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Ethical constraints and dilemmas in the provision of in-vitro fertilization treatment in Ghana: from the perspectives of experts

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Abstract

Background Infertility presents both medical and public health challenges, with in vitro fertilization (IVF) emerging as a prominent solution, particularly when other alternatives are exhausted. However, IVF treatment raises significant ethical questions that have been under explored in the Ghanaian context. This study aimed to explore ethical constraints and dilemmas in the provision of in vitro fertilization (IVF) treatment in Ghana.

Methods A descriptive phenomenological qualitative design was employed. Purposive sampling techniques were used to recruit 12 participants including ART experts from three in vitro fertilization (IVF) centres, ethicists and a legal practitioner. In-depth face-to-face interviews guided by an open-ended interview guide were conducted. Thematic analysis of the interviews was performed to identify major themes.

Results Providing IVF treatment in Ghana raises several ethical issues, including inequitable access due to high costs and limited availability, which favour wealthier individuals and leave marginalized populations with fewer options. There are significant ethical considerations in balancing the potential benefits of successful IVF treatment outcomes against the health risks and emotional tolls on patients. Decisions about the fate of surplus embryos present moral dilemmas, including whether to preserve, donate, or discard them. Differing personal beliefs about the moral status of the embryo further complicate the ethical landscape. Ensuring informed consent is challenging due to the complex medical, ethical, and emotional implications of IVF treatment, potentially leading to compromised consent. Additionally, there are ongoing risks of breaches in confidentiality, given the sensitive nature of reproductive health data and the importance of protecting patient privacy.

Conclusion This study revealed that several ethical dilemmas confront both healthcare providers and couples in the process of IVF. There is an urgent need for the development of clear and uniform regulations to govern the practice of IVF treatment in Ghana, with further attention given to mitigating financial barriers and enhancing support systems for couples considering IVF treatment.

Keywords Assisted reproductive technologies, Commercialization of embryos, Informed consent, In vitro fertilization treatment, Reproductive ethics

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Background

Infertility is a significant medical, social and public health concern that impact on not only physical health but also social functioning and the psychological well-being of afflicted couples, especially women. In 2022, it was estimated that 17.5% of people worldwide had experienced infertility, highlighting the condition's widespread impact; in the African region, 16.4% of the population has/is experiencing infertility at some point in time [1]. The incidence of infertility in Ghana is between 11 and 15%, highlighting the need for readily available, reasonably priced fertility treatments and assistance given the anticipated future drop in fertility [2, 3]. With a total of 510 IVF and ICSI performed in Ghana, 325 babies were reported as the outcome of these procedures in Ghana [4]. Compared with the infertility rate in Ghana, it is evident that only a few of the people who need IVF treatment are getting access to this treatment. Women experiencing infertility reported feelings of loneliness, anxiety, depression, reduced concentration, worry, and diminished sexual satisfaction [2]. Infertile women in Ghana face severe social stigma because they are often shunned and forsaken by those who should support them, including their husbands and extended family [3]. In the Ghanaian cultural context, motherhood is frequently viewed as a status of achievement [5]. Consequently, women or couples often put forth a great deal of effort to conceive. For instance, those who opt to treat infertility spend considerable time and money, and these expenses are often paid out of pocket, unleashing financial strain and potentially bankruptcy [6, 7].

Generally, assisted reproductive technology (ART) and the increasing development of in vitro fertilization (IVF) treatment methods provide options for treating infertility [8]. Any procedures related to fertility that involve the manipulation of eggs or embryos are considered assisted reproductive technologies [9]. IVF is a type of ART but is extensively used interchangeably. This complex procedure involves extracting the ovum for sperm fertilization outside the human body and transferring it back into the uterus. The introduction of IVF halts the emotional trauma that childlessness brings to people [10]. IVF is often the last resort utilized to achieve pregnancy since it has the potential to overcome various undiagnosed biological issues of fertility [11]. Nevertheless, it is a costly and invasive procedure that may result in complications [12].

Many countries in the Western world such as Spain, Portugal, Estonia, the USA, Greece, North Cyprus, and Ukraine, provide IVF treatment. Similarly, 21 out of the 54 countries in Africa provide IVF treatment [13]. Although IVF treatment is not so popular in Ghana as in the Western world, 14 fertility clinics that provide this service can be found, especially in Greater Accra, Takoradi, and Kumasi [14].

