THE IMPACT OF THE HEALTH OF WOMEN WHO BECAME MOTHERS THROUGH EXTRACORPOREAL FERTILIZATION ON THE PHYSIOLOGICAL AND PSYCHOLOGICAL DEVELOPMENT OF THEIR CHILDREN

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Annotation: *It is widely recognized that extracorporeal fertilization has emerged as an effective method for treating infertility worldwide. Consequently, studying the factors influencing the physiological and psychological development of children born through extracorporeal fertilization remains a pressing issue. This article examines the developmental history of extracorporeal fertilization practices, as well as the impact of the health of women who became mothers through this method on the physiological and psychological development of their children. The analysis and discussion are based on a review of both local and international literature.*

Keywords: *infertility, assisted reproductive technologies (ART), extracorporeal fertilization (ECF), extracorporeal transfer (ECT), natural pregnancy, multiple pregnancy, psychological development, mental health, aggression, depression, emotional disorders, physiological health, psychomotor development, quality of life.*

INTRODUCTION

According to the latest data from the World Health Organization (WHO) (May 2024), one in every six individuals of reproductive age worldwide is affected by infertility. [https://www.who.int/ru/news-room/fact-sheets/detail/infertility] Infertility is defined as a disorder of the male or female reproductive system, characterized by the inability to achieve pregnancy after 12 months or more of regular, unprotected sexual intercourse. It may arise due to conditions affecting the male or female reproductive systems or unexplained factors. While certain causes of infertility can be prevented, the issue is commonly addressed through methods such as extracorporeal fertilization (ECF) and other assisted reproductive technologies (ART). [https://www.who.int/ru/news-room/fact-sheets/detail/infertility] Efforts to resolve contemporary demographic challenges have led to the widespread application of ECF. However, as these efforts have not yet fully succeeded in improving the overall health of the younger generation, demographic issues remain unresolved. Enhancing the

health of young families to support natural conception and childbirth is essential, as it can reduce the number of ECF cycles and pregnancy-related complications for both mother and child. Thorough preparation of couples for the use of artificial reproductive technologies, based on careful selection, is necessary to minimize adverse outcomes and increase positive results. [3,31] This underscores the relevance of studying families to understand the factors influencing the physiological and psychological development of children born through ECF.

LITERATURE REVIEW

Initially, extracorporeal fertilization (ECF) was employed to treat female infertility, particularly in cases involving obstruction or absence of the fallopian tubes. In such instances, the method involves retrieving oocytes from the ovaries, fertilizing them *in vitro*, and transferring the resulting embryos into the uterus after several cell divisions via extracorporeal transfer (ECT). This technique was developed by R. Edwards and P. Steptoe (England) and termed *in vitro fertilization and embryo transfer*. [2] [6,24] [4,17] Ultimately, the extensive research by R. G. Edwards and P. C. Steptoe was consolidated and recommended for practical application. In 1978, the birth of Louise Brown, the first "test-tube baby," was achieved in England. [8] [4,18] [5,14]

The ECF method addresses infertility by fertilizing oocytes outside the mother’s body under artificial conditions. Following embryo transfer, pregnancy is diagnosed by measuring chorionic gonadotropin levels in blood or urine starting from the 12th day post-transfer. Additionally, an ultrasound examination to confirm pregnancy is conducted from the 21st day after embryo transfer. [1]

To what extent do the health and psychological state of mothers influence the physiological and psychological development of children born through ECF? This section reviews the findings of various researchers on this topic.

A. V. Silaeva’s studies on the health of mothers who conceived via ECF and its impact on their children’s psychological development revealed notable differences compared to mothers who conceived naturally. These differences include conditions such as musculoskeletal disorders, thyroid dysfunction, metabolic irregularities, circulatory system diseases, as well as symptoms of depression, aggressive and obsessive behaviors, and a relatively higher tendency toward overprotection (*hyperprotection*) of their children. [7,80] These factors may contribute to the emergence of aggressive behaviors and delayed speech development in children.

Furthermore, specific characteristics were observed in the ECF group of mothers, including lower levels of emotional interaction with their children related to mental health, and dissatisfaction with parental counter-reactive behaviors in their relationships with their offspring. Nine months postpartum, mothers who conceived

via ECF were categorized into two distinct groups based on their mental and psychological health components: the "Risk of Deviation in Mental and Psychological Health" type and the "Conditionally Positive in Terms of Mental and Psychological Health" type. [7,97]

V. O. Mansimova investigated the reasons behind the early cessation of breastfeeding among mothers of preterm infants born via ECF. The transition of ECF children to artificial feeding was attributed, in many cases (76.4%), to psycho-emotional stress resulting from premature delivery and the birth of an unwell child, while 16.54% of women linked it to their use of ECF. [5,75] The early discontinuation of breastfeeding in preterm ECF infants may contribute to disturbances in their emotional states.

