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Review article

Ethical and religious dilemmas of modern reproductive choices and the Islamic perspective



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ABSTRACT

Advances in the field of Assisted Reproductive Technologies (ART) are constantly evolving, starting from Artificial Insemination (AI) and in-vitro fertilization (IVF), to the current state of the art technologies that enable embryo biopsy for Pre-implantation Genetic Testing (PGT). The future includes gene mapping and DNA replacement technologies with the potential for the so-called “designer babies.” In other words, shortly, a modern couple may be in a position to decide how to procreate and with whom; which pregnancy to keep and which one to terminate depending on their prior knowledge about the pregnancy and the available choices. This article addresses the moral, ethical, legal and religious dilemmas as a result of these technological advances in the field of ART and how these new challenges are addressed theologically in the Islamic world where the state law is strongly influenced by religion.

This article sets out to discuss relevant issues and dilemmas but does not seek to prioritize or promote any opinion or view over any other religion/sect, ethical or legal opinion or view.

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Introduction

Although the overall influence of religion on our everyday life is gradually fading in our rapidly evolving modern way of life, it still plays a major role in our personal lives, especially at critical moments when we feel helpless. One of those critical moments is when couples or individuals find themselves incapable of procreation [1,2].

The world has turned into a global village, and one of the sequels is diversification of communities with people from different ethnic and religious backgrounds living together in the same neighborhood. It is, therefore, not uncommon for a Western-trained fertility specialist to be treating a Muslim couple in a predominantly Western society or for the same Physician to be serving in a predominantly Muslim society. It is therefore important for the service providers to be conversant with the religious aspects of fertility care, the acceptability of various modes of fertility treatment and their limitations from an Islamic point of view. This article provides useful guidance to health professionals facing challenging religious queries from patients about their fertility treatment and Islam.

Islam and assisted reproduction

Although there is no direct reference to assisted conception in the Islamic scriptures or other primary sources, assisted conception in its original format was embraced in the Islamic world right from the beginning without any resistance [3]. The reason might be that the pain of inability to procreate suffered by two of the Prophets (Abraham and Zachariah) was referred to in the Holy Qur'an as good news for Abraham and favour for Zachariah when God Almighty blessed them with offspring. Moreover, being childless is a significant cause of tension and anxiety within a family hence a potential source of marital disharmony. The Islamic scholars maintain a position midway between one extreme of total rejection of the very idea of assisted conception as advocated by the Vatican [4–6] and the other extreme of complete adoption of the technology in its entirety as practiced by most of the Western world.

The Al-Azhar Fatwa as early as 1980, supported all modalities of assisted conception where a legally married couple seeking fertility help use their gametes for the wife to conceive within the boundaries of legal marriage [7]. This Fatwa received unanimous approval and support from the entire Islamic World regardless of sectarian divisions at the time and in fact, was endorsed by positive and supportive Fatwas and legal bindings in different Islamic countries [3,8].

Following the Al-Azhar Fatwa, the Islamic Fiqh Council (IFC) of the Islamic World League (IWL) also deliberated on the issue during the 7th Session [9]. The council reviewed the scientific evidence presented to it, in detail and acknowledged different possible ways for a couple to seek assistance in achieving pregnancy.

The first two methods involved the use of artificial insemination (AI) using sperm from the husband (in Method 1) and donor sperm (in Method 2) to inseminate a man's wife.

The remaining methods involved the technique of *in-vitro fertilization* (IVF), using gametes /embryos from the married couple or donors and implanting them in the uterus of the legal wife or a surrogate.

On the bases of the core principles of Islamic jurisprudence, the council reviewed the evidence and endorsed AI using husband's sperm and also, IVF using gametes from the married couple seeking fertility help, which was indeed, an endorsement of the original Al-Azhar Fatwa of 1980 confirming the sanctity of marriage. Also, the council at the time permitted IVF allowing

the 2nd legally wedded wife to act as surrogate out of her own will for the 1st wife, who for valid medical reasons could not bear the pregnancy or childbirth. This permission regarding IVF using the 2nd wife as a surrogate was subsequently withdrawn in the following 8th session of the IFC and will be discussed further in the section on surrogacy in this review.