Although IVF is a revolutionary procedure, it is confronted with ethical issues, including equity of IVF service, compromised informed consent, funding of IVF treatment, and the effect of religious beliefs on IVF policy-making [15]. Moreover, valid informed consent is often compromised: the psychological state of people seeking IVF treatment has been found to exhibit extreme hopefulness and desperation to have a child [16]. Again, the information provided on IVF consent forms is often not precise [17]. In Ghana, these challenges are compounded by high costs, inequalities, lack of legal frameworks, and inconsistencies in adherence to international standards [18]. The lack of laws and guidelines for medical assisted reproduction (MAR) in countries such as Ghana further exacerbates these issues as countries with only "guidelines" have been shown to be inadequate to address the social, ethical, and legal aspects of this crucial field of medicine [19, 20]. At the same time, studies on informed consent, fairness in accessing IVF treatment, and ownership of embryos in different situations in Ghana are limited. Studies focused on the ethical implications of in vitro fertilization in Ghana are very scant. Therefore, this study aimed to explore the ethical constraints and dilemmas that exist regarding in vitro fertilization treatment in Ghana. The study presents expert-based views and perspectives in the many ethical constraints and dilemmas faced in the provision of in-vitro fertilization treatment in Ghana.

Theoretical perspective

Contractarian ethics, grounded in social contract theory, holds that moral and political obligations stem from an implicit contract between individuals in a society. This theory contends that social cooperation is required to prevent the anarchy of a natural State and norms that assure individual justice and fairness [21]. According to this theory, individuals enter into social contracts that impose obligations and benefits to promote mutual benefit [21].

When applied to the context of infertility and access to IVF in Ghana, Contractarian ethics emphasizes society's moral commitment to ensure that all individuals, including those suffering from infertility, enjoy the basic benefits guaranteed by the social contract. Procreation is a core human interest, and having children is regarded a basic communal advantage. According to the social compact, people accept certain burdens, such as obeying laws and paying taxes, in exchange for communal advantages [22].

The denial of access to IVF due to high costs and limited availability creates an inequity where infertile couples bear the burdens of society but are denied the benefit of procreation. This violates the social contract, exacerbates existing social inequalities, and leads to moral and ethical concerns about fairness and justice. Contractarian ethics could empower infertile couples to advocate for policy changes, arguing that the current system fails to uphold the social contract. This shift could emphasize the role of social institutions in ensuring all members of society, regardless of their socioeconomic status, have access to the benefits of the social contract. Also, the Feminist theory, which critically examines the social structures that perpetuate gender inequalities, is particularly relevant to understanding how societal norms and expectations regarding fertility and parenthood affect individuals' experiences with assisted reproductive technologies (ARTs), including in vitro fertilization (IVF) [23].

Methods

Study Design

A descriptive phenomenological qualitative research was conducted to explore the ethical constraints and dilemmas in the provision of in vitro fertilization treatment in Ghana, and findings were reported using the consolidated criteria for reporting qualitative research as a guide (COREQ) [24, 25]. Providers of IVF services shared their views and experiences in relation to the ethical issues inherent in the provision of in vitro fertilization treatment. Additionally, opinions were sought from bioethicists and a lawyer. After the views and expertise were shared, the findings were described and analysed in relation to the prevalent ideas related to the research questions.

Study setting

The study was conducted at three fertility clinics in the Accra, Ghana's capital city, which has the highest number of fertility centres. The ethics committee mandated the anonymization of the names and locations of fertility centres where data were collected due to the sensitive nature of the subject matter. Thus, these centres will be referred to as IVF Centre 1, IVF Centre 2, and IVF Centre 3 within the study to maintain confidentiality and protect the privacy of the parties involved. These three were selected following an initial visit to a total of 14 fertility centres in Accra. However, only the three facilities agreed to allow their staff to take part in the study.

Participants and recruitment

A total of twelve people participated as study participants. Among the 12 participants, one was a gynaecologist specialist, two were gynaecologist consultants, four fertility midwives, two clinical embryologists, two were bioethicists, and one was a lawyer. The study initially anticipated a sample size of 13 participants. However, data saturation was reached for all major themes after 12th participant was interviewed.

Participants were carefully chosen using a purposive sampling technique, which prioritized maximum diversity. Participants were contacted via phone calls after an initial request was made to their respective facilities/institutions to participate in the study. The researchers conducted informal meetings with participants to establish rapport and re-screen them for inclusion before sending them a formal invitation for the study.

