



Test Tube Babies and Artificial Insemination

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Info Articles	Abstract
Article History Received: 2025-12-11 Revised: 2025-12-19 Published: 2025-12-30	The development of artificial reproductive technologies such as in vitro fertilization (IVF) and artificial insemination (AI) has had a significant impact on the medical world, particularly in helping couples experiencing infertility. In Indonesia, these practices not only have medical implications but also touch on ethical, legal, and religious issues. This study aims to comprehensively examine the implementation of IVF and AI from three main perspectives: medical, ethical, and legal. The research method used is a qualitative approach with a literature review and semi-structured interviews with medical personnel and legal experts. The results show that although medically these two technologies offer new hope for infertile couples, there are still pros and cons from an ethical and legal perspective, particularly regarding the status of children, the legitimacy of biological relationships, and the limitations of implementation according to applicable legal and religious norms in Indonesia. This research is expected to contribute to the formulation of more comprehensive regulations that support reproductive justice.
Keywords: <i>test tube baby; insemination; artificial; medical ethics; health law; infertility</i>	

I. INTRODUCTION

Assisted reproductive technologies, such as in vitro fertilization (IVF) and artificial insemination, have revolutionized the medical world, especially for couples facing difficulties in conceiving (Sadr, 2011). These methods, which allow the fertilization process to occur outside the woman's body, have become an alternative for many couples experiencing infertility or fertility problems (Hasan, 2018). IVF, for example, involves the fertilization of a woman's egg by sperm outside the body (in a laboratory), then the resulting embryo is implanted back into the woman's uterus to continue the pregnancy process. Meanwhile, artificial insemination involves injecting sperm into the woman's uterus at the right time to increase the chances of conception, which can also be done using donor sperm.

Although this technology offers new hope for couples seeking children, its use is not without debate, particularly within the context of religious law and ethics. From an Islamic perspective, issues of descent and lineage are crucial, as both are closely linked to social status and family law (Kamali, 2008). Islam strictly regulates legitimate blood relations and lineages, as well as provisions regarding inheritance rights and family responsibilities. Therefore, when

assisted reproductive technology is used, questions arise regarding the legitimacy of the resulting child's lineage, whether the child is legitimately the child of the couple using the technology, and the role of third parties, such as sperm or egg donors (Al-Qaradawi, 2003).

In recent years, this debate has intensified, as assisted reproductive technologies (ARTs) raise new issues such as the use of sperm or egg donors, embryo preservation, and the potential medical and social implications of these methods. Some Islamic scholars consider IVF and artificial insemination permissible in Islam as long as the procedures do not involve a third party outside the couple. However, others believe these technologies can raise legal issues, particularly concerning lineage, inheritance rights, and family identity. One major issue is the confusion of lineage if a sperm or egg donor is used, as well as the potential confusion of family relationships if a third party is involved in the reproductive process.

Therefore, it is important to thoroughly examine how Islamic jurisprudence views these two methods. Islamic jurisprudence studies on IVF and artificial insemination not only examine the technical medical aspects but also consider the basic principles of Sharia, including family law, heredity, and the ethics of utilizing medical

technology. This article will discuss various Islamic scholars' views on the legality of IVF and artificial insemination, as well as issues arising related to lineage, the role of third parties, and their potential social impacts. By understanding these Islamic jurisprudence perspectives, it is hoped that the public will gain a better understanding of the legal standing of these two technologies in Islam and how to apply them while adhering to Sharia principles.

II. RESEARCH METHODS

This study uses a descriptive qualitative approach with library research methods. This study aims to examine the concepts, procedures, and medical, ethical, and legal implications of artificial reproductive technologies such as in vitro fertilization and artificial insemination (Hasan, 2018).

