

THE STATUS OF THE HUMAN EMBRYO: AN ANALYSIS FROM THE CHRISTIAN AND ISLAMIC VIEWPOINTS

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ABSTRACT: *The issue of when human life begins and the present state of scientific developments has made the status of an embryo a major controversial issue. Developments such as embryonic research, human cloning, genetic engineering, assisted reproduction techniques, pre-implantation diagnosis and genetic screening, among others have brought forth weighty questions on the status of the human embryo. This question of the status of the human embryo has been debated upon by many in the medical field, secular philosophy and by religious scholars. This article describes the nature of the embryo from religious point of view (Christianity and Islam), and further makes an analysis between the view points of these religions. The objective is to ethically examine the status of the embryo from the perspectives of Christians and Muslims. This involves an analysis of the ethical concerns of the two major religions to ascertain their position on such an existing contemporary ethical issue. While most people in the scientific community describe the embryo as none other than a human tissue, religious scholars view it as human or a potential human being which should be treated with the highest respect and dignity. This in a way has created an impasse which is somehow affecting scientific researches as well as religious thoughts. The paper is made relevant due to its quest to comparatively examine the take of religion -which shapes and continue to inform many minds -on modern scientific medical developments.*

KEYWORDS: Human embryo, Status, Christianity and Islam, Comparative Analysis, Ethics

INTRODUCTION

The evolution of scientific developments has generated controversial subjects which have attracted wide ethical concerns and public debate. These developments which are aimed at addressing different forms of human suffering, such as reproduction and treatment of degenerative diseases (like Parkinson's and Alzheimer's), have made the status of the human embryo a great concern and a debatable issue.³

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³ Bonnie Steinbock, "Moral Status, Moral Value, and Human Embryos: Implications for Stem Cell Research" In: *The Oxford Handbook of Bioethics*. (Oxford: OUP, 2009).

When exploring the morality behind scientific technologies, such as embryonic stem cell research, *in vitro* fertilisation and ethical issues such as abortion, the status of the embryo is extremely important. Even with the potential benefits of these scientific researches, they involve the destruction of the human embryo⁴ and this has put the status of the human embryo into question. Questions that are usually asked centres on whether or not the human embryo should be given an/a unconditional/conditional respect, and at what stage has the embryo attain personhood.

With regards to the status of the human embryo, different views have emerged ranging from regarding the embryo as having merely human properties to being a potential person. Authors like Helga Kuhse and Peter Singer, based on *in vitro* fertilization, are of the view that there is no moral obstacle to the destruction of unwanted embryos⁵. Hence, a human embryo is not a human being with rights, and can therefore be treated as a means to an end. However, some Christians assert that there is no special moment when human life suddenly becomes worthy of respect and human rights. Worth in their view is inherent and humans deserve full respect by virtue of the kind of entity they are.⁶

In medical ethics, human life from conception is supposed to be preserved. The International Code of Medical Ethics of the World Medical Association (WMA) states clearly that, “a doctor must always bear in mind the obligation of preserving human life from conception...”⁷ In like manner, the Declaration of Geneva (1948) stipulates that doctors maintain the utmost respect for human life from the time of conception, even under threat.⁸ To this extent, human embryos, therefore, should not be used as means to an end; not even for good ends such as cures for diseases to save another human life.

THE HUMAN EMBRYO DEFINED

The human embryo has been broadly defined as “the developing human during its early stages of development”⁹. This embryonic period extends to the end of the eighth week (56 days), by which time the beginnings of all major structures are present¹⁰. Basically, an

⁴ Sina A. Muscati, “Defining a New Ethical Standard for Human in Vitro Embryo in the Context of Stem Cell Research.” *Duke Law and Technology*, Review 26: 2002, 37. (<http://Scholarship.Law.Duke.Edu/Cgi/view/content.cgi?article=1067&context=dltr/>: 21/12/2014).

⁵ B. F. Scarlett, “The Moral Status of Embryo.” *Journal of Medical Ethics*, Vol. 10(2): 1984, 79-81. (<http://jme.bmj.com/content/10/2/79.full.pdf/>: 21/12/2014).

