



The Intersection of Ethics, Law, and Professionalism in Third-Party Reproduction for the Elderly

During our daily practice of providing medical services for infertile couples, we encounter cases where one or both partners are of advanced age, but still they solicit assisted reproduction to achieve a pregnancy using donated gametes or embryo. As a proven scientific fact, male and female fertility is age dependent. Women in their early to mid-20s generally experience the peak of their fertility potential, with an estimated monthly conception rate of 25-30%. The decline in female fertility begins gradually in the early 30s and accelerates significantly in their 40s. As a result, most of women experience menopause after the age of 45. For example, the chance of pregnancy for a 40-year-old woman is less than 5% per month (1). Male fertility also follows the similar progression. Aging has a significant effect on fertility, sexual performance, and sperm parameters, which ultimately leads to a decrease in fertility potential, often evidenced by longer time to achieve pregnancy. Male fertility decline begins around the ages of 40 to 45 with decreasing sperm quality, as well as libido and sexual desire. However, due to life style changes in industrial and urban societies, it has become increasingly common for men over the age of 50 to have children.

The above trend will change when it comes to using assisted reproductive technologies (ARTs) and third-party reproduction. These methods have the ability to bypass the limitations imposed by the biological clock, thereby offering opportunities for individuals to achieve pregnancy. As a result, this question arises whether these methods have unlimited power to enable pregnancy at any age or not. Case reports of men and women in their 50s, 60s, 70s, and even 80s, giving birth to children, are the frequent topics in the daily headlines in the congresses, scholarly journals, and articles. Taking a close look at these reports of pregnancy in advanced age, it becomes evident that such pregnancies represent high-risk situations which are not similar to the typical process experienced by young mothers. Despite the provision of full-time rest and special care, most pregnancies at an advanced age threaten the life of the mother and the child. Therefore, after delivery, premature neonates often require long-term care in NICU. Furthermore, the evaluation of various aspects of health of children resulting from pregnancies at an advanced age differs from pregnancies at a younger age (2). Recent data show that as women age, the use of donated eggs for fertility and childbearing also increases. This rate is 10% for women under 40 years and 18% for women aged 41 to 42 years. It increases to 34% at the age of 43-44 and to 71% at the age of 44 and finally 100% for women after the age of 45. It is estimated that more than 75% of all live births among women over 40 are the result of third-party reproduction (3).

As a result of fundamental advancements and rapid development in technologies and innovative treatment strategies in reproductive medicine, there is great interest and willingness among couples to delay childbearing, even missing their golden time for fertility, with the hope that ART can help them in the future. Furthermore, the proliferation of excessive and misleading advertising by service providers leads couples to develop misconceptions about the safety and potential outcomes of these technologies. Therefore, the use of ART for elderly couples has provoked wide discussions in the medical, legal, ethical, and social communities, with varying perspectives in both support and opposition to its use. Some individuals advocate for reproductive freedom and rights of people, asserting that there should not be limitation on pregnancy at an advanced age. This viewpoint imparts that individuals who have achieved the necessary financial, educational, familial, and social stability should have the right to make their own decision regarding pregnancy. On the other hand, there are women who are willing to voluntarily donate their oocytes to aged couples for pregnancy and childbearing. They support their viewpoints with scientific evidence, which suggests that with regular prenatal care, the uterus of older women just like that of young women, is capable of completing a full term pregnancy, resulting in a healthy delivery. Also, the oocyte of a young woman in the uterus of an elderly mother can result in the birth of a healthy baby, comparable to the birth of the same baby from a younger mother at her reproductive age. The advocates believe that due to the busy work schedules and limitations faced by parents, the common practice of grandparents in taking care of children has become prevalent in today's society. They also acknowledge that children cared for by their own grandparents do not face any significant problems compared to children raised by their own young parents. Grandparents spend more time and energy for grandchildren compared to young parents because they have fewer commitments and more leisure time. Now, if these grandmothers and grandfathers become the primary parents of these children, they will invest much more energy and time in their upbringing compared to young parents since they have more financial stability and necessary resources to focus on the growth of their children (4).

