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## Artificial Reproductive Technology: Cultural considerations through an African lens

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#### Abstract

Artificial Reproductive Technology (ART) as a variant of Artificial Intelligence (AI) is becoming popular among Africans as an alternative to infertility among married couples. With the prioritization of fertility as an indispensable ingredient for sustaining family lineages, ART stands as a potential alternative for couples to shun the negative societal labels as a result of infertility after their marriage. Yet, issues about fertility are not just a couple's affair but rather a societal affair in a typical African society. That notwithstanding, the processes in ART are acceptable to the traditional African cultural ideology of fertility and childbirth. This paper scholarly discusses the potential drivers and resistance to decisions of acceptance of ART in typical traditional African societies. It contends that due to the evolvement of culture, which is not a static phenomenon of societies, coupled with the pressure mounted on married couples by African families, the acceptance of ART holds promising grounds in Africa in the not-too-distant future.

**Keywords:** Artificial Reproductive Technology; Artificial Intelligence; Artificial Insemination; African culture; fertility; health and culture



## Introduction

Artificial Reproductive Technology (ART) is a man-made intelligence invention that aims to stimulate fertility and thus cure infertility (Fernandez et al, 2020). It is the manipulation of eggs, sperm, or embryos by removing eggs from the ovaries and mixing them with sperm to create embryos to increase the chance of a successful pregnancy and prevent the transmission of infections/diseases such as genetic disorders, HIV/AIDS and so on (Onwuka, 2023). A World Health Organization (WHO) meeting in 2002 reported that one in ten couples is challenged with one form of infertility or the other, thus affecting over 80 million people globally, with high prevalence in developing nations where there is unavailability of infertility services (WHO, 2002). A 2017 delegates' meeting of the American Medical Association declared infertility as a disease in agreement with the WHO's designation of the condition (AMA, 2017). Until recent times, the hassle of infertility in developing countries in health management due to the cost involved, unavailability of facilities, and the less importance placed on this technology by authorities (Ombelet, 2008). Despite these challenges, it has been established, among others, that religious, cultural, and political factors, government regulations, and the existence of cross-border reproductive care could potentially influence access to ART (Adamson, 2009). Since the first successful In vitro fertilization in 1978 (WHO, 2002), the traditional construct of parenthood has transformed from a private relationship to a public affair (Maule & Schmid, 2006). Even though the processes involved in ARTs take relatively shorter periods, their outcomes significantly and permanently affect the social relations within the family and among persons involved both physically and emotionally (Tkach, 2009). This paper seeks to set the tone for a cultural deliberation on this technology in the African setting.

The phenomenon of fear of infertility is high in Africa, specifically due to the value placed on parenthood in the life of an adult. Traditionally, the concept of barrenness and infertility is frowned upon, and persons who have such conditions face negative societal labels, this situation still exists in many African communities. Childlessness, in some cases, has been perceived as a curse from the deities being born by the afflicted person or as a result of the person's bad deeds (Adamu, 2023). Culturally, Africa has a fore-choice for high fertility, with women bearing the greatest consequence for its denial (Chimbatata & Malimba, 2016). Children, from time immemorial, have been considered economic assets, sources of pride, an economic fortune, and a security resource for older parents in African communities (Church et al, 2023; Adamu, 2023). Serving as the only option for women to improve their position in the family and community, the social status associated with motherhood cannot be underestimated. Hence, the social stigma attributed to childlessness remains enormous (Alhassan et al., 2014). This situation has negatively impacted the health behaviours of most Africans regarding the use of contraceptives and vaccination, considering societal exclusion and divorce being dire consequences of infertility (Boivin et al., 2020).

The model of the African family is multigenerational, bringing together all the branches of the family system, thus espousing the value of communalism in the African culture (Ndlovu & Naidoo, 2023). This spirit of communalism was influenced negatively by individualism fueled by colonialism and an upsurge in the nuclear family system (Duke & John, 2019). This influence affected African communalism and saw a shift from the polygamous marriage practice to a more monogamous one after the introduction of Christianity (Hakim, 2022). Again, modernism has brought about a rise in women's rights movements, greatly influencing women's status and roles in the family (Ndlovu & Naidoo, 2023), as well as major family decisions like childbirth and the conception process. Social motherhood has emerged as a conflicting phenomenon in the African family setting with the introduction of ARTs such as Intra-Uterine Insemination (IUI), In Vitro Fertilization (IVF), and most recently, Gestational Surrogacy (GS) or outsourcing of pregnancy, among others (Adamu, 2023). Although it has been established that

access to ART has not only been determined by cost but greatly influenced by the affordability of the process. However, government subsidy for this treatment is absent in developing countries (Connolly et al., 2010). Despite the undisputed cultural value placed on childbirth, having too many children in recent times is considered an expensive responsibility due to the high cost involved in child nurturing, coupled with the generally high cost of living (Church, et al., 2023).