⁶ “Debating the Moral Status of the Embryo.” *Harvard Magazine* (2004). (<http://harvardmagazine.com/2004/07/debating-the-moral-statu.html/> 23/11/2014).

⁷ “International Code of Medical Ethics of the World Medical Association -1949” In: *World Medical Association Bulletin*, Vol. 1(3): 1949, 109-111. (<http://www.cirp.org/library/ethics/intlcode.20/12/2014>).

⁸ The World Medical Association Declaration of Geneva (1948). Physician’s Oath. (<http://www.cirp.org/library/ethics/geneva/>: 20/1/2015).

⁹ Keith L. Moore and T. V. N. Persaud, *The Developing Human: Clinically Oriented Embryology* (7th ed). (Philadelphia: Saunders, 2003).

¹⁰ National Health and Medical Research Council. ‘*Human Embryo*’ –A Biological Definition. (2005), p.3. (http://www.nhmrc.gov.au/_files_nhmrc/file/research/embryos/reports/humanembryo.pdf/: 20/1/2015).

embryo is formed from the union of an egg and sperm which are collectively referred to as “gametes.” These gametes contain all the genetic information inherited from parents¹¹.

Biologically, at conception, a human egg and sperm become a zygote, which begins to divide, becomes an embryo and rapidly becomes a cluster of cells¹². As the day passes by, it develops into the foetus, while the other cells become the placenta, umbilical cord and other supporting structures for the embryo-foetus. This is, for many, a significant biological factor in determining the status of the embryo.¹³ There is, however, a biological differentiation between ‘zygote’, ‘embryo’ and ‘foetus’. The zygote is the fertilized egg cell. During the first stage of development of a baby from the moment of fertilization, it is referred to as an embryo and it is called a foetus from the eighth week after conception.

RELIGIOUS VIEWS CONCERNING THE STATUS OF THE HUMAN EMBRYO

When it comes to ethical thinking and decision making, most people are often guided by their religious beliefs. It is these religious influences that often shape their ethical values about issues. Most world religions teach that all human life is sacred. However, when it comes to determining the status of the human embryo in relation to the evolution and usage of the scientific reproductive assisted technologies, various religions have a view on whether or not, or at what point an embryo is considered a human being¹⁴. There are three main views concerning the topic of the status of human embryo. They are as follows:

1. The embryo is merely a human tissue and not a person as such.
2. The embryo in its earliest form is only potentially human and must be differentiated from a foetus on the way to being born.
3. The embryo is, from the point of conception, already a human person, although it is in a vastly different prenatal stage.

For some religions, the human embryo is a human person from the moment of conception, while, for others, the important moment is the moment of ensoulment, when the embryo or foetus develops or obtains a soul. Ensoulment is sometimes thought to occur weeks or months after conception. These differing opinions reflect diverse views held by and within the major world religions. Based on these views, the status of the human embryo will be assessed from the Christian and Islamic point of view. It should also be stated that even though an individual may belong to a particular religious faith, he/she may sometimes disassociate with the views of that religion.

¹¹ Ann A. Kiessling, “What is an Embryo?” *Connecticut Law Review*, Vol. 36: 2004. (<http://www.bedfordresearch.org/newsandlibrary/files/CLRPub04.pdf>/ 20/01/2015)

¹² “What is an embryo?” (<http://www.wisegeek.com/what-is-an-embryo.htm/>: 20/01/2015).

¹³ Anne Dickinson, John Kleinsman, Michael McCabe, “The Moral Status of the Embryo”, Issue 5, November 2001. (<http://www.nathaniel.org.nz/component/content/article/14-bioethical-issues/bioethics-at-the-beginning-of-life/73-the-moral-status-of-the-embryo/>: 21/01/2015).

¹⁴ National Council of Churches of Singapore, *A Christian Response to the Life Sciences*. (Singapore: Armour Publishing Pte Ltd, 2002), p.63.

CHRISTIAN VIEW¹⁵

God's involvement in the creation of the human being in a mother's womb is evident in the Christian scriptures. Thus, our responsibilities towards the embryo are invoked and the consideration of its rights as well. However, this scripture does not clearly address when human life begins though the bible does make reference to the origin of human life at the first breath and not at conception¹⁶.

