

The status of the human embryo: an interdisciplinary (bioethical) analysis of reality

El estatuto del embrión humano: un análisis interdisciplinario (bioético) de la realidad

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<https://doi.org/10.36105/mye.2023v34n4.01>

Abstract

Determining the status of the human embryo is not an easy task, especially when there are different realities and proposals about it. While trying to describe what a person is, is already complex because of the social, biological, psychological and spiritual dimensions involved, when we add to this the anthropological, legal, ontological and biological value of the development of the person, it becomes even more complicated. However, when we understand that it is not appropriate to generate conflict between disciplines, but, on the contrary, that our task is to dialogue and understand that we are all working with the same reality, we can then link the human being in all its dimensions, see its integrality and rescue the original value of the human being from con-

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Reception: 05/06/2023 Acceptance: 10/06/2023

ception to death. In this essay we will focus on this analysis to establish a proposal of how to understand the status of the human embryo from the biological, legal, anthropological and ontological spheres.

Keywords: biological status, legal status, anthropological status, ontological status.

Introduction

“All men by nature desire to know” (1, 980a 20), above all, to know what and who we are, that is to say that as human beings it is important to be in constant contact with the reality of what we are. Hence, together with the advances and research on the embryo, especially with regard to Assisted Reproduction Techniques (ART) and genetic modification (2), man himself, in his search for knowledge, has raised the question of what the embryo is and what is its status or, in the words of Herrera (3), “the *status* of the human being in the embryonic state” (3, p. 45).

To question the status of the embryo requires an in-depth analysis of what it means to be human; whether it is given from conception or at what moment, the human being appears and, in anthropological terms, from when one is a person. In this sense, we will have to analyze various aspects of the person, among them, the biological question to determine from when and what is the biological question of the human being; from there then, to think about the legal aspect, where the legal condition is established and from when the legal protection of the embryo is given.

On the other hand, it is also important to reflect within the anthropological statute, what is a person and how, from its faculties, it appears in the human being and, finally, regarding the ontological dimension, which will lead us to the reflection on what is the person. We will only be able to analyze, in the Cartesian way of division, because only in this way we will be able to understand each of the

dimensions of the person. However, we will be able to see that each statute complements and integrates with the others to see that the person is an integral being and, to that extent, his statute is also integral (3).

2. The biological status of the embryo

The first of the statutes that we must consider is the biological one, since it is the first nature or the first thing that we see and know of the human being. In this sense, we can start by determining the biological status of the embryo; this refers to the phases and process of development of every human being from fertilization to birth, passing through implantation, the formation of tissues and organs until the complete development of all the systems and of the human being in an integral manner (4).

It must be recognized that the nature of the embryo is a complex subject, especially due to the dynamism and the processes of change that occur during its development, which is why it has been the object of study in different areas of medical knowledge, among which are embryology, genetics and molecular biology.

It can be stated that, regardless of the field of study of medicine, all agree that the embryo is a unicellular living being that begins to develop from the moment of fertilization. According to the definition of the The Office of the UN High Commissioner for Human Rights (OHCHR), the embryo is “a human being from the moment the spermatozoon and the ovum unite, by keeping in mind the traditional extracorporeal fertilization” (5). It is in this period that, from the formulation of the oocyte, through the zygote to the embryo, multiple biological and physical changes are experienced that will allow the human being to develop its vital functions and form its organs (6,7,8).

As already mentioned, the first step in human development, which is considered one of the key moments for embryonic devel-

opment, is the formation of the zygote, that is, the process that occurs from the fusion of the egg and the sperm. This zygote, which rapidly develops by mitosis forming the morula, from its formation already has all the DNA or genetic information that will allow the development of the embryo and each one of the tissues and organs of the human being and, in addition, is exclusive to that species, that is to say, it will never be able to develop any organism of another species since it is not in its genetic configuration (6,7,8).

Therefore, it is important to consider that “there is no change of species throughout embryogenesis. From the genome of a plant, a plant emerges, in the same way, from the genome of a human being, a human being emerges” (9, p. 310). During this procedure, the genes that regulate embryonic development are activated and expressed thanks to the genetic information present in the DNA of the zygote (6,7,8).