The data sources in this study are entirely derived from secondary data, including: 1. Medical Literature: books and scientific journals that discuss medical procedures for IVF and artificial insemination. 2. Ethical and Religious Literature: books or scientific articles that discuss ethical and religious views on reproductive technology. Legal Sources: The Health Law of the Republic of Indonesia, government regulations, fatwas of the Indonesian Ulema Council (MUI), and other relevant legal sources. Data Collection Techniques are carried out by: 1. Tracing and reviewing relevant printed and digital documents, books, journals, and scientific articles. 2. Organizing data based on categories: medical, ethical, and legal to facilitate thematic analysis. Data Analysis Techniques use the content analysis method, by identifying, grouping, and analyzing information from collected sources to obtain a complete and in-depth understanding of the object of study (Fauzan, 2019).

III. RESULTS AND DISCUSSION

A. In Vitro Fertilization (IVF)

Test tube babies, or medically known as In Vitro Fertilization (IVF), are assisted reproductive methods designed to help couples experiencing difficulty conceiving. This process involves removing eggs from a woman's ovaries and combining them with sperm outside the body in a laboratory setting

(Sadr, 2011). Once fertilization occurs and an embryo forms, it is then implanted back into the woman's uterus in the hope of developing a healthy pregnancy. This method was first successfully performed in 1978, when Louise Brown, the first baby born through this method, was born in the UK. Since then, this technology has developed rapidly and become a leading solution to fertility issues worldwide (Hasan, 2018).

In vitro fertilization (IVF) is a form of assisted reproductive technology that involves fertilizing an egg outside the body (outside the uterus) and then implanting the resulting embryo into a woman's uterus. This procedure was first successful in 1978, with the birth of Louise Brown, the first baby born through IVF. IVF is used to treat infertility in couples who are unable to conceive naturally.

The IVF process consists of several important steps, beginning with ovarian stimulation. Women undergoing this procedure are typically given hormonal medications to stimulate the ovaries to produce more eggs. Once the eggs are mature, the doctor will perform an egg retrieval procedure using a fine needle inserted through the vaginal wall into the ovaries. The retrieved eggs will then be placed in a culture medium in the laboratory along with sperm collected from the partner or a donor. In some cases, if sperm quality is low, intracytoplasmic sperm injection (ICSI) may be used, where a single sperm is injected directly into the egg to increase the chances of fertilization.

After fertilization, the embryos formed will be monitored for several days to ensure proper development. The fully developed embryos will then be transferred into the woman's uterus. This procedure is performed using a catheter inserted through the cervix. After the embryo transfer, the woman will undergo a pregnancy test 10-14 days later to determine whether the IVF process was successful. While IVF offers hope for many couples experiencing difficulty conceiving, it also involves significant emotional, physical,

and financial considerations. Therefore, it is important for couples to understand the entire process and consult with a medical professional before deciding to undergo this procedure.

B. Artificial Insemination

Artificial insemination is an assisted reproductive method that involves injecting sperm into the female reproductive tract without sexual intercourse (Hasan, 2018). This method is designed to help couples who are having difficulty conceiving, either due to fertility issues in the man or the woman. Artificial insemination can be performed using sperm from the husband or a donor (Sadr, 2011). This procedure is a popular choice because it is relatively simple and less invasive than other methods such as in vitro fertilization (IVF). Artificial insemination is often used in cases where the man has a low sperm count, poor sperm motility, or when the couple is having difficulty with sexual intercourse.

The artificial insemination process begins with sperm collection, usually from a partner or donor. The sperm is then processed in a laboratory to improve its quality and motility. This separation process ensures that only healthy, active sperm are used in the procedure. Next, the woman undergoing artificial insemination will have her ovulation cycle monitored to determine the best time for insemination. This monitoring can be done using ovulation tests or ultrasound monitoring to ensure that insemination occurs at the time of ovulation, when the egg is ready for fertilization.

After determining the right time, the processed sperm will be injected into the woman's uterus using a catheter inserted through the cervix. This procedure usually does not require anesthesia and can be performed in a clinic within a short time. After insemination, the woman will undergo a pregnancy test after a few weeks to determine whether the procedure was successful. Although the success rate of artificial insemination varies depending on various factors, including the woman's age and the cause of fertility problems, this method offers hope for many couples who want to have children (Fauzan, 2019). Artificial insemination can also be a first step before

considering other more complex methods of assisted reproduction (Hasan, 2018).