Christians believe that human beings have been individually created by God and derive their integrity and worth from the fact that they are made in the image of God (Imago Dei). God's image is endowed by grace; conferred from outside, and therefore not contingent on any intrinsic properties the embryo may or may not possess. That is, genotype, age, size, location or degree of dependence and disability¹⁷.

As is the case with most ethical issues, Christians hold a range of views about the status of human embryos. All Christians agree that a person's life is a gift from God but when it comes to the status of the embryo, there are different views held by each Christian group. Christians who believe that the full status of a human embryo begins at fertilization point to verses in the Old Testament that talk of God watching, caring for and nurturing a person as the person grows in the womb.

“Your eyes looked upon my embryo, and everything was recorded in your book. The days scheduled for my formation were inscribed, even though not one of them had come yet”¹⁸.

This verse affirms God's creation of and communion with the embryo in the womb as well as implying continuity between life before and after birth. God calls Isaiah and Jeremiah before birth¹⁹ and forms Job 'in the womb' as well as bringing him out of it.²⁰ The idea that God cares about us as we grow in the womb indicates that Christianity teaches that all humans should show the same care. Consequently, we must treat the embryo as a full human with full rights from the moment the sperm and egg combine.²¹ This view is mostly held by the Roman Catholic Church. Meanwhile, other Christian groups add that life in the womb is about human relationships, and this starts when the embryo becomes implanted in the mother's womb.

Roman Catholic View

The Roman Catholic Church is of the view that an embryo should be given full human status the moment a human egg and sperm combine.

¹⁵ Peter Moore, *Ethical Debates: Stem Cell Research*. (New York: The Rosen Publishing Group, Inc., 2012). p.22.

¹⁶ M. Jafari, F. Elahi, S. Ozyurt and Ted Wrigle, “Religious Perspectives on Embryonic Stem Cell Research”. In: Kristen R. Monroe, Ronald B. Miller and Jerome S. Tobis (ed), *Fundamentals of the Stem Cell Debates: The Scientific, Religious, Ethical and Political Issues*. (London: University of California Press, 2008), Pp.82-86.

¹⁷ Peter Saunders, “The Moral Status of the Human Embryo -When is a Person?” *Christian Medical Comment*. (2013). (<http://pjsaunders.blogspot.com/2013/07/the-moral-status-of-human-embryo.html>: 2/1/2015).

¹⁸ *International Standard Version*. Psalm 139 vrs 16.

¹⁹ *Ibid.*, Isaiah 49 vrs 1; Jeremiah 1 vrs 5.

²⁰ *Ibid.*, Job 10:8, 9, 18, 19 .

²¹ Peter Moore, *Ethical Debates: Stem Cell Research*. (2012), p.22.

The official position (the *Magisterium*²²) of the church is that the human person begins at conception, and that, the human embryo has the same moral status as the human person. An embryo, therefore, must be respected and treated as a human person with dignity and rights, particularly the right to life.

The *Donum Vitae* quoting the ‘Declaration of Procured Abortion’ teaches that;

From the time that the ovum is fertilized, a new life is begun which is neither that of the father nor of the mother; it is rather the life of a new human being with his own growth. It would never be made human if it were not human already. To this perpetual evidence... modern genetic science brings valuable confirmation. It has demonstrated that, from the first instant, the programme is fixed as to what this living being will be: a man, this individual-man with his characteristic aspects already well determined. Right from fertilization is begun the adventure of a human life, and each of its great capacities requires time... to find its place and to be in a position to act.²³

Thus, from the moment the embryo has been formed, unconditional respect that is morally due the human being in his bodily and spiritual totality must be accorded. The being is to be respected and treated as a person from the moment of conception; and therefore from that same moment his rights as a person must be recognised, among which in the first place is the sacred right of every innocent human being to life.²⁴

This doctrinal teaching forms the basis for solutions to the problem posed by the development of the biomedical services. Since the embryo must be treated as a person, it must also be defended in its integrity, tended and cared for, to the extent possible, in the same way as any other human being as far as assistance is concerned. Due to this, most reproductive techniques are greatly condemned. Amniocentesis²⁵ for the purpose of genetic screening is apparently morally objectionable because abortion is wrong. Likewise, the use of embryos for experiment is condemned because it violates human dignity, reducing embryos to objects and instruments of scientific knowledge.