Now, we have established the beginning of the process of development of the embryo, however, what biology tells us does not necessarily coincide with the legal documents such as those published by the Inter-American Court of Justice and the European Court of Justice, since, after comparing their definitions with biology, we can realize that there is no unicity in which it is determined when conception begins, since in the Court it is established that this “takes place from the moment in which the embryo is implanted in the uterus” (3, p. 47), while the Court establishes that it is not implantation but fertilization that determines the status of the embryo since it defines it as “every human ovum from the stage of fertilization” (3, p. 47).

As will be analyzed in the following section, this comparative generates noise in the biological question, because many doctors and jurists can keep this concept within the legal field; for now it can be said that, from the moment of fertilization there is a new, living cell and that, due to its genotype (its genetic code) and phenotype (environment) the cell cannot be of any other species but the human species (3,8). Therefore, we can recognize that a living being of the human

species exists from the moment of fertilization and this already implies a status of the embryo that can only generate a human being.¹

In the same sense, if we recognize that “a human embryo is a complete living member of the species *homo sapiens* at the earliest stage of its natural development, unless it is denied a suitable environment, the human embryo will direct its own integral organic functioning towards its next stage of development which is the fetal stage” (10, p. 166). Therefore, we can only confirm that the identity of the embryo and, therefore, of the human being as a whole, is given from fertilization and, in the case of a genetic study, it will be identical from the beginning of development until its death, therefore, its “unique bar code”, that is, its DNA will remain intact throughout its life.

In conclusion, the biological status of the embryo refers to the developmental process that a human organism goes through from fertilization to the formation of organs and implantation in the maternal uterus. This process is dynamic, complex, and is regulated by the genetic information contained in the DNA of the zygote. The study of embryo biology is fundamental for understanding the processes of human development and the ethical and legal implications related to embryo protection and assisted reproduction, elements that we will see below. Hence, “for current biology, the acceptance that after fertilization we have a new individual of the human species is not a matter of taste or opinion, nor a metaphysical hypothesis, but experimental evidence supported in the first place by the characteristics of the zygote” (11, pp. 7-8).

3. The juridical/legal status of the embryo

So far, we have reviewed the biological status of the embryo where we established that the identity of the embryo, from the biological

¹ This tautology is valid since it serves to contradict what many opponents of the proposal say that it is not known whether the embryo will be human or not, until it has human characteristics, although it is a necessary condition, not all authors understand it in this way.

point of view, is given from the moment of fertilization and, therefore, it is a living being of the human species from that process until its death. Therefore, regardless of whether or not there are developed faculties in the human being, it must be recognized that all the functions are already configured in the DNA of the embryo and, therefore, also its faculties. Now, as the issue has begun to be addressed in the biological statute, it will be done in the legal field to determine the regulations that lead to the execution of the principle of life and when it can be considered as a person.

For this, it must be recognized that the legal status of the embryo is a very controversial and complex issue that has generated multiple debates at the social and legal level, since, although biology can frame the conception of the embryo, it is the legality and, above all, it is the social pressures, which lead to the fact that the legal conception can change. Therefore, the discussion is centered on determining if, and when, the embryo has legal rights and if it should be considered a person or simply a living being in development. It is necessary to remember that “the foundation of law is human nature or personhood [...] accordingly, the presupposition of law, the human being and his dignity, is a reality given to law, not created by it” (12, p. 92).

It is true that as technology advances and, therefore, also scientific knowledge, the issue of embryonic development and the implications regarding the different ART, genetic engineering and, above all, the possibility of abortion, have raised new questions that have led to review existing legislation (13,14). In this sense, it is important to consider not only physicians and lawyers, but also scholars from different fields to address this issue in a rigorous and well-founded manner.

Wade in the United States, where it was established that “a pregnant woman has a constitutional right to privacy in matters of procreation, and that this general right includes the right to abortion if she and the physician decide in favor of it” (3, p. 62), however, the author also mentions that this argument is a tricky one because it

does not consider that the embryo is already a living being and, therefore, has rights as a human being. It is precisely this reason that led the U.S. Supreme Court to overrule this case on May 2, 2022 (15).