Sunni Islam and the third party reproduction

The American Society for Reproductive Medicine defines third-party reproduction as “the use of eggs, sperm, or embryos that have been donated by a third person (donor) to enable an infertile individual or couple (intended recipient) to become parents” and also includes traditional surrogacy and gestational carrier arrangements [10].

From the Islamic point of view, third party contribution refers to any scenario in assisted human reproduction where another party instead of the legally wedded couple seeking assisted conception, provides the embryo/gamete or gestation.

Surrogacy

Surrogacy is known as “*traditional*” when the surrogate is also the egg donor and hence the biological mother of the resulting child, whereas it is called “*gestational*” if the surrogate has no genetic contribution other than carrying the pregnancy. The matter is further complicated depending upon who is contributing the gamete/s or embryo/s to a gestational surrogate.

The Islamic Fiqh Council in its 7th session in 1984 [9], prohibited the use of a gestational carrier outside a valid marriage but at the same time allowed one wife of a man to act as a gestational carrier willingly for the other legally wedded wife of the same person.

There were two main dilemmas linked to this particular permission that needed addressing subsequently. The first was the question of the lineage of the child and hence the inheritance rights as per Islamic jurisprudence. The council decided the lineage should belong to the couple who were the owners of the gametes (sperm and the ovum) and that the lineage of the child was to determine the child's inheritance rights.

The second issue was the status of the gestational mother, and the council opined that the second wife acting as the gestational mother should be considered as the foster mother as the child has benefitted from her body.

The council's attention was subsequently drawn to the technical fact that the gestational carrier could potentially conceive naturally and simultaneously while conceiving by IVF. The result will be a twin pregnancy with eggs from separate women. It would be difficult to genetically link the resulting babies to the IVF or natural conception, especially if one of the twins aborted. Hence a medico-legal dispute could potentially arise if the gestational mother refused to hand over the child to the genetic mother and claimed parental rights according to the Qura'an and Sunnah where gestation takes priority over the genetic link concerning parental rights of the mother. The IFC thus realizing the complexity of the issue with potential religious, social and legal implications, later withdrew the above permission for the gestational carriers in the subsequent 8th session the very next year in 1985 [11].

The above position about the non-permissibility of the gestational carrier in Islamic law has since been widely accepted and endorsed by the Sunni Muslim majority although, the debate about the permissibility of one wife acting as a gestational carrier for the other wife of the same person is still ongoing between the proponents and the opponents [12].

Gamete/embryo donation

The position on gamete/embryo donation remained the same in the Al-Azhar 1980 Fatwa [7] and the subsequent 1984 deliberation of the Islamic Fiqh Council [9]. Both effectively disapproved such arrangements based on the fact that such arrangements interfered with the kinship which is the very foundation of Islamic society and the basis for inheritance law in Islam. Children born as a result of donated gametes/embryos accordingly would be looked upon as illegitimate and legally similar to the children born of unmarried couples [3,13]. In other words, the resulting child would have a legitimate (gestational) mother but no legal father, similar to an illegitimate child.

Interestingly, since marriage technically ends after divorce or after the death of the husband by Islamic standards, posthumous use of the sperm by his wife is forbidden as is the use of gamete/embryo after divorce [14,15]. There was, however, an incident in Egypt [16] and maybe other similar but unreported incidences elsewhere, where the posthumous use of the husband's sperm was allowed by the local religious body as a special case.

Cloning

The council of Islamic Fiqh Academy (IFA) at Jeddah, in its resolution No: 100/2/10 [17] prohibited cloning using embryo manipulation (cloning by division) or by cell manipulation (cloning by nuclear replacement) and through any method that resulted in the multiplication of human species. The council also prohibited all cases involving third party intervention (uterus /ovum/sperm or a body cell for cloning) in the procreation process.