Inclusion criteria

- Healthcare providers with at least 2 years of experience in IVF treatment.
- Healthcare providers directly involved in providing IVF services (e.g., fertility specialists, nurses/midwives, obstetricians, gynaecologists, embryologists).
- Bioethicists with formal bioethics training for at least 2 years.
- Bioethicist with engagement in bioethics-related discussions, protocol approval, research, or policy development in the last 2 years.
- A Lawyer practicing law in Ghana.
- A Lawyer with at least 5 years of experience in family or medical litigation.
- Participants capable and willing to provide consent.

Data collection

In-depth interviews were conducted using an open-ended topic guide containing open-ended questions. The interview guide was pretested among four (4) non-participants to help clarify the content of the interview guide before the actual interview was performed.

The interviews were conducted in person (face-to-face) by the first author at a convenient location within the workplace of each participant. Each interview session lasted 45 to 60 min. All interviews were conducted in English, and participants were informed in advance that the sessions would be recorded and transcribed.

Healthcare providers were asked about their perspectives on factors influencing patients' choices of IVF treatment, ethical challenges encountered in IVF treatment, and issues related to equitable access to IVF treatment in Ghana. Bioethicists shared their opinions on ethical concerns in IVF treatment as well as affordability and equity issues within the IVF industry. The lawyer provided insights into the legal and regulatory provisions governing IVF treatment in Ghana. Field notes were made during and after each interview, and subsequently written up and included in the analysis.

Analysis

Braun and Clarke's guidelines for thematic analysis of the data were followed [26]. These steps included becoming familiar with the data, generating initial codes, searching for themes, reviewing, refining, and summarizing the findings. Throughout the process, the principles of descriptive phenomenology were meticulously upheld to ensure the analysis remained true to the participants' experiences.

Initially, the first author and another independent transcriber transcribed all the audio recordings of the interviews. Following the principle of bracketing [27], the researchers consciously set aside their personal opinions, theories, and assumptions before examining the data, allowing the participants' voices to be heard clearly. The transcripts were then cleaned to pseudonymize participants' identifiers, and each transcript was read multiple times, which aligns with the phenomenological practice of immersing oneself in the data to fully comprehend the experience from the participants' viewpoints.

A randomly selected transcript from each group - a bioethicist, two healthcare professionals, and a lawyer - was subjected to descriptive-focused coding. This approach was chosen to identify concepts closely aligned with the study objectives while strictly adhering to the principle of intentionality, where significant phrases or statements that encapsulated the participants', experiences were highlighted. These statements were interpreted based solely on the participants' descriptions, ensuring that no inferences were made beyond what was explicitly stated.

An initial codebook was created from these descriptive-focused codes, and data coding and theme organization were performed using NVivo QRS version 14 software. The codebook guided the coding of the remaining transcripts, with new codes being added as they emerged. Consistent with the phenomenological goal of capturing the essence of the experience, the codes were later grouped into clusters and relevant themes, representing various aspects of the participants' lived experiences.

Themes were continuously refined until they accurately represented the findings, reflecting the essence of the experiences as described by the participants. To address potential researcher bias in coding and theme identification, the second author compared and validated the emerging themes from the first author and independent transcriber. This validation process ensured that the final themes were a faithful representation of the participants' experiences. The final themes were then discussed to reach a consensus, further enhancing the credibility and reliability of the analysis.

Results

Characteristics of the participants

Among the 12 participants, one was a gynaecologist specialist, two were gynaecologist consultants, four fertility midwives, two clinical embryologists, two were bioethicists, and one was a lawyer. Educational qualifications varied among the participants, with all the gynaecologists, clinical embryologists, and bioethicists holding postgraduate qualifications, while the midwives and the lawyer possessed graduate-level qualifications. Each participant was assigned an identifier from P1 to P12 for reference throughout the study.

Through a comprehensive thematic analysis aligned with the study objectives, six overarching ethical issues emerged to form the main themes. These included (1) Inequitable access, (2) Balancing risks and rewards, (3) Fate of surplus embryos, (4) Status of the embryo, (5) Compromises in informed consent, and (6) Potential risk of breach in confidentiality.