On the contrary, the opponents of pregnancy in elderly individuals believe that with increasing age of women, the success rate of pregnancy following embryo transfer significantly decreases, even when using donated oocytes. Additionally, there is higher rate of pregnancy loss among elderly mothers compared to young mothers. Furthermore, the complications of pregnancy such as high blood pressure, gestational diabetes, pre-eclampsia, and eclampsia are significantly more prevalent in elderly mothers, which in many cases lead to the elective termination of pregnancy to protect the mother's life. Also, the rate of morbidity and mortality in pregnancies among elderly women is higher compared to younger women. From a moral standpoint, the opposition to pregnancy in older women stems from the fact that a child needs healthy parents for balanced growth and development across all physical, mental, social, cultural, and economic dimensions. The early death of one or both parents, which is more likely in aged individuals, cause irreparable damage to the children (4).

As a result of the aforementioned viewpoints and in order to reduce the associated risks of pregnancy in elderly women, many countries have implemented restrictions and regulations on third party reproduction for aged couples. The primary factor for imposing such restrictions is the age limitation in undergoing ART. The majority of the executive regulations are established based on the health indicators and life expectancy specific to each country. Out of 43 European countries, 34 have implemented age limitations for infertility treatment. Regarding the age of women, there is a legal limit in 18 countries. For instance, in Denmark and Belgium, the limit is 47 years, while in the Netherlands it is 49 years. Bulgaria specified the limit at 51 years and Greece recently increased the age for pregnancy up to 54 years. The maximum legal age for men to undergo ART treatment is 60 years in Portugal and Finland, while the limit is set at 56 years in Sweden (5).

Therefore, in conclusion, it should be stated that the consequences of ART in elderly individuals, both at the individual and the societal levels, can be positive. However, there are important debates about the ethical implications of third-party reproduction after the reproductive period. Such practices have the potential to change patterns of life and community relationships fundamentally. Apart from the medical and scientific advancements enabling childbearing in individuals who have passed their youth and entered grandparenthood, it is crucial to consider this phenomenon from the perspective of ethics, religion, and philosophy. In all our endeavors, we must have a reverent attitude toward God and refrain from exceeding human boundaries to manipulate the fabric of life, as such actions impose unpredictable consequences on the future of society and humanity. Despite the profound ethical questions and challenges surrounding these actions, many philosophers hold the view that helping in childbearing and improving the quality and meaning of life for elderly couples is highly valuable and praiseworthy. Scientists and their supporters argue in response to criticisms by asserting that their work should not be equated to "playing God", as its purpose is not to alter the system of creation. Instead, such innovative actions show the ingenuity and continuous efforts of human to overcome biological limitations and foster the development of life which were not possible in the past.

References

1. Steiner AZ, Jukic AMZ. The impact of female age and nulligravidity on fecundity in an older reproductive age cohort. *Fertil Steril*. 2016;105(6):1584-8.e1.
2. Bouzaglou A, Aubenas I, Abbou H, Rouanet S, Carbonnel M, Pirtea P, et al. Pregnancy at 40 years old and above: obstetrical, fetal, and neonatal outcomes. is age an independent risk factor for those complications? *Front Med (Lausanne)*. 2020;7:208.
3. Fritz R, Jindal S. Reproductive aging and elective fertility preservation. *J Ovarian Res*. 2018;11(1):66.
4. Harrison BJ, Hilton TN, Rivière RN, Ferraro ZM, Deonandan R, Walker MC. Advanced maternal age: ethical and medical considerations for assisted reproductive technology. *Int J Womens Health*. 2017;9:561-70.
5. Calhaz-Jorge C, De Geyter CH, Kupka MS, Wyns C, Mocanu E, Motrenko T, et al. Survey on ART and IUI: legislation, regulation, funding and registries in European countries: the European IVF-monitoring consortium (EIM) for the European society of human reproduction and embryology (ESHRE). *Hum Reprod Open*. 2020(1):hoz044.

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