

## Systematic Review

# Parents' psychological adjustment after gamete donation: a systematic review

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### ABSTRACT

The age factor plays a key role to the successful rates of ARTs protocols. The practical answer to this problem would be the acceptance of an egg, donated by a younger woman, who wants to undergo ovary stimulation, thus offering her cell to a female recipient. This review aims to investigate the psychological adjustment of parents who have used gamete donation, as well as its effect on the psychological adjustment of children in case of disclosing the children's donor origin. The PubMed and Google Scholar databases were searched for peer reviewed papers, focusing on parents' psychological adjustment after gamete donation. Key search inclusion criteria included all papers published in English (between 2005 and 2019) relating to investigate the psychological adjustment of parents after gamete donation, as well as its effect on the psychological adjustment of children in case of disclosing the children's donor origin. These families are possibly expected to be affected by the circumstances of the birth, especially in case of gamete donation or surrogacy, in terms of parents' thoughts, feelings and behavior towards the child.

**Keywords:** Egg donation, Oocyte donor, Psychological adjustment, Motherhood, Parenting

### INTRODUCTION

Giving birth to a healthy baby is considered one of the top priorities in modern societies. Notwithstanding the improvement of maternal and child health thanks to medical progress, the incidence of infertility is constantly increasing.<sup>1</sup> As a consequence of the high infertility rates as well as the advances in reproductive medicine, different types of assisted reproductive technology now receive a growing acceptance by couples. During the past years, the number of couples that have turned to assisted reproductive technology in order to have a baby has been rising. It has been estimated that in some European countries, births of babies conceived by assisted reproduction approach up to 5%.<sup>2</sup> Ever since the birth of the first baby to be conceived via in vitro fertilization

(IVF) in 1978 and until 2009, more than 4,5 billion children have been born through assisted reproduction.<sup>3</sup> Infertility constitutes a challenge for the emotional health as well as a potent risk factor for the onset of mental disorders, in an almost equal manner as happens in other serious diseases such as cancer or AIDS. These factors are associated to psychosocial disorders including guilt and stigma, anxiety and depression, marital problems, sexual dysfunction and poor quality of life.<sup>4-8</sup> The widespread use of donor eggs, to a great extent, is due to the delayed childbearing. The tendency of having a baby at an advanced female age, when eggs decrease in quality, is reflected in the dramatic increase of women above 35 years of age who attend for assisted reproduction.<sup>9,10</sup> The donated eggs were primarily used by women with premature ovarian insufficiency and later

on their use was expanded to women facing repeated in vitro fertilization failure, inherited genetic abnormalities and recurrent miscarriages. It is worth mentioning that Greek legislation imposes anonymity between the donor and the recipient, according to the law of human reproduction (Government gazette 4272, no. 145, issue 15/2014).

Motherhood has remained a main purpose in women's life in Western societies.<sup>11</sup> Infertile women often feel stigmatized and believe that they are seen as a dissatisfied and desperate minority.<sup>12</sup> Women have historically been accused of infertility. Reproductive failure is not only a failure to gestate but is also considered to be a moral failure and a failure to self-perpetuate and support the community. Men's infertility is seen as a more severe disability; thus, they often try to lay the blame on women. Cultural and racial disparities in infertility have hampered the understanding and treatment of male infertility, which contributes to the delayed childbearing of women, hence leading to the pursuit of gamete donation.<sup>13-15</sup>

Parents' psychological adjustment is an important aspect of a functional family. Psychological problems of parents influence children's growth and development in many ways.<sup>16</sup> Mothers with psychopathology may expose their children to negative behavior which may augment the risk of manifesting a mental disorder. The mental health of fathers in a well-functioning family may affect children and has been studied in a less extended way than that of mothers.<sup>17</sup>

### **Aim of the study**

The aim of this study was to investigate the psychological adjustment of parents who have used gamete donation, as well as its effect on the psychological adjustment of children in case of disclosing the children's donor origin.

## **METHODS**

The research methods used in the studies that were included in this review were mainly quantitative, although in some articles a combination of quantitative and qualitative methods was used.

### **Inclusion criteria**

Inclusion criteria were as follows: heterosexual couples who became parents by using gamete donation and a surrogate mother in order to have a baby. The study starts by the time the infant is up to 1 year old.