At the same time, the council permitted the use of cloning technology and genetic engineering in the field of microbiology, botany, and zoology within the limits of Islamic law as long as it is serving the general interest of humanity and is preventing inconvenience.

This resolution received unanimous support and endorsement by the Islamic Fiqh Council (IFC) of the Islamic World League (IWL) during its 15th session at Makkah Mukarramah, one year later [18].

Stem cell research and technology

The IFC of the IWL deliberated on the subject of stem cell therapy in the 3rd resolution of the 17th session [19]. The council allowed stem cells to be obtained, grown and used for therapeutic purposes as well as permissible scientific research. That was, provided the sources (adults, children, placenta, umbilical cord, aborted fetus) were legitimate and in line with the principles of "first do no harm," and also, the relevant, informed consent in each case was in place. If the source of the stem cells is an aborted fetus, the source should have been legitimate, and the abortion should have been spontaneous or induced for a valid medical reason and in conformation with the resolution on abortion in the Council's 12th session [20]. In cases where a couple donated the left-over surplus embryos, there should be mechanisms in place to ensure that these would not be used for an illegal pregnancy.

Genetic engineering

The IFC of the IWL deliberated on the subject of genetic engineering in the 1st resolution of the 15th session [18] and concluded that genetic engineering might be permissible to prevent or treat disease or prevent harm as long as it did not cause further harm in this process.

The council prohibited the use of the above technology for any purpose prohibited by Islam such as any motives directed at tampering with the human race. Similarly, any intervention

involving someone's genes whether for research, diagnosis or treatment should strictly be on the need to first do no harm principle where the aim is to treat illness or prevent disease or harm rather than to fulfill someone's desire for a purpose built designer baby. The intervention should be after informed consent from the involved parties, taking into consideration the principles of autonomy, confidentiality, and dignity.

Pre-implantation genetic testing (PGT)

The pre-implantation genetic screening and diagnosis (PGS/PGD), currently re-classified as PGT-A (for aneuploidy screening) and PGT-M (for mono-genic disorders using FISH (fluorescence *in-situ* hybridization) and PCR (Polymerase Chain Reaction), were introduced following the revolutionary technology of IVF and embryo biopsy (ET) [21,22].

Islam encourages any endeavor that is for the protection of human life. Islamic scholars, therefore, welcomed PGS/PGD as long as it didn't violate the boundaries of Islamic law concerning the prohibition of third party involvement [23]. In 2007, a meeting was organized in Cairo by the Islamic Organization of Medical Sciences (IOMS) with participation from many international bodies including representation from the WHO and the IFA (Jeddah), where it was agreed not to transfer embryos with confirmed serious chromosomal and genetic defects [24].

Sex selection and PGT

The use of PGT for Sex determination is a useful tool in cases of sex-linked disorders, and hence it is widely permitted. Sex selection for non-medical or social indications is however highly controversial, and many advanced societies disapprove of it for the same reasons. The IFA decreed that the use of PGT should only be for prevention of sex-linked disorders on a case by case basis and not for social reasons [25]. It is argued that sex selection is not completely prohibited in Islam, but rather permissible for keeping a sex ratio balance in the family for harmony and keeping women away from high-risk pregnancies in an attempt to achieve this balance [24].

Termination of pregnancy (TOP) and selective feticide

Islamic law on abortion stems from a surprisingly detailed description of the embryological developmental stages in the Qura'an (Qura'an 23: 12–14) and further elaborated by Prophet Mohammad (PBUH) and the subsequent Islamic Jurists and scholars. The five stages "Al Nutfa" (pure water/ semen), "Al Alaq" (The leech like clot or the clinging thing), "Al Mudgha" (Chewed lump of flesh/ Somites stage), "Al Ezam" (laying down of cartilages and bones), and "Al Laham" (Covering the bones with flesh), each last 40 days from implantation. At the end of stage 5 (28 weeks), the fetus has already developed the capacity to survive outside the mother's womb [25].