Theme 1: inequitable access

The participants highlighted the presence of barriers, the role of government funding and income-based pricing, the significance of insurance coverage, and the need for flexible payment plans to ensure fairness and equity in accessing fertility treatments. Participants particularly identified financial constraints as a barrier that hinders equitable access to IVF treatment. As participant 1 mentioned,

> *In our part of the world, IVF is fully fee paying. So, those who have the money will have access to the procedure (P1, gynaecologist consultant, IVF centre 2).*
>
> *Today, if you are not a high-income earner, I doubt you can go through IVF treatment. You may abandon it on the way (P9, clinical embryologist, IVF centre 3).*

However, a participant provided justification for access barriers to the general population by citing the need to prioritize more critical healthcare issues within limited resources:

> *So, we should give more to life threatening medical situations or clinical situations. So, if you compare putting an infectious disease treatment on the NHIS (National Health Insurance Scheme) compared to this [IVF treatment], the ethical arguments may lead you to favour the infectious disease…so the ethics of rationing becomes very important…if you are not able to have a child, you can live your full life (P10, bioethicist).*

Despite access challenges, a participant mentioned that exceptions should be made for certain individuals who lack mental soundness to parent children:

> *If they[patients] are not, you know, mentally sound…they cannot be responsible parents, so they should not be given a chance at IVF. These are the few exceptions I may think of (P1, gynaecologist consultant, IVF centre 2).*

Another aspect of equity highlighted in the study relates to who should be entitled to access IVF treatment. Some of the participants emphasized that the type of relationship between couples should not be a factor restricting IVF treatment. They extended recognition to diverse family structures, including single parents by choice. However, same-sex couples were not explicitly considered for IVF treatment:

> *Well, the truth is that people who come here, they come as partners. We do not know whether they are legally married or not…There are women who do not have the eggs, and they may ask the centre to assist them to get female egg donors so they can carry pregnancy with them. There are a few women too who come, they do not have any male partners and they do not have anybody in mind to donate the sperm for them. We have not had anybody, especially, let's say, two males who come, they want a female to be a surrogate for them neither have we had two women come in and say they are a couple (P1, gynaecologist consultant, IVF centre 2).*

To address the inequities in access to IVF treatment, some participants reported a need for government intervention and funding to make fertility treatments more accessible to a broader population. Income-based pricing models were proposed by one of the participants to ensure fairness. She argued that sliding-scale fees based on income could make treatments more affordable for lower-income individuals or couples:

> *You may have a couple who would be able to pay outright, probably charge based on people's ability to pay so that they can reduce the cost for those who do not have to pay. So those who have should pay more and then those who do not have, should be subsidized (P11, bioethicist).*

The absence of insurance coverage for fertility treatment was identified as a major barrier to equitable access. Participants thus called for insurance policies to include fertility treatment coverage to reduce the financial strain on patients. As participants 8 and 10 mentioned,

> *Possibly if insurance could come and cover some aspects of the treatment, it will help (P8, Clinical embryologist, IVF Centre 2).*

> *Whatever the private facilities in particular who would not forfeit their profit margins can do is to probably collaborate with some insurance system (P10, bioethicist).*

While payment plans were seen as a potential solution to address affordability concerns, some participants noted that challenges with payment plans, such as unstable instalment rates and inflexible terms, could create additional financial burdens:

> *We do payment plans for our facilities…We have as low as five hundred…Unfortunately, because it is not well afforded, some people start payment in bit which may go beyond a year, then our prices are reviewed, and they come back to meet a higher price. Unfortunately, there is nothing they can do about it due to unstable foreign exchange (P2, gynaecologist specialist, IVF centre 1).*

Theme 2: balancing risks and rewards

The findings revealed that individuals and couples often engage in delicate balancing when considering IVF treatments. The desire for multiple births, coupled with the associated risks, presents a complex ethical decision-making dilemma. Additionally, the emotional toll resulting from treatment failure adds another layer of complexity to treatment.

> *The clients expect the possibility of multiple foetuses. So mostly they are happy to get twins or triplets and want us to manage them to term and that is what we do (P7, fertility midwife, IVF centre 3).*

Participants however reported the challenges associated with multiple gestations (such as twins or triplets) resulting from IVF treatments:

> *Our main concern is cervical insufficiency, the risk of abortions and all that…We have had one. She had uterine atone. The uterus just become too relaxed that it cannot even contract. So, they end up bleeding more. So even before we enter the theatre, you must secure blood and all that. So, in the absence of it, the client's life is at risk, because they have carried more than one, so the uterus is over overstretched (P6, fertility midwife, IVF centre 2).*

Additionally, providers often make recommendations based on medical considerations, aiming to balance the desire for a successful pregnancy with the potential complications of multiple births:

> *Whenever we are doing embryo transfer, we are tight in the corner as in, when we do put only one, and it does not work I mean, we have wasted the patient time and money. So, if we put two, in case one does not work, one will stand…So, for the healthy young ladies[lady], she can carry more than one foetus, she can carry two. So, in that sense, when we start antenatal, we keep on monitoring (P5, fertility midwife, IVF centre 1).*

One gynaecologist consultant at IVF centre 3 further raised concerns about some adverse effects of treatment associated with IVF treatment and the difficulty of navigating such adverse effects:

> *When it comes to assessing the risk and benefit of IVF treatment, the risk of hyper ovarian stimulation and the benefit of retrieving adequate eggs, then it becomes problematic…if we compare the adverse effect, it gives some people (P3, Gynaecologist Consultant, IVF centre 3).*

Moreover, one of the participants shared couples' experiences dealing with the emotional and psychological impact of treatment failure, including the fact that the fear of not achieving a successful pregnancy often heavily affects individuals and couples undergoing fertility treatments:

> *You can understand how they[couples] feel when it does not succeed, the depression, the disappointments, the economic loss, and all that (P1, gynaecologist consultant, IVF centre 2).*

Theme 3: fate of surplus embryos

Embryo storage and disposal emerged as challenging ethical dilemma. The participants responded to questions related to the moral status of the embryos, the responsibility of the parents in decision-making, and the impact of choosing to discard or donate unused embryos:

> *So, I believe it [embryos] can be donated. I believe there should be a charity that also would be into donation of these embryos. So, if that avenue is there, that could be explored instead of just destroying them (P11, bioethicist).*

Some participants believe that embryo storage should depend on the consenting couple:

> *When you do the egg collection, then you need to affirm it to them [couples] that maybe the number of eggs you have got, is it more likely some will be left. You talk to them [couples] to start preparing towards freezing. Some people readily accept, others too may not want to; they say, well, you just put in what you have to put in, the rest they are not willing to store. Others may ask you to preserve it for people who want it. Others may tell you to destroy it because they do not want it (P1, gynaecologist consultant, IVF centre 2).*

The commercialization of embryos particularly raised ethical concerns among participants. They deliberated over the implications of commodifying human reproductive materials and the potential exploitation of vulnerable individuals. Ethical considerations spanned issues of affordability, consent, and the role of profit-driven entities in fertility treatment:

> *I think this [commercialization of embryo] is something that we have to look into, you know, there should be a system in place where people are adequately informed (P11, bioethicist).*
>
> *So, if you work around, it in such a way that you adequately compensate for this without excessive profiteering, that for me, would be a good point or balance point to work things out with (P10, bioethicist).*

Some participants believe that commercializing embryos should be completely avoided, while others argue that they could be subject to reasonable negotiation:

> *Selling of embryos should not be encouraged. It feels like you are selling something that does not have to be sold, I think we should not. We can give some appreciation to the one who is giving out the embryo or the gamete, but not like prescribing a fee. We should not prescribe an amount (P7, fertility midwife, IVF centre 3).*
> *Selling any part of the human body has some legal consequences. But a person can receive compensation for giving out an embryo, if there is that agreement between parties (P12, legal practitioner).*

Theme 4: Status of the embryo

Participants debated about when personhood begins and whether embryos created during IVF should be considered as having moral or legal standing. Some participants stressed that in the decision-making process regarding the existence of a child, the child does not play an active role, and they do not inherently possess rights. Instead, the primary decision-making authority lies with the parents:

> *Do you have a right before you exist? So, if the child is unborn, has the child an identity, has the child a right? What is the role of the child in coming into existence? Is it not the decision of the two parties[parents]? The child has no part to play in that. So, then where lies the right of the unborn child in doing that? It is just the decision of these two (P10, bioethicist).*
>
> *The unborn child has no legal status. Only the parents have. So, if that unborn child becomes a human, then they can exercise their rights (P12, legal practitioner).*

Nevertheless, some participants acknowledged the significance of making decisions that prioritize the well-being and potential rights of the unborn child:

> *You have to weigh with the quality of life...with the disadvantage of being born. If the risk is way beyond the minor acceptable risk, then I do not think it is reasonable to give birth to that child to come and suffer. If the risk is too much and that has to do with the quality of life for that child that is going to be born, then, to me, you have to consider the outcome (P11, bioethicist).*