### **Exclusion criteria**

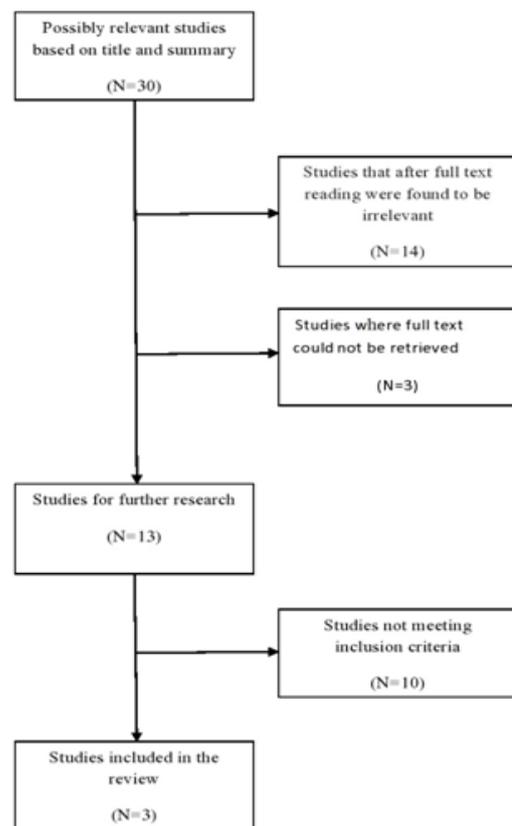
The exclusion criteria were; couples that became parents through an adoption process, cases of recipients who knew the donors of genetic material and multiple pregnancies.

### **Study protocol**

The study protocol was in accordance with the preferred reporting items for systematic review and meta-analysis (PRISMA) guidelines.

### **Search strategy**

A systematic search was done in databases like PubMed, Google scholar and Medline. Advance search was performed using the key words (egg donation or egg donor or oocyte donor) and (mental health or psychological adjustment) and (motherhood or parenting). In Google Scholar, these key words yielded articles which were published between 2005 and 2019. According to Grant and Booth, scoping reviews are "preliminary assessment of potential size and scope of available research literature."<sup>18</sup> Aims to identify nature and extent of research evidence". The results of the research are presented in (Figure 1) and the characteristics of included studies are depicted in (Table 1).



**Figure 1: Review flow step by step.**

### **Collection and data analysis**

The tools that had been used to assess the mental health of parents are described below: questionnaire edinburg depression scale (EPDS), to detect perinatal depression.<sup>18</sup> Questionnaire trait anxiety inventory (TAI), to detect

stress.<sup>19</sup> Questionnaire parenting stress index (PSI), to detect total stress in parenting, parent-child interaction and difficulties faced by the child.<sup>20</sup> Questionnaire Golombok Rust Inventory of Marital state (GRIMS), to assess the quality of marital relationship.<sup>21</sup> Interview of

mothers which evaluates the quality of parenting, based on observations of mother with the infant.<sup>22</sup> The tool used for psychological adjustment of children was: strengths and difficulties questionnaire (SDQ), as filled in by their mothers and teachers.<sup>23</sup>

**Table 1: Characteristics of included studies.**

Title/author	Type of study	Country of research	Sample size	Age of participants	Collection/ Data analysis	Results	Funding
<b>Children born through reproductive donation: a longitudinal study of psychological adjustment.</b> (Colombok, et al, 2013) <sup>29</sup>	Longitudinal study	UK	42 surrogacy families, 51 egg donation families, 50 sperm donation families, 80 natural conception families	Mothers of at least 30 years old	Interview and questionnaire to assess anxiety, depression and quality of marital relationship.	Children born by a surrogate mother presented higher levels of adjustments difficulties than those conceived by gamete donation.	Not mentioned
<b>Non-genetic and non-gestational parenthood: consequences for parent-child relationships and the psychological well-being of mothers, fathers and children at age 3</b> (Golombok et al, 2006) <sup>30</sup>	Longitudinal study	UK	34 surrogacy families, 41 sperm donation families, 41 egg donation families and 67 natural conception families	On average women who became mothers through a surrogate mother were 42 years old, by sperm donation were 37 years old, by egg donation were 43 years old and by natural conception 37 years old.	Interview about mother-child interaction and questionnaire about the psychological well-being of parents and children.	Children born in assisted reproduction families were given higher levels of maternal warmth than those naturally conceived.	Not mentioned
<b>Parent psychological adjustment, donor conception and disclosure: a follow up over 10 years</b> (Blake et al, 2014) <sup>31</sup>	Follow up study	UK	50 sperm donation families and 51 egg donation families	Not mentioned	Questionnaire about anxiety and depression.	Psychological well-being of parents is not that affected by the disclosure or non-disclosure of the child's donor origins but more by the fact of having used donated gametes.	National Institute of child health and human development.