The spirit, however, according to the scripture enters the body at the end of stage 3 (day 120). Both Sunni, as well as Shi'ah scholars, agree that termination of pregnancy becomes prohibited after 120 days of implantation unless there was a definite risk to the mother's life due to the continuation of the pregnancy [26].

Concerning TOP before stage 3, there are minor differences of opinion between Sunnis and the Shi'ites and also between scholars of the same sect. The IFA, in its 12th session [20] endorsed termination of pregnancy before 120 days if there was a risk to the life of the mother. Also, TOP before 120 days was justified for complicated fetal anomalies that were untreatable or severe enough that continuation of pregnancy could put the life of the

newborn or its family at misery due to the severe handicap after birth.

The legislation in the Islamic Republic of Iran representing the Shi'ah sect allows TOP before 120 days from implantation for more or less the same reasons as allowed by the IFA. The Iranian law, however, gives a precise list of feto-maternal conditions that would authorize TOP before 120 days of gestation [26].

Shi'ah Islam and third party contribution

The two major sects of Islam are the Sunnis in the majority and the Shi'ites who make 10–13% of the world's Muslim population and are mainly concentrated in four countries (Iran, Pakistan, India, and Iraq) [27]. Both share the same fundamental core beliefs, but each sect has its own guiding opinion on various aspects of the issues concerning the day to day life.

Assisted conception has developed significantly since its early introduction hence has attracted significant attention in the Islamic academic, religious, ethical and legislative circles due to the rapidly changing demands for the range of options that this technology is offering. The option of contribution to pregnancy by a third party, in particular, created a major division between the Sunnis and the Shi'ites.

Before the 1999 Fatwa

The Shi'ites initially followed the 1980 Fatwa on assisted conception from Al-Azhar including the 1984 deliberations of the IFC on assisted conception that endorsed the Al-Azhar Fatwa. There was no major difference of opinion on the issue up until 1999 when a major shift in the stance of Shi'ah on the issue of third-party involvement in assisted conception emerged primarily in Iran.

Post 1999 Fatwa

The shift in the stance was in the form of a Fatwa from Ayatollah Ali Hussein Khamenei who succeeded Ayatollah Khomeini as the supreme leader of Iran. The Fatwa effectively allowed the use of a third party in assisted conception with some pre-conditions [28].

Allowing gamete donation even after the death of the gamete producer, Ayatollah Ali Hussein Khamenei argued that since the use of male or female gametes did not involve the actual act of sexual intercourse, it did not equate to adultery nor would the resulting child be illegitimate child.

Similarly, touching of genitalia by the treating doctor is a necessity especially of the infertile couple and by the same token for the donors and hence permissible. The same is the case with any other medical treatment requiring intimate examination. This permission, however, becomes questionable for the emerging group of professional donors who donate their gametes/embryos for financial gains. Commercialization of human gametes and embryos is an emerging issue being increasingly debated both in Lebanon as well as in Iran [3,29,30].

Interpretation of parenthood in the Fatwa

According to this Fatwa, gamete providers or donors are the legal parents and not the recipient couple. An interesting part of Ayatollah Khamenei's Fatwa, is, therefore, his partial adherence to the Qura'anic concept of parenthood when it comes to the paternity claim only, by saying that paternity shall be ascribed to the sperm producer or sperm donor.

At the same time, he ascribes maternity rights to the egg provider or donor rather than to the gestational carrier as per Quranic teachings [28,31]. As a result, in a surrogate pregnancy which is also allowed under the Fatwa, the claim to motherhood

goes to the egg donor instead of the gestational carrier which also, does not comply with similar arrangements in other parts of the world, where the gestational carrier is deemed to be the legal mother [32,33].