Protestant View

According to Birkhäuser, Protestantism is not a centralized religion and it comprises of many independent Churches having different moral and ethical standards.²⁶ In contrast to the Roman Catholic Church where interpretation of scripture is carried out by the Pope and his Bishops, Protestantism encourages individuals to do their own Bible study and interpretation. As a direct result, differing denominational groups have emerged, each holding unto distinctive doctrines. The mainstream Protestant denominations may be roughly grouped into

²² In Catholicism, the *Magisterium* is the authority that lays down what the authentic teachings of the Church are. For the Catholic Church, that authority is vested uniquely in the Pope and the Bishops who are in communion with him.

²³ Kevin D. O’Rourke and Philip J. Boyle, *Medical Ethics: Sources of Catholic Teachings*, 4th Ed. (U.S.A: George Town University Press, 2011). p.40.

²⁴ *Ibid.*

²⁵ Amniocentesis is a test that can be done during pregnancy to look for birth defects and genetic problems in the developing baby.

²⁶ M. Birkhäuser, “Ethical Issues in Human Reproduction: Protestant Perspectives in the Light of European Protestant and Reformed Churches”. *Gynecol Endocrinol*, Vol. 29(11): 2013, 955-9.

nine families: Anabaptist, Anglican, Baptist, Congregational, Lutheran, Methodist, Pentecostal, Quaker and Reformed.²⁷

It is part of the Protestant ethos that moral questions are determined by individual conscience. Thus, unlike the Catholic Church with a *Magisterium*, the Protestant Churches do not have an 'official position' on such bio-medical issues. There is no complete agreement among all Protestants on ethics or on any other issue. Among Protestants, each Christian is personally responsible for all his acts, including his or her ethical behaviour.

The status of the embryo is the basis for the ethical consideration of all methods employed in assisted reproductive technologies but Protestants as a whole have no standard position regarding the status of embryos. In Protestant thought as a matter of fact, Christians may therefore have very differing views on the issues of the status of the embryo. Notwithstanding, human dignity, personal rights and self-determination have to be respected in each ethical consideration.

Concerning the status of the embryo, all Protestant Churches basically those of Western Europe, consider the human embryo to be a potential and evolving human person. For this reason it has a true right from its conception. However, as regards to the way in which an embryo should be treated or whether it should be considered as a human person there exist diverse views.²⁸

Most representatives of modern Protestant theology and bioethics defend the opinion that the embryo is not an independent human being as is the newborn child. Other Protestants also hold the view that, as long as an embryo has no nervous system, no organs and no pain receptors, it cannot be seen as a human being. Hence, the ethical right to be protected prenatally increases gradually with the age and the development of the embryo. This group considers that full human status is acquired gradually and therefore might not be present in the early embryo.²⁹ Consequently, the use of embryos for research purposes among this group is permissible, since at this early stage of development the embryos do not possess the same moral status as that of a developed foetus or a full-born person.

Conservative Protestants believe that the embryo has the status of a human from conception and so it must not be subjected to any treatment like a mere commodity. This group opposes researches such as embryonic stem cell research on the basis that the Bible teaches that "human beings are made in the image and likeness of God³⁰ and protectable human life begins at fertilization".³¹

However, the acceptance or rejection of the status of the embryo largely depends on the method of reproductive medicine that a person chooses. Thus, some individual protestant

²⁷ Ian Emberson, "Introduction to Protestantism". *Faith Survey -Christianity in View*. (<http://christianityinview.com/protestant/denominations.html/>: 20/1/2015).

²⁸ European Network of Scientific Co-Operation on Medicine and Human Rights, "Bioethics and Protestantism" In: *The Human Rights, Ethical and Moral Dimensions Of Health*, Vol. 434 (Germany: Council of Europe Publishing, 1998). p.71.

²⁹ Leonardo Alonso Goikolea, *Human and Machine Rights*. (Germany-Norderstedt: Books on Demand, 2012). p.336.