Findings from Onwukwa (2023) suggest that the extinction of human reproduction could become eminent with the progression of artificial medical intelligence, which embodies ART, the creation of assisted reproductive and sex robot machines. Inferring from the cultural perspective of reproduction as discussed above, this technology, to a large extent, will not be friendly in a typical African community where childbearing is highly esteemed and family is regarded as the core of the society. Again, ART is believed to have negative health implications such as preterm birth, multiple gestation, prematurity, perinatal mortality, and low birth weight, among others (Lantos & Lauderdale, 2015). ART has brought into existence a thriving business; what many people call the “baby market” (Sabatello, 2013), where sperm donors, surrogate mothers, and reproductive agencies are involved. This occurrence does not situate well in a typical African cultural setting where children are believed to be gifts from the Supreme Deity (God). Hence, procreation must result from conjugal intercourse and not in the laboratory of scientists (Czarnecki, 2015). The psychological effect suffered by parents who adopt the use of ART cannot be overlooked. Parents tend to be more dissatisfied with the product of ART than what they would have accepted through natural reproduction and blame themselves for subjecting their reproduction duties to technology (Calleja, 2022). The advent of ART has brought about two classes of infertile couples: those who are infertile and can afford ART and those who are infertile but cannot afford to resort to ART, mainly because of the price tags associated with it (Connolly et al., 2010). A 2021 study among women who resorted to the use of ART in Ghana reveals that these women are faced with the experience of fear, anxiety, failure of treatments, and ultimately, a heavy financial burden which may discourage other women from the process (Anaman-Torgbor et al, 2021). The status of the embryo in the ART procedure as an individual raises ideological and religious concerns as a person with privileges and interests in the Catholic Church, whereas the Islamic religion is concerned with the sacredness of the family’s lineage genetically (Vayena et al, 2002).

Some scholars have called for cultural harmonization in medical and scientific activities (Jegede & Fayemiwo, 2010). This is believed to mitigate the cultural issues related to the use of ART in making reproduction decisions and to value children produced with the assistance of ART. Mitigating culturally associated issues with ART will mean improving access to ART in Africa, as the technology will become culturally friendly and socially acceptable. Increased volumes in the use of ART in Africa will subsequently lead to a reduction in the cost of the procedure. They will draw governments’ attention to invest and properly regulate the field legally and ethically. Over the past decade, Africa has made tremendous progress in technological development (Magezi, 2015), and increased ART literacy will lead to greater acceptance in the few years to come.

ART utilization remains low in all countries (Dyer et al., 2020). A study by Igbolekwet al. (2023) in southwest Nigeria reported that the majority of the respondents were aware of artificial insemination, 75.3% of the respondents had adequate knowledge of artificial insemination, and 57.0% of respondents personally perceived artificial insemination to be an outstanding medical breakthrough, yet patronage remained low. Obajimi et al.’s (2017) study found that 35.0% of infertile women in Ibadan, Nigeria, were willing to undergo artificial insemination by a donor, while 57.1% were unwilling to take that decision.

### **Possible Drivers of ART Non-Acceptance in African Society**

Religious and cultural practices are cited as the main culprits for the low patronage of ART in Africa. The Yoruba in Western Nigeria hold high regard for childbearing. Still, the use of artificial fertilization (ART) for conception has been controversial due to religious and cultural interpretations (Aluko-Arowolo & Ayodele, 2014). From a religious standpoint, The Catholic faith views childbirth as a gift, not a right, and procreation as a result of matrimonial love; therefore, any reproductive technology is considered an aberration to God's creative power, a religious dogma that is held in high esteem by many Africans (Mckenzie, 2014 as cited in Igbolekwet al., 2023). African society views Artificial Insemination by Donor (AID) as a threat to lineage holiness and a shift in how children are regarded, as they view their blood ties in a vertical position (Igbolekwu et al., 2023). When there is a direct connection to inheritance matters in a culture, the occurrence of such births may cause feelings of awkwardness (Hashiloni-Dolev & Schickltanz, 2017). Provoost, Rompuy, and Pennings(2018) opine that there is a correlation between the length of infertility and the level of acceptance of Assisted Reproductive Technology (ART). In a study conducted by Fabamwo and Akinola (2013), among infertile women in urban Lagos, Nigeria, respondents cited other influencing factors such as fear of side effects, failure, and unaffordable costs as reasons for not embracing ART. Okantey et al. (2021) added that Assisted Reproductive Technology (ART) offers a viable alternative to conventional methods but may cause health issues like miscarriage and adverse reactions.

