

SPOTLIGHT

The status of the human embryo in various religions

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ABSTRACT

Research into human development involves the use of human embryos and their derivative cells and tissues. How religions view the human embryo depends on beliefs about ensoulment and the inception of personhood, and science can neither prove nor refute the teaching of those religions that consider the zygote to be a human person with an immortal soul. This Spotlight article discusses some of the dominant themes that have emerged with regard to how different religions view the human embryo, with a focus on the Christian faith as well as Buddhist, Hindu, Jewish and Islamic perspectives.

Introduction

Philosophical ideas and religious beliefs around the status of the human embryo as a person have been documented for over a millennium. Within the scientific community, our understanding of human development is increasing at an unprecedented rate, forcing many to re-examine and even challenge some of these beliefs in light of new discoveries. The purpose of this Spotlight article is to give a broad but brief overview of how several major world religions view the human embryo and, thus, by extension, research into human developmental biology. For simplicity, and for reasons of space, a number of generalizations have been made, and the reader may wish to explore the nuances within and among different religious beliefs. As an example, the book *God and the Embryo* by Waters and Cole-Turner (2003) offers a diverse collection of Christian perspectives on the status of human embryos that spans Protestant and Roman Catholic faiths. Despite these generalizations, an appreciation of the different religious views concerning the status of the human embryo – even at the very basic level – is important for developmental biologists to consider in this rapidly evolving field.

The evolving Roman Catholic perspective

Among contemporary religions, the Roman Catholic Church now holds most firmly the belief that inception of human personhood coincides with fertilization of an egg by a sperm (Catechism of the Catholic Church, 2017). This was decreed in 1869 by Pope Pius IX; however, in earlier centuries of the previous millennium, prominent Catholics expressed no such certainty. Indeed, previous Catholic views had accepted 40 days as the point at which personhood began, and even had allowed abortion up to that time. In the 13th century A.D., the Roman Catholic theologian Thomas Aquinas embraced successive stages of ensoulment (Vollert, 2002). He believed that the embryo possessed first a vegetative soul, like that of any living thing such as a plant, and later a sensitive soul, like that of any sentient animal. Aquinas believed that God gave rational souls only to human beings and that this occurred around day 40 of

development, thus emphasizing the importance of the physical development of the embryo in creating a home for the rational soul. These views were generally embraced and in the early 14th century, the Italian poet Dante Alighieri described a Roman Catholic view of ensoulment in the following passage from the *Purgatorio* (Sinclair, 1961):

‘... as soon as the articulation of the brain is perfected in the embryo, The First Mover turns to it, rejoicing over such a handiwork of nature, and breathes into it a new spirit full of power, ... a single soul that lives and feels and revolves upon itself.’

Canto 25, 67-75.

The emerging science of microscopy in the 17th century played a pivotal role in the evolution of Roman Catholic thinking about human embryos, and the belief put forward by Aquinas was not to last. Soon after Robert Hooke and Antony van Leeuwenhoek pioneered observations with optical microscopes, natural philosophers hastened to apply it to every available substance, including semen. Looking at the head of a sperm with these crude devices left much to the imagination, and the more creative among these early observers described tiny human beings curled up in the sperm head. Suddenly, the ‘true’ explanation of human development seemed apparent: the human body resided as a preformed entity inside the head of every sperm (Fig. 1).

Believing this as true, it followed that gestation entailed nothing more than the enlargement of a preformed human body, and so theologians found no need to delay ensoulment based on physical developmental milestones, as Aquinas and many others had believed. Even though we now know the preformationists were wrong – there is no tiny human being curled up inside the head of every sperm – their error played a significant role in discrediting the views of Aquinas and shaping current religious views on ensoulment and the beginning of human life. Important work on fertilization in the late 19th century reinforced this idea and coincided with Pope Pius IX’s decree that ‘hominization’ begins at fertilization. These days, the position of the Roman Catholic Church is that all human life deserves protection, defining human life as beginning from conception; it no longer considers physical milestones such as the development of the brain and nervous system, as prerequisites for ensoulment.

Diverging Roman Catholic views: genetic versus developmental individuality

Some opponents of research with human embryos argue that the unique genetic constitution of the zygote resulting from fusion of egg and sperm justifies the belief that human personhood begins at fertilization. However, this perspective conflates genetic individuality with developmental individuality, a distinction drawn by Father Norman Ford, a Roman Catholic theologian on the faculty of the Salesian Theological College in Australia, who undertook a detailed historical and philosophical analysis of how people think about the beginning of human life and reached

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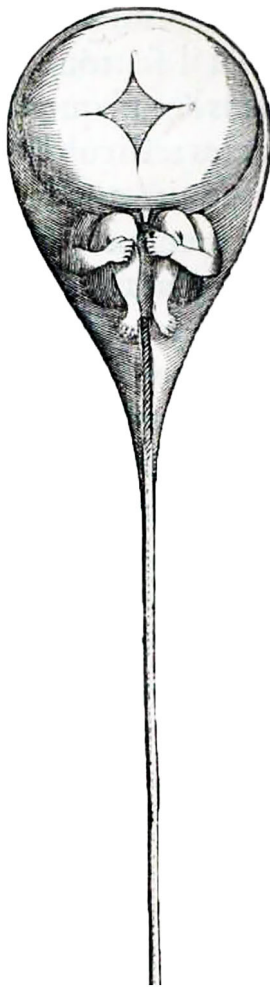


Fig. 1. Homunculus by Nicolas Hartsoeker in 1694. Hartsoeker's drawing of 'the little infant' inside the head of a human sperm became the icon of the preformation theory of human development (Hartsoeker, 1694).

conclusions that conflict with current Roman Catholic dogma (Ford, 1991). Ford argued that genetic uniqueness per se does not make a zygote a human individual, and pointed to the capacity of the zygote to undergo twinning as evidence that it lacks developmental individuality and thus cannot yet qualify as a human being. According to Ford, the product of fertilization is a new human life, but it is not yet a new human being.

