

REVIEW

Crafting Kinship Beyond Biology: Maternal Experiences in Non-Genetic Family Formation – a Systematic Review

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**ABSTRACT**

Parenthood without a genetic link, such as in adoption or through assisted reproductive technologies (ART) like oocyte and embryo donation, presents unique challenges for mothers. These challenges include psychological, emotional and social pressures related to maternal identity, bonding and disclosure practices. This systematic review synthesizes existing research on the emotional and psychological experiences of mothers in non-genetic family formations, particularly focusing on how these experiences shape maternal identity and family dynamics. A comprehensive literature search was conducted using PubMed, Scopus, Google Scholar and Web of Science, following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Studies on maternal experiences in adoption, oocyte donation and embryo donation were included. Qualitative, quantitative and mixed-method studies were analyzed using a narrative synthesis approach. Eighteen studies covering maternal experiences across various cultural contexts were included. Key themes identified include maternal identity conflicts, anxiety surrounding disclosure of the child's origins and societal stigma. Despite these challenges, most mothers developed strong emotional bonds with their children. Differences in cultural norms influenced disclosure practices, affecting family cohesion and maternal well-being. The findings highlight the need for psychological support and clear guidance on disclosure for non-genetic mothers. Future research should focus on developing long-term support systems and culturally tailored interventions to improve the psychological well-being of non-genetic mothers.

Keywords: non-genetic motherhood, oocyte donation, adoption, maternal identity, maternal well-being.

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INTRODUCTION

The concept of parenthood is evolving, particularly in cases where there is no genetic connection between parents and their children, such as in adoption and assisted reproductive technologies (ART) like oocyte and embryo donation (1). While traditionally, biological ties were considered central to family formation, contemporary research highlights that parenthood can be socially and emotionally constructed (2). Parental identity can develop independently of genetic connections, challenging societal norms and legal frameworks surrounding family creation (3).

Advances in ART, particularly oocyte and embryo donation, have provided new pathways for individuals and couples to experience parenthood. These technologies allow women to become mothers without a genetic link to their children, raising questions about how this impacts maternal identity, bonding and family dynamics (4). It has been found that mothers who conceived through oocyte or embryo donation experienced high levels of warmth and bonding with their children, comparable to mothers of naturally conceived children. The emotional experiences of these mothers are shaped by the challenges of disclosure, societal attitudes and the psychological implications of raising a non-genetically related child (5).

Adoption, a long-established practice, presents distinct challenges, especially concerning identity and attachment. Adoptive mothers often face dilemmas regarding when and how to disclose the child's adoption status and navigate societal perceptions of non-biological parenting (6). Concerns about adoption disclosure can significantly affect family dynamics, particularly in cultures where genetic ties are highly valued (7). Additionally, adoptive mothers must reconcile societal expectations with their personal experiences of parenthood, often facing challenges unique to the absence of a biological connection (8).

Mothers in non-genetic family formations, whether through adoption or ART, frequently encounter psychological and emotional challenges. Research on adoptive mothers highlights the mental health strain caused by "extreme parenting", including heightened risks of anxiety and depression due to the unique stresses of

raising non-genetic children (8). Similarly, mothers of children conceived through embryo donation often grapple with feelings of insecurity regarding their maternal identity and fear societal judgment (9). These psychological challenges necessitate ongoing support and understanding of the complexities surrounding non-genetic motherhood.

This review seeks to fill that gap by systematically examining how mothers navigate their roles in non-genetic family formations, whether through adoption, oocyte, or embryo donation. By synthesizing findings across these different contexts, this review aims to provide a deeper understanding of how maternal identity, psychological well-being and family dynamics are shaped by the absence of genetic ties. □

METHODS

Search strategy

A comprehensive literature search across PubMed, Scopus, Google Scholar and Web of Science was conducted. The search aimed to capture studies on maternal experiences in non-genetic family formations, including adoption, oocyte donation and embryo donation.

Both keywords and Medical Subject Headings (MeSH) terms were employed. The search terms focused on maternal experiences, non-genetic family formation and parent-child relationships, addressing psychological and social aspects. Example of search terms include: a) ("oocyte donation" OR "embryo donation" OR "adoption") AND ("maternal experience" OR "motherhood" OR "parenting" OR "non-genetic family"); b) ("assisted reproductive technology" AND "maternal well-being") OR ("adoption" AND "maternal identity"); c) ("maternal experience*" OR "motherhood experience*" OR "parenting experience*") AND ("non-genetic family*" OR "alternative family formation" OR "adoptive family") AND ("kinship" OR "family bonding" OR "parent-child bond*").