Theme 5: compromises in informed consent

Participants stressed the importance of offering comprehensive and comprehensible information about the proposed treatments to couples who seek IVF treatment. They believe that couples should fully grasp the potential risks, benefits, and alternatives to make informed choices about their fertility care. As participants expressed,

> *We have materials to aid them understand and seek their feedback from the understanding they got. Our terms and condition of payment, the risk and benefits of the treatment, the success rate and possibility of failure (P3, gynaecologist consultant, IVF centre 3).*

However, it was noted that the acceptance of informed consent may be influenced by the specific situations and circumstances in which couples find themselves. Several factors influence the acceptance of informed consent among couples undergoing fertility treatments, such as in vitro fertilization (IVF). Psychological distress, common in this context, may hinder their ability to comprehend and accept the details, raising concerns about the validity of their consent. The couples' fertility journeys and history, shaped by past experiences, impact their trust and understanding during the informed consent process.

> *Some people may seem to have understood. But maybe they did not because of the desperate nature of the situation. They are willing to go through anything so long as it will guarantee them pregnancy and baby...those who are quite well educated understand some of the processes and all that. For those who are not educated...giving them instructions sometimes may not go down too well for them (P1, gynaecologist consultant, IVF centre 2).*

The complexity of medical procedures and associated risks involved in IVF treatment could also influence patient perception and acceptance, particularly for those facing greater medical complexities or potential health risks. Cultural and religious beliefs contribute significantly to perspectives on assisted reproductive technologies, affecting the acceptance or rejection of certain aspects of IVF. Educational background and varying levels of understanding among couples may affect the quality of informed consent.

Theme 6: difficulties in maintaining confidentiality

Participants highlighted a need to maintain the strictest confidentiality regarding patients' personal and medical information. However, IVF treatment is performed by a multidisciplinary team of healthcare professionals, making it sometimes difficult to maintain strict confidentiality.

> *IVF is more privacy protected because of the whole stigma from society. So, we as healthcare providers are tasked to ensure that the information of the patient is unknown to providers who are not directly caring for our clients because some providers can have big mouths (P7, fertility midwife, IVF centre 3).*

Discussion

This study aimed to explore ethical constraints and dilemma in the provision of in vitro fertilization (IVF) treatment in Ghana. The major themes presented demonstrated that many ethical issues confront the human reproductive technology industry in Ghana. Evidence from this study indicated that financial constraints were a major barrier to accessing IVF treatment. Other studies have emphasized that the cost of IVF treatment can be prohibitively expensive for many individuals, potentially preventing them from pursuing such treatment [28, 29]. The high cost of IVF treatment is a well-documented factor and seems to be particularly impactful in the context of Ghana. The relatively lower income levels of most Ghanaians contribute to the perception that IVF treatment is a privilege rather than a readily accessible option. Economic disparities may disproportionately affect access to IVF treatment, creating barriers for those with limited financial means. There is a need for financial support mechanisms and affordable pricing models to address inequities in access to IVF treatment.

The study revealed that while some consider IVF treatment a luxury for the wealthy, others say that the cost is justified given the intrinsic importance of having a child. This finding is consistent with previous research, which indicates that despite the initial perception of high IVF costs, the intrinsic value of having a child tends to outweigh financial expenditures [30, 31]. Regardless, the cost of treatment should not be prohibitively expensive but rather represent the economic disparities in the country where it is administered. The necessity of equal access to IVF treatment is highlighted by contractarian ethics, which is concerned with the justice and fairness of social systems. Only those with significant financial means may afford IVF treatment because of the differences in economic resources, which raises ethical questions concerning justice and fairness. This study stresses the importance of government action and funding to increase access to fertility treatments; nevertheless, in low- and middle-income countries such as Ghana, government funding may be perceived as insufficient allocative justice [32]. Government funding and financial support mechanisms are essential to address these inequities, yet they must be balanced against other healthcare priorities.

An additional finding from the study indicated that individuals with mental health issues should not have access to IVF treatment. Although this finding is not directly stated in most of the literature, the nature of IVF treatment may exacerbate psychological issues and may not be favourable for people with mental health conditions prior to treatment. This claim is evident in the literature, implying that a negative pregnancy test is associated with an increased risk for depression in women undergoing IVF treatment [33–35]. It is also perceived that individuals with mental health conditions may be incapable of bearing the responsibility of parenting [36, 37] and thus should not be given the chance at IVF treatment in pursuit of a child. However, this could raise ethical concerns about fairness in IVF services. Intense emotional investment in the process, coupled with potential disappointments such as failed attempts, may indeed impact the mental well-being of individuals with preexisting mental health conditions. Mental health assessments and support should be integrated into the IVF process to ensure the well-being of patients throughout their fertility journey.