## RESULTS

Three themes were identified out of the literature search, as described below;

### *Parents' psychological state*

No statistically significant difference was found concerning the type of conception (gamete donation, surrogate mother, natural conception) that could endanger

parents' mental well-being. The effect of disclosure versus non-disclosure was statistically significantly associated with maternal depression and anxiety levels, as observed at the age of one year old. Even though mothers who were planning to reveal the type of conception to their child, presented lower levels of stress and anxiety, fathers did not present any statistically significant difference.

By the age of two, although statistically significant difference was reported on stress levels of men who became fathers after the process of gamete donation, these were kept low in the case of non-disclosure.

By the age of 7 years old, the difference on depression levels of mothers was statistically significant and was found to be reduced in mothers who intended to disclose. On the contrary, anxiety levels of fathers dropped in families that had not revealed details of the conception. It is noteworthy that levels of anxiety can be influenced by the type of conception. When conception occurred after germ donation, anxiety levels declined in families that had chosen non-disclosure, whereas conception after egg donation caused similar levels of anxiety independently of disclosure or non-disclosure.

By the age of ten years old, stress levels in women who became mothers after sperm donation, fell under non-disclosure circumstances. On the other hand, mothers who had used egg donation shared decreased stress levels when decided to disclose. As far as fathers are concerned, non-disclosure kept stress levels low. Despite the fact that sperm donation caused fathers to present lower depression levels in non-disclosure cases, egg donation caused lower depression levels in disclosure cases.

### ***Quality of parenting***

Statistically significant difference was observed on the expression of maternal warmth to the child, in accordance to the type of family. Higher levels of maternal warmth and better interaction between mothers and children were found in families that had embraced gamete donation/assisted reproduction, when compared with families that had conceived naturally.

### ***Child adjustment***

Child adjustment in families that had used a surrogate mother, exhibited a statistically significant difference. In the questionnaire about adjustment at the age of 7 years old, the score was high; however, no difference was observed at the age of 3 and 10 years old. Child adjustment was also not the case at the age of 7 and 10 years old, when the questionnaire was filled in by a teacher. No stressed child was mentioned by almost all parents that had disclosed the type of conception before the age of 4 years old.<sup>24</sup>

## **DISCUSSION**

The findings suggest that psychological adjustment of both children and parents is affected by various factors and mainly depends on whether the parents' own genetic material (gametes) has been used for the purpose of assisted reproduction, whether they feel competent enough for parenting, as well as on social and cultural stereotypes. One of the reasons is the lack of genetic connection between the offspring and one of the two parents. The other reason is the sensitive issue of disclosing the truth about the conception process to the child. Men are more stigmatized than women, for whom therefore disclosure is considered less threatening. In fact, it has been shown that fathers present lower depression and anxiety rates when sperm donation-derived conception is not revealed. Perhaps this could be explained by the fact that in that case men take no part in the process, in contrast to women that are the ones gestating, hence this may lead to feelings of guilt and incompetence which they would preferably conceal from their child. In contrast, mothers feel less stressed when revealing the conception background to their children and act protectively to their partners. It can be assumed that an adequate intervention prenatally, as well as psychological support to men who become fathers after sperm donation, could result in lifting the stigma. In the United Kingdom, parents are generally encouraged to disclose to their child the circumstances of its conception, at a young age, so that it will not be very shocked.<sup>25,26</sup> An increasing number of parents choose to let their children learn about the truth, even though the majority of families choose not to.<sup>27</sup>