C. Islamic Perspective on Test Tube Babies and Artificial Insemination

In Islam, the issues most discussed are the issue of nasab (lineage) and the clarity of the blood relationship between children and parents. Islam places great emphasis on the importance of clear hereditary relationships within the family (Al-Qaradawi, 2003). Therefore, test tube babies involving sperm or egg cells from third parties, such as sperm donors or egg cell donors, are considered invalid and haram, because they cause confusion in terms of lineage (Al-Bukhari, 1997).

Evidence about Lineage:

وَلَا تَنْهَوْا أَوْلَادَكُمْ خَشْيَةً إِنْلَاقٍ لَّهُنَّ تَرْزُقُهُمْ وَإِنَّمَا كَيْرًا

Meaning: "Do not kill your children for fear of poverty. We provide sustenance to them and to you. Indeed, killing them is a great sin." (al-Isra':31)

In the context of Islamic law regarding IVF and artificial insemination, this verse holds significant relevance. The prohibition against killing children for fear of poverty can be interpreted as an encouragement to not avoid having children, even in difficult situations. Assisted reproductive technologies, such as IVF and artificial insemination, can be seen as efforts to help couples experiencing difficulties in conceiving children, and thus, align with the principle of preserving life and providing opportunities for children to be born.

This verse also reminds couples to have faith that Allah will provide the sustenance and support necessary to raise their children. Therefore, when considering the use of assisted reproductive technology, it is important for couples to understand that every child born is a trust and has the right to life, and that Allah will provide for their needs.

D. The Law on the Use of Test Tube Baby Technology and Insemination in Islam

Islamic jurisprudence (fiqh) views on IVF and artificial insemination technologies depend heavily on understanding the concept of lineage and whether the technology involves a third party. In principle, the use of

these technologies is permissible only if the eggs and sperm used come from a legally married couple. The Use of IVF According to Islamic Scholars and Institutions:

1. Al-Qaradawi: In his view, Al-Qaradawi stated that IVF using sperm and eggs from a legitimate husband and wife is legal in Islam. However, the use of sperm or egg donors from third parties is not permitted because it can cause unclear lineages.
2. Indonesian Ulema Council (MUI): MUI issued a fatwa stating that IVF is only permitted if the sperm and egg come from a legally married couple, and must not involve a third party (sperm or egg donor) (Sadr, 2011).
3. Al-Azhar: Al-Azhar University in Egypt also holds a similar view, stating that IVF using eggs and sperm from a legally married couple is permissible. However, the use of a third party is not permitted under Islamic law.

Evidence Regarding Legitimate Lineage:

يُوصِّيُكُمُ اللَّهُ فِي أَوْلَادِكُمْ لِلَّذِكُرِ مِثْلُ حَظِّ الْأُنْثَيْنِ

Meaning: "Allah commands you regarding (the division of) inheritance for your children. For a boy, a share equal to that of two daughters." (QS. An-Nisa: 11)

This argument shows the importance of lineage relationships in inheritance law, which requires children to have clear lineage relationships.

In Islamic law, everything related to offspring and reproduction must remain within the boundaries of the Shari'a, especially maintaining lineage, family honor, and the values of the sanctity of the husband and wife relationship. Islamic law regarding IVF and artificial insemination is a complex topic and is often debated among scholars. In general, these two methods are permitted in Islam, as long as they fulfill certain conditions relating to the origin of the egg and sperm cells, as well as maintaining the clarity of the birth of the resulting child. In this context, it is important to understand some of the basic principles

that form the basis of Islamic law related to assisted reproductive technology.

1. Test Tube Babies in Islamic Law

It is permissible if performed between a legally married couple. In vitro fertilization (IVF) cannot be performed using sperm or eggs from a third party (donor), as this would damage the family line and lead to inbreeding. It is strictly prohibited if the egg or sperm comes from someone other than the husband or wife, such as using a donor or surrogate mother.