As can be seen, one of the most important rulings in history omits important elements regarding the embryo, therefore, it is of vital importance to start from the definition of the embryo, which is taken from the biological field and provided by Raul Artal-Mittelmark through the MSD Manual, where he establishes that “a baby goes through several stages of development from the fertilization of the ovum. The egg develops into a blastocyst, an embryo, and finally a fetus.” (16). In this sense, the embryo, the baby referred to in the manual, is considered a living being from the moment of fertilization, although its legal status is a matter of debate.

In many countries, legislation establishes that the embryo has no legal rights and that its protection is subordinate to that of the pregnant woman. This is the argument on which certain social groups base themselves to establish that the woman is the sole owner of her body and, therefore, has the right to choose whether she wants to continue the pregnancy or terminate it at the moment she decides (in accordance with the laws of each country), without any justification being required of her.

On the other hand, there are those who defend that the embryo should be considered a person from the moment of fertilization, which would imply the protection of its fundamental rights (12). This position is based on the religious and/or philosophical conception that holds that the embryo is a human being and, therefore, a person from conception. In this sense, the Universal Declaration on Bioethics and Human Rights of UNESCO affirms that “human life must be respected and protected in its entirety, from the moment of conception” (17).

To consider the differences in these positions, Bermeo & Corredor (18) analyzed the legislation of Colombia, their country of origin, as well as that of England, Germany and France. After comparing the legal provisions regarding the human embryo, they determined

that “it can be concluded that in comparative law there are legal principles that guarantee special protection to embryos fertilized in vitro” (p. 130), and, although they do not mention it explicitly, they also refer to the fact that this protection is for all embryos.

The conclusion reached by Bermeo & Corredor (18) is based on the fact that, although there are no specific documents where the legal status of the embryo is mentioned, the importance of the Universal Declaration of Human Rights is recognized, where specifically art. 3 mentions that: “everyone has the right to life, liberty and security of person” (19). Likewise, the Declaration of the Rights of the Child (18) seeks to guarantee and protect the life of children, including the unborn.

Therefore, it is important to point out that the legal status of the embryo varies according to the country and the legislation in force in each case; even in some countries, such as the United States, where there are laws that protect the embryo from the moment of fertilization, while in others, such as Spain or Peru, protection is limited to the moment of implantation in the maternal uterus (14). However, it is necessary to recognize that “the human being must be respected and treated as a person from the moment of conception and, therefore, from that very moment, the rights of the person must be recognized, mainly the inviolable right of every innocent human being to life.” (9, p. 317).

We can conclude then that the status of the embryo, especially from the legal field is complex, although each country may have its laws, these must always take care of the life and rights of every human being and, therefore, if from the field of human nature it is recognized that “being the person a unique and unrepeatable reality, it is impossible to separate the legal concept of person from the ontological concept. In this sense, the law does not incorporate anything to the ontological structure of the person” (12, p. 97), on the contrary, it must adhere to the ontological status to be able to consider from where and when the law must be applied to the embryo.

4. The anthropological status of the embryo

In a third moment, we must consider the anthropological status of the embryo, above all, because although, as previously considered from the biological point of view the human being is a *continuum* in development (9). It is also recognized that the experience of the legal sphere has some important considerations, above all in the recognition of the value of the person because it is a living being from its conception. However, it is now time to understand how the biological and the legal (social) relate to the understanding of the human being and his moral value.

The question then arises: why is it important to consider the anthropological aspect? Anthropology “studies the diversity of human socio-cultural realizations, including the very emergence of humans in their ecological environments. [...] Any reality relevant to the understanding of what is human can be part of its field of research” (20), which is why anthropology has approached this subject from different perspectives and approaches, generating different positions and stances.

It is then that, from this perspective, it is recognized that the embryo is a human being in development; some authors point out that “in potentiality” and others that “in act”, but it can be accepted that it possesses a genetic load and a biological structure that differentiate it from other living beings. According to the UNESCO definition, the human embryo is “the developing human organism from fertilization to the end of the eighth week of gestation” (17). This definition highlights the importance of the embryo as a developing human being, which has an intrinsic moral value due to its status as a living being and its potential to develop into a human being.