Father Richard McCormick, the late Rose Kennedy Professor of Ethics at Georgetown University and another ordained Roman Catholic priest who disagreed with the Vatican, rejected arguments that a new human being comes into existence when a zygote forms and referred to the human blastocyst as a preembryo (McCormick, 1991):

'In view of the conviction that the preembryo is not yet a person and that its statistical potential for becoming such is small, it is not clear that nontherapeutic experiments can be excluded in principle.'

Diversity of Protestant positions

The decentralized nature of Protestant denominations militates against a consistent position on research with human embryos. Some Protestants oppose this research, and their objection centers on the assumption that collecting cells from a blastocyst kills a human being. They cite Jeremiah 1:5 (The Holy Bible, Revised

Standard Version, 1952; Dudley, 2011): *'Before I formed you in the womb I knew you, and before you were born I consecrated you; I appointed you a prophet to the nations.'* Other Protestants reject the personhood of blastocysts and cite Ecclesiastes 11:5 (The Holy Bible, Revised Standard Version, 1952): *'As you do not know how the spirit comes to the bones in the womb of a woman with child, so you do not know the work of God who makes everything.'* If any passage of scripture holds relevance to the impenetrable mystery of when ensoulment occurs during development, Ecclesiastes 11:5 qualifies, owing to the implied pre-requisite of bone formation.

Buddhist, Hindu, Jewish and Islamic perspectives

Under Buddhist teachings (Buchitchon, 2012), an embryo acquires personhood after implantation in a mother's uterus, and research may be conducted on human embryos *in vitro* if intended *'...to help humankind'*. A recent survey of Buddhist scholars in Malaysia found overwhelming support for human embryonic stem cell research, whether conducted with surplus or research embryos (Sivaraman and Noor, 2014). At the 10th Mind and Life Institute conference on modern science and Buddhism in Darmsala, India, the spokesperson for the Gelug school of Tibetan Buddhism, the 14th and current Dalai Lama (2003) stated:

'But how do we understand at what point consciousness enters the embryo? This is problematic. A fetus, which is becoming a human is already a sentient being. But a fertilized egg may actually bifurcate into 8, 16, 32, 64 cells and become an embryo, and yet be naturally aborted and never become a human being. This is why I feel that for the formation of life, for something to actually become a human, something more is needed than simply a fertilized egg.'

In general, most Hindus believe that the beginning of personhood coincides with the occurrence of reincarnation at the moment of conception, and that the earliest human embryo deserves respect (Sivaraman and Noor, 2014). However, Hinduism is intrinsically flexible, and the destruction of a human embryo can be justified under certain circumstances – for example, to save a mother's life (Tiwari, 2013). When potential benefits to humankind could result, Hindu scholars generally favor embryonic stem cell research, but only with surplus blastocysts from fertility clinics, not with blastocysts created for research (Sivaraman and Noor, 2014). Interestingly, many followers of the Sikh religion also share the belief that the beginning of personhood coincides with the occurrence of reincarnation at the moment of conception.

The Jewish faith respects embryos because of their potential to become human beings, but it does not accord them the same status as a person. In Judaism, the embryo is considered to be 'mere water' until the 40th day when a soul may take up residence in the developing body (Ron-El and Rizk, 2012), but the Babylonian Talmud only attributes full personhood to a fetus when it is birthed (Schenker, 2008). A younger embryo should be treated respectfully but not as a person, with increasing consideration given according to age. The older it is, the more compelling should be the reasons for ending its life (Israel Academy of Sciences and Humanities, 2001).

Like Judaism, Islam respects an embryo because of its potential to grow into a human being, but does not assert that a blastocyst is already a person, thus making the distinction between actual life and potential life. Islam has no central authority that determines the status of human embryos, and the crucial question for faithful adherents revolves around the timing of ensoulment and the beginning of personhood (Opoku and Manu, 2015). The Quran

does not provide an answer, but many in the Islamic community, including the Muslim World League, have embraced a time point of 120 days after conception (Sivaraman and Noor, 2014). Some Islamic scholars have argued that ensoulment could happen as soon as 40 days after fertilization, and to accommodate this possibility, the International Bioethics Committee of the United Nations Educational, Scientific and Cultural Organization published the following provision (Smith and Revel, 2001):

‘For example, in the case of Islam, the use of embryos for therapeutic or research purposes may be acceptable provided that it takes place before the point at which the embryo is ensouled, i.e. from the 40th day after fertilization.’

In general, Buddhist, Jewish and Islamic views appear to support the idea that ensoulment occurs in the uterus after implantation and well beyond the early development of a human embryo.

Conclusion

Some religions embrace the belief that an early embryo *in vitro* constitutes a person, but this belief is not a universal ethical principle. In general, the Roman Catholic Church is the strongest proponent of this belief, and thus, not surprisingly, has in recent decades opposed the artificial creation and use of human embryos and human embryonic stem cells in every form. While a diversity of views can and does exist in every religion, as a general theme it is clear that other major religions such as Judaism, Islam, Buddhism, and some Protestant denominations reject the idea that an embryo prior to implantation in a uterus is a person, and thus are, in general, more supportive of research into human embryology.

Competing interests

The author declares no competing or financial interests.

Funding

William B. Neaves is supported by the Stowers Institute for Medical Research where he serves as President Emeritus.

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