The reason:

وَهُوَ الَّذِي خَلَقَ مِنَ الْمَاءِ بَشَرًا فَجَعَلَهُ سَبِيلًا وَصَهْرًا وَكَانَ رَبِّكَ قَدِيرًا

Meaning: "And it is He who created humans from water, then He made humans have descendants and kinship relations, and your God is Almighty." (QS. Al-Furqan: 54)

This verse explains that after creating humans, Allah endowed them with lineage and kinship. This demonstrates the importance of lineage in human life. In Islam, lineage plays a crucial role in determining identity, inheritance rights, and social relationships. This verse emphasizes that Allah created humans with the purpose of having clear and orderly relationships within society, both through blood ties and social ties.

2. Artificial Insemination in Islamic Law

It is permissible if the sperm comes from the husband and is implanted into the uterus of the legitimate wife.

It is not permitted if the sperm comes from someone other than the husband (donor). The biological relationship between the child and the parents must be clear and valid according to Islamic law.

The reason:

أَدْعُوكُمْ لِأَبَاهُمْ هُوَ أَقْسَطُ عِنْدَ اللَّهِ

Meaning: "Call them (the adopted children) by (the names of) their fathers; that is what is fairer in the sight of Allah." (QS. Al-Ahzab: 5)

This verse emphasizes the importance of maintaining clarity of nasab (lineage) in Muslim society. Allah commands Muslims to call people of unknown origin by the name of

their father, if known. This aims to maintain identity and family relationships, as well as avoid confusion in terms of lineage. In the context of Islamic law, nasab has a very important role, especially in determining inheritance rights, social status and family relationships.

E. Social Problems and Laws That Emerge

The legal and social problems arising from assisted reproductive technologies such as IVF and artificial insemination are very complex, especially from an Islamic perspective. The crux of the problem is:

1. Confusion of lineage if a third party (donor) is involved.

Lineage, or descent, is a highly valued aspect in Islam. Lineage is closely linked to legal identity, kinship, inheritance rights, and the boundaries of private parts (mahram). Therefore, any form of interference with the reproductive system that could damage or obscure lineage is strictly prohibited. The evidence is as follows:

وَهُوَ الَّذِي خَلَقَ مِنَ الْمَاءِ بَنَاءً فَجَعَلَهُ نَسَبًا وَصَهْرًا وَكَانَ رَبُّكَ قَهِيرًا

Meaning: "And it is He who created humans from water, then He made humans to have offspring (lineage) and kinship relationships (marriage), and your God is Almighty." (QS. Al-Furqan: 54)

In the case of test-tube babies or artificial insemination, if the sperm or ovum comes from a non-legal couple, the offspring produced cannot be ascertained. This can cause confusion in determining the child's legal status, such as: Who is the biological father and the Shar'i father? Does the child have the right to inherit from husband and wife?

2. Loss of inheritance rights for illegitimate children according to sharia.

Under Islamic law, inheritance rights are granted only to those who are related by blood or by a valid marriage. If a child is born through an in vitro fertilization process that is not in accordance with Islamic law (for example, involving a sperm donor), then the

child has no inheritance rights from their biological father, as there is no valid legal or sharia-compliant bond between the two.

بُوْصِيْكُمُ اللَّهُ فِي أُولَادِكُمْ لَذِكْرٌ مِثْلُ حَظِّ الْأَشْيَنْ

Meaning: "Allah has enjoined upon you concerning (the division of inheritance among) your children; the share of a son is equal to that of two daughters." (QS. An-Nisa: 11)

This provision does not apply to children born from illegitimate relationships, because the main requirement for receiving an inheritance is legitimate lineage according to sharia.

Potential for social and ethical damage in families and society.

In Muslim communities, children of unknown ancestry often experience social stigma. This can have significant psychological impacts, such as:

- (1) Feeling inferior and not confident.
- (2) Being shunned or not accepted in social circles.
- (3) Difficulties in marriage and other social relationships.