Hand-searching of reference lists from relevant review articles and included studies was conducted to capture potentially relevant literature not indexed in the databases. The systematic review protocol was registered with PROSPERO to ensure transparency and adherence to systematic review standards with ID number 606852.

Inclusion and exclusion criteria

This systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (10).

We included studies on maternal experiences in non-genetic family formation through adoption, oocyte donation and embryo donation. Eligible studies met the following criteria: i) participants – studies examining mothers who adopted children or underwent ART with oocyte or embryo donation; studies including other family members were eligible only if they provided specific maternal experience findings; ii) study designs – qualitative studies providing insights into maternal psychological and social experiences, quantitative studies measuring maternal well-being and outcomes, and mixed-method studies exploring maternal experiences in non-genetic family formation; iii) outcomes – primary outcomes, including maternal emotional well-being, identity formation, psychological adaptation and parenting practices, and secondary outcomes, comprising family dynamics, attachment, disclosure of origins and family cohesion; iv) language – only English-language studies were included due to translation constraints. We excluded studies focusing solely on fathers or family members without maternal experience findings, studies on surrogacy or sperm donation unless comparing to adoption or oocyte/embryo donation, reviews, editorials, non-empirical studies and animal studies. Studies focused only on child outcomes without maternal experiences and non-English studies were excluded.

PRISMA process

A comprehensive literature search was conducted, which identified a total of 477 articles through database searching and an additional 12 articles through hand searching, yielding a total of 489 records. Following the removal of duplicates, 489 records were screened based on titles and abstracts.

In the screening stage, 450 records were excluded for not meeting the inclusion criteria or being irrelevant to the research question. This left 39 articles for full-text assessment in the eligibility stage.

Upon reviewing the full-text articles, 21 articles were excluded for the following reasons: a) not meeting the predefined inclusion criteria (e.g., study design, population, or outcomes of

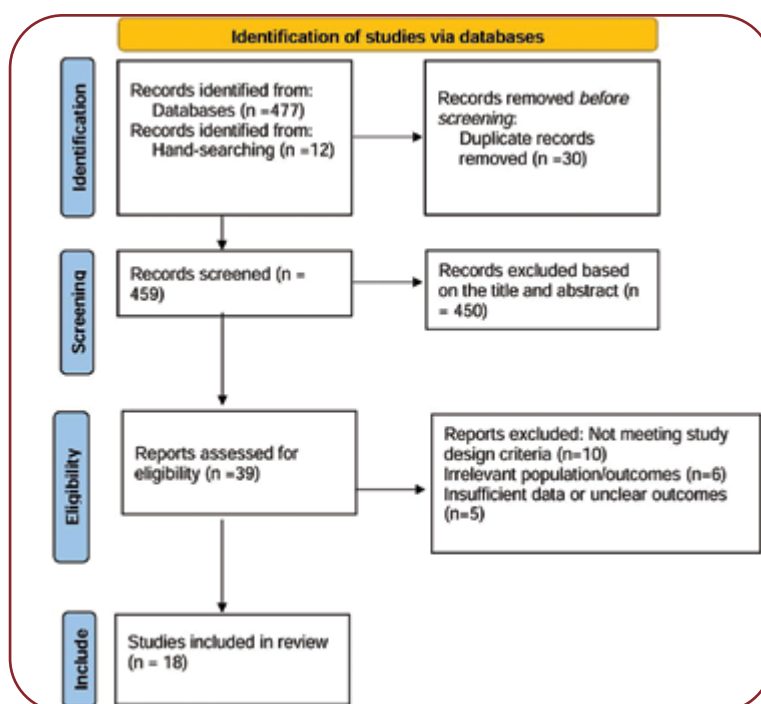


FIGURE 1. Flow diagram for the study selection process

interest) (n = 10); b) irrelevant population or outcomes (n = 6); c) insufficient or unclear data (n = 5).

Ultimately, 18 studies met the inclusion criteria and were included in the final synthesis.

The PRISMA flow diagram illustrates the study selection process, detailing the number of records identified, included, and excluded at each stage (Figure 1).

Risk of bias assessment

Each study was evaluated for potential biases, such as selection bias, reporting bias and measurement bias. Two reviewers independently assessed the quality, and disagreements were resolved through discussion.