### **The future projections of ART in a typical African society**

Health education and public enlightenment are necessary ingredients to help dispel misconceptions about the safety and efficacy of ART in African cultures, as these misconceptions have stronger negative cultural perceptions and interpretations placed on ART in Africa. Considering culture is not a static phenomenon experienced in communities, what are the future projections of ART in a typical African society? The continuous mounting pressure on childless couples by African societies has a greater chance of promoting the acceptability of ART into the African cultural space. In Ghanaian society, children are the primary motive for marriage, and if a couple does not have children two years after their marriage, they face pressure. Society has negative perceptions about infertility, associating it with promiscuity before marriage. In Ghana, not having a child is frowned upon, and voluntarily deciding not to have one is unacceptable (Okantey et al., 2021). Again, in Ghana and largely across Africa, children are considered heirs to their parents and carry on their lineage. Failure to have children means a person's name fades after death. Children are considered a source of social security for the aged, and adults in their reproductive age are required to have children to care for their parents. Ghanaian society has no daycare centre for the aged, and infertility is often attributed to a curse or bad spirit. Adults without children face social hardships and are often excluded from decision-making (Okantey et al., 2021). Therefore, the tendency of infertile couples to go to every length to have children to preserve their lineage and avoid difficulties associated with old age is higher and could potentially give room for the acceptance of ART in Africa in the future. The social class of a man in the patriarchal dominant African society will make a man use every means possible to have a child to take after him as a successor, particularly in African chieftaincy matters. Among the Akan of central and southern Ghana, inheritance is matrilineal. As such,

a childless mother will equally do everything she can to have a child. ART will become an alternative in times of such desperation, particularly in this technologically paced world.

People who have attained higher education are more likely to choose biomedical or scientific means for most of their health issues. This assertion sits very well with the analysis from a study conducted by Ugwu et al. (2014) on the acceptability of artificial donor insemination among infertile couples in Enugu, south-eastern Nigeria. The study noted that university-educated individuals are more likely to seek medical healthcare services, particularly for infertility issues, due to their high educational achievement. Igbolekwu et al. (2023) allude that despite the cultural and religious dominance in Africa, the influence of education on the adoption of ART cannot be completely denied as more people are beginning to see reasons to accept Artificial Intelligence as a medical breakthrough that has assisted in solving infertility problems. In this regard, it suffices to say that there is a promised space for ART in African societies in the not-too-distant future.

Since the advent of Western medicine during the colonial era in Africa, the conceptualization of the cause of ailment has been perceived from scientific (genetic or biological) and spiritual perspectives (Akakpo, 2022). With the scientific approach as a dominant primary health care system in Africa now, coupled with Western education and advanced technologies in a global world, many Africans will gradually embrace ART. It is a common phenomenon now to see many pregnant African women, particularly those of high social and educational classes and income levels, opt for advanced health procedures such as cesarean sections (CS). This move is indicative of the disappearance of perceptions like fear of death, operation, and stigma regarding CS (Egbodo et al., 2018). Similarly, with the continuous involvement in many aspects of the African culture, ART will eventually find acceptance within African cultural values as an alternative and safe means of dealing with infertility among African couples.

## Conclusion

Artificial Reproductive Technology (ART) is a man-made invention aimed at stimulating fertility and preventing infertility. It involves manipulating eggs, sperm, or embryos to increase the chances of a successful pregnancy and prevent infection transmission. In Africa, the fear of infertility is high due to traditional conceptions and the value placed on parenthood in adult life. Traditional conceptions of barrenness and childlessness are frowned upon, and modernism has negatively impacted this spirit. ART has negative health implications, such as preterm birth, multiple gestation, prematurity, perinatal mortality, and low birth weight. The “baby market” has emerged, involving sperm donors, surrogate mothers, and reproductive agencies. Cultural harmonization in medical and scientific activities can mitigate these issues and improve access to ART in Africa. Increased ART literacy will lead to greater acceptance in the coming years. Health education and public enlightenment are crucial in dispelling misconceptions about the safety and efficacy of ART in African cultures.

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