F. Fatwa of Islamic Scholars on the Use of Test Tube Babies and Artificial Insemination

The Indonesian Ulema Council (MUI) as the highest fatwa institution in Indonesia has issued an important decision regarding assisted reproductive technology, especially test tube babies. In MUI fatwa no. 02 of 1980, MUI firmly stated:

1. Allowed IVF Procedures:

- (1) Only sperm and ovum belonging to a legitimate married couple may be used.
- (2) The procedure is carried out during the legal marriage period, not when the wife is divorced or during the iddah period.
- (3) The embryos that are formed must not be implanted into the uterus of another woman (surrogate mother).
- (4) The aim is purely to overcome fertility problems or the desire to have children in a legitimate household.

2. Prohibited Procedures:

- (1) Using sperm or ovum from a third party (donor).
- (2) Storing embryos to be implanted at a time other than the time of the marriage contract.
- (3) Renting a womb (surrogate mother) even though the embryo comes from a legal partner.

The Al-Azhar institution in Egypt, as the oldest and leading center for Islamic scholarship in the world, also issued a fatwa in line with the views of the MUI, with emphasis on aspects of protecting one's lineage and family honor.

Points of the Al-Azhar Fatwa:

- i. IVF is permitted if it is carried out between a legally married husband and wife, as long as they are still married.
- ii. Not allowed if:
 1. Using sperm or ovum from outside the couple.
 2. Using another woman's womb.
 3. Performing IVF after divorce or death of husband.

Rabithah Alam Islami in the Islamic Medical Conference in Mecca (1985) concluded 7 models of test tube babies, with only two models being permitted:

1. 5th Model: Sperm and ovum from the husband and wife are legally married, and the embryo is implanted in the uterus of the legally married wife as well.
2. Model 6: The process is carried out during the marriage, and no third party is involved.

Contemporary Islamic Scholars' Jurisprudence Views:

1. Imam Yusuf al-Qaradawi

In the book "Halal wa Haram fil Islam", he stated:

"If IVF is carried out between a legally married couple, then there is no reason to forbid it. However, if it involves a third person, then it is an act that destroys family order and the Shari'a."

2. Fiqh Institute of the OIC (Organization of the Islamic Conference)

"All IVF procedures involving a third party are haram. The use of donors or surrogates will disrupt the clarity of lineage and create social confusion."

G. Impact on Family Identity

The impact on family identity due to the use of assisted reproductive technology from an Islamic perspective, namely (Kamali, 2008):

1. Unclear Lineage

In Islam, family identity is highly dependent on clear lineage. Children born through in vitro fertilization or artificial insemination involving donor sperm or eggs from a third party can be confused about their lineage. If the child learns that they are not related by blood to their father or mother, this can disrupt their family and social identity.

2. Family Dynamics

Families using assisted reproductive technology may experience complex dynamics, particularly regarding social acceptance. Some family members or the community may not understand or accept the fact that the child was born through a medical procedure.

IV. CONCLUSION AND SUGGESTIONS

A. Conclusion

Assisted reproductive technologies such as in vitro fertilization (IVF) and artificial insemination (AI) have offered great hope to couples struggling to conceive. Medically, these procedures have proven effective in addressing various forms of infertility experienced by both men and women. However, from an Islamic legal perspective, the use of these technologies cannot be separated from the principles of sharia, which emphasize clarity of lineage, the validity of marital relations, and the protection of moral and social values within the family and society.

Based on the discussion in this paper, several important conclusions can be drawn, namely the importance of assisted reproductive technology. Assisted reproductive technologies, such as in vitro fertilization (IVF) and artificial insemination, have provided new hope for couples experiencing difficulty conceiving. These

methods allow fertilization to occur outside the woman's body, providing an alternative for those facing fertility issues. However, while offering solutions, the use of these technologies also raises various questions and challenges, particularly in the context of legal and religious ethics.

