst stage, many embryos have to be sacrificed to conceive a child. Yet nobody considers exploiting all these embryos reprehensible. That is, Harris concludes, because we do not consider embryos as people.

[20] This imaginary case is inspired by a similar one conceived by J. McMahan (2007, 176).

remaining embryos in order to give them a chance to live? Probably because no one really believes that embryos and persons have the same moral status.[21]

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[21] Further evidence that even those most opposed to embryonic stem cell research do not start out with an equal consideration of embryos and persons is that the more conservative governments have not simply outlawed such research. Thus, in the United States, the G. Bush government denied such research public funds but he did not ban it. Similarly, the German Federal Parliament in 2002 approved a law that whilst forbidding German laboratories from obtaining embryonic stem cell lines, allows them to work with such lines provided they were obtained before the year of the law's promulgation.

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