³⁰ Gen. 1:27; 9:6

³¹ "The Status of the Human Embryo: Protestantism". (<http://embryo-ethics.smd.qmul.ac.uk/tutorials/embryo-and-religion/christianity/Protestantism>: 20/01/2015).

reject embryonic research; and some do not. Some also accept the sanctity of the human embryo from conception but grant limited circumstances under which researches (embryonic stem cell research) might be allowed.

ISLAMIC VIEW

Islam is generally defined as submission to Allah's (God) will. Adherents of Islam hold the belief that Islam controls their actions in physical as well as spiritual matters. Generally, Islam is commonly expressed as a way of life.³² As a result, a Muslim in the performance of an action should ask himself or herself whether this act is permissible or not. Nonetheless, in finding out whether an action is right or wrong, reference should either be made primarily from the *Quran*, the *Hadith* (sayings) of the prophet Muhammad and also, teachings from Islamic legal scholars who use independent judgment (*ijtihad*).

In Islam, there is no official position or centralised authority on the status of the embryo. The most important consideration in the topic is when life starts. The *Quran* does not give a specific definition of the beginning of life in the *Quran* or *Hadith*, but a key issue in relation to this subject is the moment at which a person's soul enters an embryo.³³ The question is that 'at what point in time does life begin?'

As mentioned earlier, the *Quran* does not give a specific timing of the beginning of life but only explains in a few places the development of the human being in the woman's womb. The *Quran* (23:12-14) states:

“And certainly did We create man from an extract of clay. Then We placed him as a sperm-drop in a firm lodging. Then We made the sperm-drop into a clinging clot, and We made the clot into a lump [of flesh], and We made [from] the lump, bones, and We covered the bones with flesh; then We developed him into another creation. So blessed is Allah, the best of creators”.³⁴

Based on this passage, the inception of foetal development is graded into three clear stages. According to Mansooreh,³⁵ these stages include lodging *nutfah*³⁶ in the woman's womb, *alaqah*³⁷ and *mudghah*³⁸. Notwithstanding, Muslims believe that the embryo is an individual once it is ensouled. Although the *Quran* does not give a precise indication as to the exact point in time when the ensoulment occurs, debates occurring among Islamic community resulted in two differing opinions. That is, while some Muslims believe that it occurs as early

³² Hossam E. Fadel, “Prospects and Ethics of Stem Cell Research: An Islamic Perspective”. *Journal of the Islamic Medical Association of North America*, Vol. 36: 2007, 9-11.

³³ Mansooreh Saniei, “Human Embryo Research and Islamic Bioethics: A View from Iran.” In: Jan Schildmann, Verena Sandow, Oliver Rauprich, Jochen Vollman (ed), *Human Medical Research: Ethical, Legal and Socio-Cultural Aspects*. (Springer Basel: Heidelberg, 2012), p. 31.

³⁴ Sahih International, *Surat Al-Mu'minun*. (<http://quran.com/>: 23/12/14).

³⁵ *Ibid*.

³⁶ ...placed him as a sperm-drop in a firm lodging (i.e. womb).

³⁷ ...Then We made the sperm-drop into a clinging clot.

³⁸ ...We made the clot into a lump [of flesh].

as 40 days after fertilization, others say as late as 120 days which is dependent on a varied interpretation of a *Hadith* narrated³⁹.

Before this ‘ensoulment’ the embryo is not seen as a completely formed human but all scholars agree that life is entitled to respect even before ensoulment but becomes more so after it occurs.⁴⁰ Due to this, there are various conditions regarding the use of human embryos in assisted reproductive techniques such as *in vitro* fertilisation and stem cell research.

Generally, Islamic scholars emphasize the belief that all knowledge emanates from God and that, as such; human beings have an obligation to use that knowledge to serve society. In Islam, research on stem cells is therefore regarded as an act of faith in the ultimate will of God, as long as such an intervention is undertaken with the purpose of improving human health. In their view, creating human embryos solely for research is prohibited.

DISCUSSION

From the views expressed by both Christianity and Islam, it could be agreed upon that these religions perceive and teach that all human life is sacred. Uniquely, among all creatures, only man has the capacity for a relationship with God. Only man has a soul and was made in God’s image, God’s likeness for that matter, must be accorded with dignity. However, when it comes to determining the status of the human embryo in relation to evolution and usage of the scientific reproductive assisted technologies, these religions have differing views. For some, an embryo is merely a cluster of cells, and can be derived, created and used as such. At the other end of the scale, there are those who believe that an embryo from its very moment of creation is to be viewed as a unique human entity; with the same rights as the woman that is carrying it.