From this perspective, we must remember the notion of *continuum* of which we spoke earlier and which is born from the biological perspective (4,9), since it can be said that the development of the human being is not only given by the presence of the human being’s faculties, but of the potentiality to develop them. In this sense, Aris-

tote (1) had already spoken that the human being is a subsistent being, that is, there is an entity that is present in every human being and that from its development, it is being formed according to the accidents² he had.

If from biology we can say that the subject is subsistent, that is, essential, from the field of biology we can recognize, in the DNA of the person, the very essence of each individual and, therefore, from his body, that is, from his nature, we can recognize that the body of each person is the one that supports “the vital functions [...] and therefore of the fundamental rights and duties” (3, p. 52).

On the other hand, we must recognize that there are individuals who do not consider the person as that essence that underlies in itself, but reduce it to very particular functions, from that position, the person is not recognized as such, but as a personality, therefore, this can be acquired or lost, even modified over time (3); However, whoever does not consider the above, his theme is that there is no human being to whom to attribute personality; in this case the functionalist postures would lose their sense, since a person does not refer only to the functions he performs, but is much more than that.

In this sense, when analyzing different proposals it can be recognized, as Herrera (3) also does, quoting Possenti, that, at the end of the road, there is the need for the existence of the human being, or at least that there is something, as is also the case of the orangutan “Sandra” mentioned in Herrera’s text (3, p. 52). Therefore, it must be recognized, from anthropology, that the functions and the operative space of the human being is not essential, but is an accidental sphere, therefore, together with the context, emotions, feelings and others, the essence of the being and, therefore, its integrality, that is to say, the unity of the person, is being shaped.

In any case, the opposite is true:

² We understand by accidents, in the Aristotelian way, those qualities of the human being that are not essential and that are being formed, among them, the way of thinking, physical qualities, human relationships, etc.

If this unity were not present in the one existential act, one of two consequences would follow: dualism, whereby the soul and the body would have their existence united accidentally between them (Platonic and Cartesian conception); or the soul would have an existence dependent on the body, as happens in the forms of the other material substances (materialistic conception) (4, p. 410).

Now, it is important to mention that, although the human being is a unit and, therefore, is an integral being, it does not mean that all the time he acts in the same way and, therefore, that he puts in exercise all his capacities or faculties, but that he has the advantage of being the same person from fertilization until death, so he can develop, improve and, even, also affect (9,21). That is why it can be said that a person as a child and as an adult is the same, even if he does not have the same capacities, he develops them: “the individual human living being in the zygote state is fully a human person, who must, however, progressively actualize his multiple potentialities” (21, p. 38).

It is the capacity of the human being to develop itself that Berti, quoted in Herrera (3 p. 57), will say that, “if the embryo is already in potency, it must possess in act, as the first act, the soul that is proper to the human species, even if it is not in a position to exercise all its faculties rapidly”, hence the status of the human being as a human being, hence the anthropological status of the embryo allows to confirm that, if the fertilization is given since the parents or the ART process, the fertilized embryo has all the conditions to develop exclusively as a human being and not another species (9). From this perspective, then, it is a human being in the act of development and, therefore, of perfecting itself as a person. Hence, it is recognized, for example, that “a baby does not have the reasoning capacities of an adult —but the possibility of acquiring them— and for this reason it is not denied its human condition” (9, p. 314). However, it is always the same and unique person that, as from biology, is recognized in the essential *continuum* of life (4,9).

It is only since the appearance of ART, the advances in biotechnology, as well as the appearance of Artificial Intelligence that more

complex problems begin to arise around the anthropological conception of the embryo (13). The possibility of manipulating and modifying the human embryo has generated ethical and moral concerns in society and has led to reflection on the need to protect human life and the dignity of the person, but it is up to ontology to determine what dignity is, an element that will be discussed in the following section.