The Fatwa and the subsequent Iranian legislation

It is argued that unfortunately, the same confusion and lack of clarity were reflected in the subsequent legislative process in Iran in the form of "Act concerning embryo donation to infertile couples," passed by the council of ministers on the 9th of March 2005 [34] with the following qualifying criteria:

- The donor and the recipient couples must be legally married and citizens of Islamic republic of Iran
- There should be a medical evidence of infertility for the recipient couple
- Both parties should fulfill other qualifying criteria such as valid consent forms from both parties, evidence of mental and physical health, absence of addiction, non-curable diseases, hepatitis or *acquired immune deficiency syndrome* (AIDS).

The Act permitted only embryo donation to the infertile couple as the treatment for their infertility that required assisted conception. At the same time, the Act did not clarify the position on the subject of gamete (sperm/egg) donation, which resulted in different traditional ways of going around the issue of donor conceptions. Some clinics, for example, started providing gamete donation services based on the local Fatwas that allowed gamete donation under the shadow of the original Fatwa [31]. On the other hand, some people are using "Muta" (temporary marriage - allowed in certain sects of Shi'ite Islam) as an excuse to qualify as donors [35,36].

The other major criticism of the 2005 Act is its stand on the question of the legal status of the child resulting from a donated embryo, the couple who donate the embryo and the recipient couple. The Act supported the original Fatwa of Ayatollah Khomeini imposing only parental obligations on the recipient couple while denying their parental rights by not recognizing any inheritance relationship between them and the child from a donated embryo [37]. Since the Fatwa ascribes true parenthood to the donors and not the recipient couple, the donor-conceived children could potentially have a claim of inheritance to the male donor's property as per Islamic inheritance law, which represents a potentially serious legal dilemma in waiting [37].

There have also been serious concerns about no clear confidentiality law protecting the identity of gamete/embryo donors in Iran. With no officially authentic record of the identity of the gamete and embryo donors, there is a real potential of incest through possible marital relationships between the offspring of the same donor [30,38].

The alleged flaws in the 2005 Act are considered as a potential area that could lead to a legal and ethical minefield concerning confidentiality, the safety of the donated gametes/embryos and the legal rights of the resulting children, the biological parents (embryo donors) and the social parents (embryo recipients) [39].

Opposing views

It is important to note that Ayatollah Khamenei's fatwa did not receive unanimous approval even among the Shi'ah scholars both within as well as outside Iran [3,31,38–40]. There is still a significant difference of opinion amongst the Shi'ah scholars regarding the legality of gamete and particularly sperm donation versus embryo donation and also the issue of whether or not the donors should be legally married [34].

The future hopes and aspirations

Despite all criticisms above, the 2005 Act is perceived by some as a progressive move and an initial step in the right direction to address this very sensitive issue. It is hoped that this law which has helped prevent family breakup due to the social and psychological trauma of infertility will be further reviewed shortly to address the concerns raised on different fora regarding its practicality and its potential legal and ethical implications [34,37,39,41].

Summary

The Birth of Louise Brown through IVF was a revolutionary step in the history of human reproduction. Subsequent developments in the ART, however, have generated many legal, social, ethical, and above all, religious controversies resulting in world-wide debates. Different groups respond to these developments differently ranging from total rejection to almost complete acceptance of the new technology and subsequent developments, supported by relative legal bindings.

The Islamic world welcomed the original theme of the IVF technology soon after its announcement but maintained a clear position concerning its use within the boundaries of the legal marital relationship and also prohibiting third party involvement. The main purpose was to avoid meddling with the “nasab” (lineage) and hence parenthood affecting the legal relationship between the children and the parents as per Islamic Sharia'h.

The ban on third party involvement was practiced throughout the Islamic world up until the late nineties when a major difference of opinion between the Sunni and the Shi'ah sect developed through a Fatwa from the then Shia'h supreme religious leader in Iran, Ayatollah Ali Hussein Khamenei, who effectively allowed third party involvement for his followers. The Fatwa and the subsequent lawmaking by the Iranian legislature created much debate even within the Iranian Shi'ah circles. This debate is still going on and demanding further reforms to close all possible loopholes encouraging misuse of the Fatwa and the subsequent law.

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