Lineage and Identity in Islam. In Islam, lineage (nasab) holds a very important position. Every child born must have a clear relationship with their biological parents to maintain the clarity of their identity and rights. The use of donor sperm or eggs from third parties in IVF and artificial insemination can lead to confusion regarding lineage, which is contrary to sharia principles. Therefore, many Islamic scholars emphasize that assisted reproductive technology must be carried out in a manner that maintains the clarity of lineage.

Views of Fiqhi and Ulema Fatwa. Various religious institutions, including the Indonesian Ulema Council (MUI) and Al-Azhar, have issued fatwas confirming that IVF and artificial insemination are permitted as long as they do not involve third parties. These fatwas emphasize the importance of maintaining lineage and family honor, and reject the use of donors or surrogate mothers. This shows that although assisted reproductive technology can help couples experiencing difficulties, its use must remain within the limits of sharia.

Legal and Social Issues. The use of assisted reproductive technology can raise various legal and social issues. Unclear parentage due to the involvement of third parties can result in the loss of inheritance rights for children born from processes not legitimate according to Islamic law. Furthermore, the social stigma surrounding children with unclear parentage can negatively impact their mental and social health. Therefore, it is important to consider the social and ethical implications of using this technology.

Impact on Family Identity. Family identity may be affected by the use of assisted reproductive technology. Children born from

IVF or artificial insemination involving donors can experience confusion about their birth, which can disrupt their relationships with their families and society. Family dynamics can also be complicated, especially if there are family members who do not accept the fact that the child was born through a medical procedure.

Overall, assisted reproductive technologies such as IVF and artificial insemination offer solutions for couples facing difficulties in conceiving children. However, its use must be done carefully and in accordance with sharia principles to maintain clarity of lineage and family identity. Therefore, it is important for couples considering this technology to consult with clergy and medical professionals, and understand the legal and social implications that may arise. With the right approach, assisted reproductive technology can be used to help couples build a family, without ignoring the values and principles upheld in Islam.

B. Suggestion

Based on the conclusions that have been outlined, there are several suggestions that can be put forward as an effort to optimize the use of assisted reproductive technology so that it remains in line with the principles of Islamic law and takes into account medical and social aspects.

First, for couples considering assisted reproductive technologies such as in vitro fertilization (IVF) and artificial insemination (AI), it is recommended that they first thoroughly understand the medical procedures, legal implications, and the Sharia provisions governing them. Consultation with competent medical personnel and religious scholars or Islamic jurists is essential to ensure the process does not conflict with the principles of clarity of lineage and the validity of marital relations in Islam.

Second, health institutions and fertility clinics are expected to provide assisted reproductive technology services that comply with Sharia values, specifically by eliminating the involvement of third parties such as sperm donors, egg donors, or surrogates. Furthermore, procedural transparency and

patient education need to be improved so that couples understand the limits permitted by Islamic law and the potential social impacts.

Third, the role of religious institutions and fatwa authorities, such as the Indonesian Ulema Council (MUI), needs to be continuously strengthened in providing clear and easily understood guidelines for the public regarding the use of assisted reproductive technology. Dissemination of fatwas and contemporary Islamic jurisprudence studies are crucial so that the public considers not only the medical aspects but also the moral, legal, and social dimensions in decision-making.

Fourth, the government and policy makers are advised to develop more comprehensive regulations regarding assisted reproductive technology. These regulations should be able to provide legal certainty, protect children's rights, maintain clarity of nasab, and prevent practices that conflict with religious values and social norms that apply in Indonesian society.

Fifth, future researchers are advised to conduct more in-depth studies on assisted reproductive technology from various perspectives, such as Islamic law, positive law, child psychology, and family sociology. Empirical research on the social and psychological impacts of children born through assisted reproductive technology is also crucial to provide a more comprehensive picture and inform future policy formulation.

With the synergy between husband and wife, medical personnel, religious scholars, academics, and the government, it is hoped that assisted reproductive technology can be optimally utilized as a medical solution, without neglecting sharia values, clarity of lineage, and family harmony in Islamic society.

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