These possibilities have explored the nature of the embryo from the perspective that its development is controllable and, furthermore, that it is not a person insofar as its faculties are not fully developed, hence also that abortion can be justified until the appearance of the faculty of feeling. However, “the development of the human zygote is activated at the moment of fertilization; it is a continuous action that actualizes and puts into action all the potentialities and capacities that are in the internal structure of the human being. From this moment begins the ‘selfhood’ and identity that inhabits each person” (22, pp. 79-80).

However, from the social sphere, many authors and lawyers have tried to solve this development and identity of the embryo by saying that since the embryo is “part” of the mother and, therefore, part of her body, the freedom and autonomy of the mother and what she decides to do with her body must be respected (12,13), however, in reality, although it is true that “the autonomy of the mother and her freedom, which the law refers to, [exists,] it does not reach [the embryo] when trying to decide on its entity that only seeks sustenance and security in a period of vulnerability, that is, it has no physiological right over it” (23, pp. 37-38). On the contrary, the mother has her own autonomy, it is true, insofar as she is self-conscious and self-sustaining, but, by the same token, the embryo is also free and autonomous insofar as it is self-determining.

Finally, by way of conclusion, the anthropological status of the embryo is a complex and dynamic subject, which has generated diverse positions and approaches within anthropology. From this perspective, the embryo should be considered as a human being in act,

although with potential faculties, possessing a genetic load and a biological structure that differentiate it from other living beings, remembering that “what is proper to the human living being is to exist as a person, and personal existence supposes self-consciousness and self-government” (21, p. 41). However, the debate will continue as technological advances and the deepening of the knowledge of the person continue.

5. The ontological status of the embryo

So far, we have reviewed three of the four dimensions of the person. On the one hand the biological part that has mentioned to us that the human being, and especially the embryo, is part of a *continuum* from conception to death (4,9). On the other hand, from the social and juridical aspect, we have discovered that life must be preserved and, therefore, cared for in all aspects, especially when we speak of human life (3,8). Finally, we have just analyzed that the embryo is the basis of development of the human being, especially because from the genetic configuration of the DNA there are already all the faculties of the human being in potentiality (2), but, for the same reason, there is a base, a subject (1), of which we speak and develop, this subject is the human person that is already inscribed from the origin of the human being.

In this sense, it is now time to analyze the last of the dimensions of the person, the spiritual dimension. To understand the spiritual part of the human being, we must understand the ontological status of the human embryo, especially because we must recognize that it is a topic of great relevance and, therefore, of debate between philosophy and biology, since it refers to the nature and essence of the human being from the beginning. Ontology, as a branch of philosophy, studies reality and being in itself (24). It should propose, then, the answer from the very essence of what a human being is and, therefore, the person and, as a result, “to have the status of person

(both from the ontological and legal level), only one criterion is required: biological belonging to the human species” (12, p. 99).

From the ontological perspective, the human embryo is considered as a living being with its own entity³ and nature, which develops from fertilization (22). According to this view, the human embryo possesses a unique genetic identity and a biological structure that distinguishes it from other living beings, even “biology stresses that in the zygote the biological identity of a new human individual is already constituted” (9, p. 313), which makes it a human being from the beginning (25).

However, there are different positions and approaches within ontology regarding the ontological status of the embryo. Some authors argue that the embryo should not be considered as a complete or full human being, but as a potential human being, because its development and maturation are progressive and gradual (21,22). Other authors, on the other hand, argue that the ontological status of the embryo depends on its relationship with the environment and with other human beings, and that it cannot be approached in an isolated or abstract manner (9). Finally, the true nature of the embryo can only be given because “from the moment of fertilization there exists an individual living organism belonging to the human species” (21).

For example, some authors have argued that the human embryo is a complete human being from the moment of fertilization, since it possesses a unique genetic identity and a biological potentiality that makes it a fully developing human being (9,22). From this perspective, the human embryo is not a potential human being, but a human being, which is at an early stage of its development.

Other authors have approached the subject from a metaphysical perspective, related to the nature and essence of the human being from its origin. From this viewpoint, the human embryo is consid-

³ Considering the embryo as an entity implies endowing it with meaning and reason and with an identity of its own that, no other being in the world has.

ered a human being from the beginning, because it possesses a spiritual or transcendental dimension that distinguishes it from other living beings (26). According to this position, the human embryo is not only a living being with a biological entity, but also a being endowed with a dignity and an intrinsic value that must be respected and protected (2,19).