It was noted in the findings of this study that couples are usually desperate to have their own children and may override thoughtful decision-making during the informed consent process. This finding is consistent with previous studies, including those by Mohammadzadeh, Van-Den Akker, Malina and Pooley [38–40], which have all indicated that the intense desire for a biological child can complicate ethical decision-making and lead individuals to overlook potential risks associated with IVF treatment. The intense longing for a biological child creates an emotional state that may overshadow rational decision-making. This emotional intensity could stem from societal expectations, personal desires for parenthood, or cultural influences. Feminist theory emphasizes how societal expectations about motherhood can create immense pressure on women to conceive and bear children, often viewing motherhood as a central component of female identity. When individuals or couples are deeply invested in the outcome of fertility treatments, they may prioritize the goal of having a child over careful consideration of the potential risks and alternatives associated with IVF treatment. The emotional aspect might cloud the ability to fully comprehend the implications and make informed choices during the consent process. Healthcare professionals need to be adept at recognizing signs of desperation in couples undergoing IVF treatment.

The finding also showed that the desire for multiple births, coupled with the associated risks, presents a complex ethical decision-making dilemma for healthcare providers. Striking a balance between respecting patient autonomy and preventing harm poses challenges in the practice of IVF treatment [41–43]. Addressing these ethical dilemmas is essential for providing responsible and patient-focused infertility treatment.

There were also ethical concerns surrounding embryo storage and disposal of unused embryos. The findings of this study suggested that there are multiple opinions related to the moral status of embryos, the responsibility of parents in decision-making, and the impact of choosing to discard or donate unused embryos. Many studies suggest that the responsibility of parents in decision-making varies among clinics, with some requiring a couple's participation in disposal, some allowing but not requiring it, and some discouraging or disallowing it [44–47]. The diverse opinions and practices regarding embryo disposal can be attributed to the complex and emotive nature of the matter. Philosophical viewpoints on the moral status of embryos likely contribute to these differences, as well as cultural, religious, and individual beliefs. Clinics may adopt varying approaches based on their ethical frameworks, legal considerations, and perhaps the absence of standardized guidelines in this sensitive area. The varying opinions on embryo storage and disposal also highlight the need for clear guidelines and open communication between patients and providers. Clinics should have policies that respect the preferences of patients while adhering to ethical standards.

The findings also revealed a diversity of opinions on the commercialization of embryos, with some advocating total avoidance, while others suggesting that it may be acceptable with appropriate compromise. The literature highlights arguments against embryo commercialization, citing moral, scientific, and human rights concerns, as well as potential conflicts of interest and prioritization of financial gain in IVF treatment involving profit-driven entities [48–50]. These sources, likely representing a broader body of literature, emphasize ethical, moral, and human rights issues associated with the commercialization of embryos. The concerns about conflicts of interest and the role of profit-driven entities in IVF treatment align with prior discussions in the field. This finding reflects the ongoing debate within the scientific and ethics communities regarding the commercialization of embryos. The opposition to embryo commercialization is likely rooted in moral and ethical considerations, such as the sanctity of human life, potential exploitation, and concerns about the commodification of embryos. Additionally, the apprehension about profit-driven entities in IVF treatment reflects worries about the potential compromise of medical decision-making for financial gains. These findings underscore a need for careful regulation of embryo commercialization. The concerns raised, including conflicts of interest and prioritization of financial gain, highlight potential risks associated with uncontrolled commercialization. Feminist theory would critique the commercialization of embryos as potentially commodifying women's reproductive capacities and perpetuating gender inequalities. Contractarian ethics, on the other hand, would focus on creating fair and just policies that protect all parties involved, ensuring that decisions about embryo storage, disposal, and commercialization are made transparently and equitably, both theories could leverage the decision making in embryo commercialization. Advocating for adequate, worldwide, and tolerant control of embryo commercialization has become crucial for addressing these ethical, moral, and financial considerations [51]. Implementing robust laws and regulations can help strike a balance between technological advancement and safeguarding against potential ethical lapses in the realm of assisted reproductive technologies.