Generally speaking, the Catholic Church and Conservative Protestant churches have similar views concerning the status of the embryo with the Catholic tradition remaining indisputable on the subject of the moral status of the embryo. The Catholics consider the human embryo has inviolable and thus it is a sin to destroy a human embryo or subject it to “crude” scientific methods. Although the bible does not explicitly state that the soul is present at conception, Catholics are of the belief that the soul is present at conception and so it must not be treated differently from the human person. Man was created in the image and likeness of God and that is the basis for according man with respect and dignity. Since the human embryo is perceived as an individual from the moment of fertilization and has a right to its own life, every intervention that is against the human embryo is a violation of the rights of the embryo.

The less Conservative Protestant Churches on the other hand, teach that the embryo has a potential human status. They recognise that it is inappropriate to speak of an embryo- 14 day old as a person and that, while it holds a unique and protected status, it is not inviolable⁴¹. However, while research is permitted on embryos up to 14 days old that would otherwise be

³⁹ M. A. Albar, *Human Development as Revealed in the Holy Quran and Hadith*. (Jeddah: Saudi Publishing House, 1992).

⁴⁰ IMANA Ethics Committee, *Stem Cell Research: The IMANA Perspective*. (U.S.A: Islamic Medical Association of North America).

⁴¹ Katy Sinclair, “Is the Embryo Sacrosanct? Multi-Faith Perspectives.” *Bio News*. (2008). (http://www.bio-news.org.uk/page_38036.asp/: 25/01/2015).

destroyed, less conservative Christians do not permit embryos to be created purely for research, because that would disregard the status of the embryo as an end in itself. Hence, no research use of embryos which is not for the benefit of those particular embryos should be allowed and the life of the embryo has to be weighed against the possible benefit that may result from scientific research⁴².

Similar to the Catholic belief, human life among Muslims reflect that human life begins with the implantation of the embryo affording the embryo respect from this point. Nevertheless, Islam explains that, the soul enters the developing embryo in weeks or months after conception. This is a contentious issue in Islamic law with different Islamic scholars given the differing periods within which the ensoulment happens. Most Muslims believe ensoulment occurs at 120 days but due to the development of understanding embryology by modern science, some Islamic leaders have suggested ensoulment takes place at 40 days⁴³. Thus, embryos do not have the potential to produce individual humans until after certain number of days of growth⁴⁴. This view of Muslims is in conformity to the views that the less conservative Protestant hold- the embryo being a potential human being. However, Catholics belief that, the soul is present at the very instant the sperm and the ova meet and not days after fertilization.

Due to the differences in the views of these religions, their approach to reproductive technologies and other scientific technologies differ. While Catholics sternly oppose any technology that puts the human embryo in danger such as abortion, *in vitro* fertilization, Embryonic Stem Cell Research, the less Conservative Protestants allow these techniques leaving it to the full discretion of individuals involve. Muslims as well will allow certain technologies (*in vitro fertilization*) under certain conditions provided the embryos are used to secure benefits for the greatest good.

IMPLICATIONS OF THE STUDY

The paper contributes to existing knowledge by seeking ethical/moral basis for many of scientific/medical technologies and developments that question the dignity and sanctity of human life. The significance of human life is set above all other lives in the two major religions. As a major implication of this study, the paper creates a sense of awareness among Christians and Muslims on the position of their faith with regard to medical technologies. It draws a morally comparative discussion on the human embryo in contemporary bioethical discourse. It encourages interest in the inclusion of moral viewpoints in modern medicine and health care.

CONCLUSION

It can be ascertained that ethical issues which normally concerns human life have traditionally fallen in the area of ethics or religion with science and technology playing at

⁴² Lori P. Knowles, "Religion and Stem Cell Research." *Stem Cell Network*. (<http://www.stemcellnetwork.ca/uploads/File/whitepapers/Religion-and-Stem-Cell-Research.pdf>: 25/01/2014).

⁴³ *Ibid*.