Therefore, before concluding this section, it must be recognized that the human being is a continuum from conception to death (2,4,7,22); that his legal status is linked not only to his life, but also to his dignity and his recognition as a unique person from the very conception (12), that, as a person, it is not that he is in potential, but that he is a person in action, that he is developing and, therefore, the fact that “the conscience and other faculties are linked to the internal structure of the person, highlights the integrality of the human being, who exists in his corporeality” (22, p. 90).

Therefore, before the question: what is the human embryo from the ontological point of view? It implies considering the embryo as a living being with its own entity and nature, which develops from the fertilization of the ovum by the spermatozoon, which is part of a process, but, above all, which is a someone, a person, complete, integral, developing, but like any other person, who is in search of its meaning (27), but also capable of giving meaning to the world despite the fact that its faculties are not developed.

6. Conclusions

From the different statutes reviewed, and as shown in Table 1, it is possible to begin to work on a proposal for a scheme that helps us to better understand the general statute of the embryo and that later allows us to work on the elements of integration of the person:

Table 1. General statutes of the embryo

Category	Biological statutes	Legal statutes	Anthropological statutes	Ontological statutes
Definition	The human embryo is a unicellular living being resulting from the union of an egg and a spermatozoon.	The legal status of the embryo varies in different countries and cultural and political contexts. In some countries, the human embryo has legal recognition from its inception, while in others it is granted legal status from a certain point in its development.	The human embryo is a potential human being that develops from its biological beginning and possesses a series of anthropological characteristics that distinguish it from other living beings.	The human embryo is a human being from the beginning, possessing a unique identity and an intrinsic nature that distinguishes it from other living beings.
Similarities	The human embryo is a living being with a biological entity and a potential for development.	The legal recognition of the human embryo is based on its status as a human being and the need to protect its life and integrity.	The human embryo possesses a series of anthropological characteristics that distinguish it from other living beings, such as its origin and its potential for development.	The human embryo is considered a human being from the beginning, with a unique identity and intrinsic nature.

Differences	The human embryo has a defined biological status from its inception, while its legal and ontological recognition varies in different contexts and cultures.	The legal status of the human embryo depends on the norms and laws of each country and may vary from its inception to a certain point in its development.	The anthropological status of the human embryo is based on its potential for development and on the characteristics that distinguish it from other living beings.	The ontological status of the human embryo refers to its unique identity and intrinsic nature as a human being from its inception.
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Source: prepared by the author.

As we have been able to observe, there are four spheres that intervene in the development of the definition of the statute of the human embryo: biological, juridical, anthropological and ontological. This coincides fully with the dimensions of the person: biological, social, psychological and spiritual (28,29) and, in addition, in the same way as the dimensions of the person, the ways of understanding the statutes of the embryo are intimately related and, therefore, become an integral unit.

This is not by chance, in fact, it is the most natural thing to do, because the way of understanding the statutes is the same as the way of relating to the world (26,30). What we must not forget in the face of this reality is the unity of the person, an integral unity in development, which cannot occur without gradualness and, therefore, the person cannot be lost at any moment or phase, but must be given in the whole process of understanding the person from fertilization to its death (2,4,7,22), unlike certain physicians such as Clifford Grobstein and the Warnock Committee (31) when they decided to coin the term pre-embryo for in vitro embryos, but, this, in its essence and in its nature, is no more than the same as any other human embryo with its genotype (genetic information) and phenotype (human context).

And, because this gradualness is given in a unity, which, as it has been developed, is presented in an integral way, we can only say that although, for the study of the status of the embryo we have to separate the biological, psychological (or anthropological), social (or legal) and spiritual (or ontological) dimensions, it is important to remember that they are all part of the same person and, therefore, the status of the human embryo is one: one is a person in act from conception to death, always in the process of actualization and, therefore, in development of faculties, regardless of time or space, the person is a person today, tomorrow and forever.

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