One would expect a greater interaction between mother and child in natural conception families, nevertheless it was surprisingly found to be weaker. However, this may be attributed to the fact that women, who have trouble conceiving or carrying a baby, are more committed to raising a child once they manage to become mothers, or try to compensate for the absence of a genetic link. Women that become mothers after sperm donation, seem to act similarly to women that become mothers through biological conception, because they share a genetic connection to the child. Fathers are often opted out of studies that concern families that have used assisted reproductive technology, therefore greater integration of fathers in studies of this field should be encouraged.<sup>28</sup> Limitations of the study should be noted due to the small sample size, especially of fathers. Furthermore, adjustment difficulties faced by children may not have been mentioned by mothers who have used assisted reproductive technology. Some parents presenting elevated anxiety levels probably did not participate in the study due to their fear over medical confidentiality. Donor insemination and egg donation families are heterogeneous groups, and future research should endeavor to gain data from fathers as well as mothers. Support and guidance in terms of disclosure and family functioning might be most valuable for parents (and

especially fathers) in donor insemination families, mostly as the child grows older. The more that is known about the process of disclosure over time, from the perspective of the different members of the family, the better supported parents and their children can be.

In the study of Golombok et al although children born through reproductive donation did not differ overall from naturally conceived children, a difference was found according to type of reproductive donation used.<sup>29</sup> Surrogacy children showed higher levels of adjustment problems than children conceived by gamete donation at age 7 suggesting that the absence of a gestational connection between parents and their child may be more problematic for children than the absence of a genetic relationship. Interestingly, there was no difference between children born through egg and sperm donation; it seems that children were no more at risk from the absence of a genetic connection to their mother than to their father, with both types of donor conceived children showing similar levels of adjustment to naturally conceived children. The hypothesis that children who were unaware of their biological origins would show higher levels of adjustment problems was not supported by the findings of this study. Regarding the quality of parenting, no differences between surrogacy, egg donation, donor insemination, and natural conception families were found for maternal positivity, maternal negativity, or maternal distress. However, a higher level of distress was shown by mothers who had not told their child about their biological origins, indicating that non-disclosure is associated with mothers' more negative mental state. The findings of this study suggest that biological relatedness between parents and children is not essential for positive child adjustment.

The findings of the follow up by Golombok et al when the children were 3 years old, showed that the absence of a genetic or gestational link between the mother and the child does not appear to impact negatively on parent-child relationships.<sup>30</sup> With respect to psychological well-being, no differences were identified between family types for either parents or children as assessed by standardized measures, with mothers, fathers and children found to be functioning within the normal range. The only difference found was for the level of mother child interaction, with the surrogacy and oocyte donation mothers showing higher levels of interaction with their child than the mothers of children conceived by donor insemination. This finding is surprising as it might be expected that mothers who lack a biological link with their child would interact less with their child than biologically related mothers. However, it may be that women who are unable to conceive or carry a child themselves may become especially committed to parenting when they eventually become mothers or may try to compensate for the absence of a genetic or gestational link.

The study of Blake et al examined the relationship between mothers' and fathers' psychological adjustment, type of donation (donor insemination, egg donation), and disclosure of donor origins to the child at ages 1, 2, 3, 7 and 10.<sup>31</sup> Two main findings emerged. First, mothers and fathers in both donor insemination and egg donation families were found to be psychologically well-adjusted. Secondly, disclosure of the child's donor origins to the child was not always associated with optimal levels of parental psychological adjustment

The findings suggest that disclosure might be difficult for certain groups in particular (such as fathers in donor insemination families), at certain times (when children are in middle childhood).

Research that begins to explore which aspects of disclosure are particularly challenging and why, and what kind of information or support parents and offspring in these families would find helpful, would be of great value. Factors that would be worthy of further investigation might be how parents' disclosure decisions change over time and why, and how this is dealt with by mothers and fathers. Eventually, the more that is known about the process of disclosure over time, from the perspective of the different members of the family, the better supported parents and their children can be.

## CONCLUSION

The psychological adjustment of parents after gamete donation, as well as its effect on the psychological adjustment of children in case of disclosing the children's donor origin revealed that these families are affected by the circumstances of the birth, especially in case of gamete donation or surrogacy, in terms of parents' thoughts, feelings and behavior towards the child.

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