The findings of this study should be interpreted with certain limitations in mind. The sample size was relatively small (12 participants). While qualitative research often involves smaller samples, the findings may not be generalizable to represent the broader population/perspectives in Ghana. Additionally, the participants were healthcare professionals involved in IVF treatment, which may limit the diversity of perspectives, as patients or individuals from diverse backgrounds may have provided a more comprehensive view of the subject. Finally, the use of descriptive-focused coding for thematic analysis may have limited the depth of the analysis. It may also not have captured more nuanced or abstract themes that could emerge from the data.

Enhancing Reproductive Freedom

Everyone must have access to medical services, according to Article 25 of the Universal Declaration of Human Rights. The right to the best possible standard of health is also expressly stated in the International Covenant on Economic, Social, and Cultural Rights (ICESCR) (Article 12), and is further elaborated in the Covenant's General Comment No. 22 on the right to sexual and reproductive health. Reproductive freedom is a human right, encompassing the ability to make decisions about one's reproduction, and the State ensures the realization of this right through access to reproductive services. Legislative efforts must prioritize safeguarding this right, ensuring that individuals and couples can pursue parenthood through ART without undue structural or financial barriers identified within this paper. Priority has been given to other reproductive health and family planning services, while human reproduction interventions such as Assisted Reproductive Technology (ART) treatment have been missed. Public health policymakers in lower-middle-income countries often overlook discussions about fertility treatments, possibly because it is a curative intervention. However, the impact of infertility goes beyond medical treatment, affecting mental health as well.

These identified structural barriers in accessing ART, such as excessive costs of treatment, limited availability of services, and socio-economic disparities, must be systematically addressed through targeted legislative actions. Legal provisions should mandate that public and private health insurance schemes cover ART medicine lists, medicine tariffs, and procedures. Laws could require insurers to treat infertility through ART treatments as essential health services, ensuring that lower-income individuals are not priced out of accessing these services. Legislative actions should also focus on building capacity by opening government-owned ART clinics. The Government of States and its Health Ministry need to make policies that seek to reduce the cost of ART treatment ensuring that the importation tax on equipment and pharmaceutical products for this treatment are waived. Also, indigenous pharmaceutical companies should produce fertility medications such as the ovarian stimulants. This will be beneficial in reducing cost of IVF treatment in lower middle-income countries like Ghana.

The impacts of such legislative reforms would be far-reaching anticipating outcomes such as access to ART would no longer be a privilege of the wealthy, leading to more equitable societal outcomes where everyone of acceptable reproductive age could start a family. Women would benefit from improved access to reproductive services, enhancing gender equality by empowering them to make autonomous decisions about their reproductive health. Ethical provision of ART treatment will be adhered. There will be reduced stress, depression, and anxiety related to infertility, these actionables could improve public health outcomes.

While securing public financing and tax-waivers for ART would significantly enhance access, it comes with challenges, particularly in lower-income settings. Policymakers need to ensure that public financing models are sustainable at the same time do not overly burden public health systems. Policymakers could look at successful examples from other countries, such as Denmark and Israel, where public funding for ART has been well-integrated into healthcare systems. Moreover, within some tribes and localities, ART may still be stigmatized, which could hinder the political will needed to pass legislation. Public awareness campaigns and community engagement are essential to shifting cultural norms around ART.

Conclusion

This study highlights the many ignored facets of in vitro fertilization treatment in low-income setting settings such as disparities in IVF access in Ghana, moral dilemmas of deciding whether to preserve, donate, or dispose of surplus embryos, and the need for informed consent due to the complex medical, ethical, and emotional aspects of the procedure. It also highlights potential confidentiality risks due to the sensitive nature of reproductive health data. The findings contribute to the existing body of knowledge on reproductive ethics and as well provide practical insights and recommendations that can guide policy and practice in Ghana. Moving forward, there is urgent need for all stakeholders to come together to develop clear and uniform regulations to govern the practice of IVF treatment in Ghana, with further attention given to mitigating financial barriers and enhancing support systems for couples considering IVF treatment.

Abbreviations

IVF	In vitro fertilization
ART	Assisted reproductive technology

Supplementary Information

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Supplementary Material 1

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Author contributions

D.A. was fully responsible for conceptualization, data analysis, and writing of the initial draft. J.K.G was responsible for reviewing, editing, and managing the research project. All authors reviewed and approved the manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The Noguchi Memorial Institute for Medical Research–Institutional Review Board (NMIMR-IRB) gave ethical approval for this study (approval # CPN 014/23–24, valid from 2nd August 2023 to 1st August 2024). The study procedures adhered to the ethical principles of the Declaration of Helsinki. Written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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