Moreover, statistically significant differences ($p \leq 0.05$) in quality of life were observed between preterm ECF children and naturally conceived preterm children. The "Family Environment" scale showed higher significance, whereas the "Ability to Be Alone" scale indicated lower scores. This suggests variations in the children's social well-being and the distinct nature of family upbringing. [5,109]

Among boys in the ECF group with older parents, higher rates of aggression, depression, and other emotional disorders were identified. [9]

DISCUSSION

The literature review indicates that many women who become mothers through extracorporeal fertilization (ECF) exhibit symptoms of depression in their postnatal mental health. However, based on data from other studies, these women are characterized by a tendency to conceal or limit information regarding their anxiety and low mood. This suggests the potential utility of projective methodologies to monitor these mothers' self-assessment of their emotional and health states. Given that maternal mental health significantly impacts child development, studying the emotional condition of these women is of critical importance. [7,139]

Research demonstrating that the duration and variety of infertility treatments prior to ECF shape these mothers' emotional states—and that this, in turn, negatively affects their children's physiological and psychological development—highlights maternal health as a key factor influencing the psychological development of children born via ECF.

According to scholars, the health defects frequently observed in children born through ECF are not directly attributable to the ECF procedure itself but rather to factors such as preterm birth, multiple pregnancies, and perinatal complications. It is noteworthy that the literature lacks sufficient longitudinal studies on the physiological and psychological development of children born through ECF, as well as a scarcity of research examining this issue from a psychological perspective. This underscores the need for a comprehensive, multidisciplinary approach to studying this topic.

Given the potential risk that children born via ECF may belong to a group with deviations in mental health, it is imperative not only to maintain medical oversight but also to implement developmental and corrective programs through collaboration between medical, psychological, and educational institutions.

CONCLUSION

In conclusion, it can be stated that while having children once seemed an unattainable dream for many couples in the recent past, today, extracorporeal fertilization (ECF) has made significant contributions to realizing this aspiration. This method has its own developmental history, and its achievements and shortcomings continue to be studied, with researchers from various fields working to refine the ECF technique. Specifically, the literature we analyzed demonstrates that the physiological and psychological development of children born through ECF is closely linked to the mother's health and emotional state.

It is worth emphasizing that the frequent health defects observed in children born via ECF are not directly attributable to the application of ECF itself but are instead the result of deviations in the health conditions of their mothers, as well as associated complications.

We believe that preparing families for parenthood through ECF requires not only medical attention but also special psychological monitoring. This approach could help prevent the health defects observed in ECF-born children, as outlined above.

REFERENCES

1. O‘zbekiston Respublikasi sog‘liqni saqlash vazirining 2020 yil 14 yanvardagi 106-son buyrug‘iga ilova “Yordamchi reproduktiv texnologiyalardan foydalanish tartibi to‘g‘risida”gi NIZOM. – Toshkent, 2020
2. Барашнев Ю.И. Неврологическое здоровье детей, рождённых и оставшихся в живых в результате исползования новых репродуктивных и неонатальных технологий [текст] / Ю.И.Барашнев. // Перинатальная неврология. – Москва, 2001. – 600 с.
3. Гаджимурадова Н.Дж. Состояние здоровья и прогнозирование его нарушений у детей первого года жизни, родившихся от одноплодной беременности после экстракорпорального оплодотворения: дис. ... канд. мед. наук: 14.01.08. - Пермь, 2017. - 172 с.
4. Касьянова Г.В. Экстракорпоральное оплодотворение в естественном цикле: возможности и преимущество: дис. ... канд. мед. наук: 14.01.01. – Москва, 2018. – 182 с.
5. Мансимова В.О. Состояние здоровья и качество жизни недоношенных детей грудного возраста, родившихся после экстракорпорального оплодотворения: дис. ... канд. мед. наук: 14.02.03. - М., 2011. - 107 с.

6. Маслянюк Н.А. Состояние новорождённых детей и их дальнейшие развитие при многоплодной беременности после экстракорпорального оплодотворения: дис. ... канд. мед. наук: 14.00.01 – СПб, 2005. - 166 с.
7. Силаева А.В. Здорове матери как фактор психического развития и здоровья детей, рождённых посредством экстракорпоралного оплодотворение: дис. …канд. псих. наук: 19.00.04. – Томск, 2021. – 205 с.
8. Edwards R.G., Steptos P.C., Purdy J.M. Establishing full-term human pregnancies using cleaving embryos in vitro. // Brit.J.Obstet.Gynecol. – 1980. – v.87. – pp.737-756.
9. Levy-Shiff R. Gross Medical, cognitive, emotional, and behavioral outcomes in school-age children conceived by in-vitro fertiliration / R. Levy-Shiff, E. Vakil, L. Pimitrovskyl. // J Clin Child Psichol. – 1998. – Vol. 27, №3. – P. 320 - 9.
10. https://www.who.int/ru/news-room/fact-sheets/detail/infertility
11. https://stat.uz/uz/
12. https://dss.natlib.uz/
13. https://diss.natlib.uz/
14. https://search.rsl.ru/#colf=07.08.2024
15. https://www.proquest.com/
16. https://lex.uz/ru/docs/4233891?ONDATE2=21.04.2021&action=compare