⁴⁴ *Ibid*.

best a supporting role. The beliefs about the status of the embryo have been shaped by many cultural positions but more importantly by scientific advances in biomedical sciences and by religion. These religious groups are active in influencing the public regarding bioethical positions, and this is particularly evident with issues concerning procreation, abortion and infertility therapy.⁴⁵ This has created some impasses that somehow affect scientific researches.

On one side of the religious groups are those who look at the embryo and view it as a human and worthy of protection and on the other side are those who view the human embryo not as another human person but a potential human being therefore less value in its present state. These diverse views can be attributed to the advances in scientific understanding of embryology that reveal to us in great detail the startling complexity that the embryo passes from fertilization to its development to foetus and a newborn. This has evoked religious wonder and has beckoned such responses.⁴⁶ Despite all these views held by the various religions, one distinct factor is that, they all agree that human life is sacred and thus must be accorded with respected and dignity.

REFERENCES

- Albar, M. A., *Human Development as Revealed in the Holy Quran and Hadith*. Jeddah: Saudi Publishing House, 1992.
- Dickinson, A., Kleinsman, J. and McCabe, M., "The Moral Status of the Embryo." *The Nathaniel Centre-The New Zealand Catholic Bioethics Centre*. Issue 5, November, 2001.
- Birkhäuser, M., "Ethical Issues in Human Reproduction: Protestant Perspectives in the Light of European Protestant and Reformed Churches". *Gynecol Endocrinol*. 29(11): 2013, 955-9.
- Waters, B. and Cole-Turner, R., *God and the Embryo: Religious Voices on Stem Cells and Cloning*. U.S.A: Georgetown University Press, 2003.
- European Network of Scientific Co-Operation on Medicine and Human Rights, "Bioethics and Protestantism" In. *The Human Rights, Ethical and Moral Dimensions of Health*, Vol. 434. Germany: Council of Europe publishing, 1998.
- Goikolea, L. A., *Human and Machine Rights*. Germany-Norderstedt: Books on Demand, 2012.
- Fadel, H. E., "Prospects and Ethics of Stem Cell Research: An Islamic Perspective". *Journal of the Islamic Medical Association of North America*, Vol.36: 2007, 9-11.
- IMANA Ethics Committee, *Stem Cell Research: The IMANA Perspective*. U.S.A: Islamic Medical Association of North America.
- Jafari, M., Elahi, F., Ozyurt, S., and Wrigle, T., "Religious Perspectives on Embryonic Stem Cell Research". In: Kristen R. Monroe, Ronald B. Miller and Jerome S. Tobis, *Fundamentals of the Stem Cell Debates: The Scientific, Religious, Ethical and Political Issues*. London: University of California Press, 2008.
- Mansoor, S., "Human Embryo Research and Islamic Bioethics: A View from Iran." In: Schildmann, J., Sandow, V., Rauprich, O. and Vollman, J., *Human Medical Research: Ethical, Legal and Socio-Cultural Aspects*. Springer Basel: Heidelberg, 2012.

⁴⁵ *Ibid*.

⁴⁶ Brent Waters and Ronald Cole-Turner, *God and the Embryo: Religious Voices on Stem Cells and Cloning*. (U.S.A: Georgetown University Press, 2003), p. 9.

- Moore, K. L. and Persaud, T. V. N., *The Developing Human: Clinically Oriented Embryology* (7th ed). Philadelphia: Saunders, 2003.
- Moore, P., *Ethical Debates: Stem Cell Research*. New York: The Rosen Publishing Group, Inc., 2012.
- Muscatti, S. A., "Defining a New Ethical Standard for Human in Vitro Embryo in the context of Stem Cell Research." *Duke Law and Technology Review*, Vol. 26: 2002.
- National Council of Churches of Singapore, *A Christian Response to the Life Sciences*. Singapore: Armour Publishing Pte Ltd., 2002.
- O'Rourke, K. D. and Boyle, P. J., *Medical Ethics: Sources of Catholic Teachings*. 4th Ed. U.S.A: George Town University Press, 2011.
- Steinbock, Bonnie. "Moral Status, Moral Value, and Human Embryos: Implications for Stem Cell Research." *The Oxford Handbook of Bioethics*. Oxford: OUP, 2009.