For qualitative studies, we utilized the critical appraisal skills programme (CASP) tool (11), which evaluates key aspects such as clarity of research aims, appropriateness of methodology, recruitment strategy, data collection, ethical considerations, rigor in analysis, clarity of findings and the overall value of the research. For studies involving mixed methods or quantitative elements, including longitudinal studies, we employed the risk of bias in non-randomized studies of interventions (ROBINS-I) tool (12). This tool assesses bias across domains such as con-

founding, participant selection, outcome measurement and handling of missing data.

For cross-sectional studies, we applied the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (13), which ensures comprehensive reporting and evaluation of observational studies, focusing on design, participant recruitment and data analysis. This combination of tools provided a comprehensive and systematic evaluation of methodological quality across both qualitative and quantitative components of the studies. The detailed quality assessments are provided in Supplementary File 1.

Data extraction

A standardized data extraction form was used to collect relevant data from each included study. The following information was extracted: a) study characteristics: authors, year, country, study design, sample size and participant characteristics (e.g., age, number of children, type of family formation); b) maternal outcomes: emotional well-being, psychological adaptation, maternal identity and parenting experiences; c) family dynamics: attachment issues, disclosure practices and family cohesion; d) methodology: data collection methods (e.g., interviews, questionnaires), data analysis techniques (e.g., thematic analysis, statistical methods); e) key findings: primary results related to maternal experiences in non-genetic family formation.

Data synthesis

Given the diversity of the studies included, a narrative synthesis approach was used to analyze and present the findings. Studies were grouped by type of family formation (e.g., adoption, oocyte donation, embryo donation) and the key themes related to maternal experiences were identified and compared across groups. Where applicable, thematic analysis was used to identify common patterns in qualitative studies. □

RESULTS

This systematic review synthesizes findings from 18 qualitative and mixed-method studies (5, 7-9, 14-27) exploring psychological, emotional and social experiences of adoptive mothers, mothers using reproductive donations and their families. The studies were conducted

in Iran, Canada, the United States and the United Kingdom, examining issues related to adoption, donor conception, and family dynamics. Samples ranged from small qualitative studies with nine participants to larger studies with over 100 participants.

Most studies used qualitative methods like semi-structured interviews and narrative analysis, using purposive sampling to recruit participants. These approaches explored parents' and families' subjective experiences. Studies used validated tools like the Edinburgh postnatal depression scale (EPDS) or the Inventory of depression and anxiety symptoms (IDAS) to measure mental health outcomes. In contrast, others combined quantitative measures with qualitative analysis to explore family dynamics. Table 1 summarizes the characteristics of the included studies (a full detailed version of Table 1 is available as Supplementary File 2).

Emotional well-being and psychological challenges of mothers

Mothers in adoptive and donor-conceived families face emotional challenges. In adoption, maternal well-being often involves isolation and distress. Mott *et al* (16) reported that adoptive mothers had similar depressive symptoms to postpartum mothers but greater overall well-being. They face unique challenges from infertility and adoption processes. Gair (27) found that 32% of adoptive mothers scored above the depression threshold, experiencing exhaustion and lack of support. Kohn-Willbridge *et al* (18) stated that mothers felt overwhelmed by "extreme parenting", particularly with children having behavioral issues.

In donor conception, mothers' experiences are influenced by their biological disconnection from their children. Hershberger (23) highlighted that mothers using donor oocytes experienced both joy and grief. Golombok *et al* (5) found no significant well-being differences across surrogacy, donor conception, and natural conception families. Kirkman (20) noted that donor-conceived mothers ultimately defined motherhood through emotional bonds rather than genetics.

Maternal identity and connection

Maternal identity development is central for mothers in adoption and donor conception, who often struggle with feelings of inadequacy. Kirkman

(19) and Indekeu (22) found that donor-conceived mothers felt conflicted about their role due to lacking a genetic connection, though many emphasized caregiving over biology. For adoptive mothers, identity formation involves bonding challenges. Timm *et al* (15) found that they experienced grief from infertility and struggled with adoption-related issues, though some reported strengthened marriages. Mott *et al* (16) found that adoptive mothers experienced less anxiety than postpartum mothers, possibly due to psychological preparation. Managing disclosure and stigma remains stressful, especially in cross-cultural contexts. MacDonald and McSherry (17) found adoptive mothers struggled with birth family contact affecting their parental identity, though they acknowledged open communication about origins was important. Mothers using donor oocytes face emotional struggles with feelings of inadequacy due to lack of genetic connection (23), though many reframe their identity through caregiving. Research by Golombok *et al* (24) showed gamete donation mothers reported more parenting pleasure but viewed their children as more vulnerable.

Anxiety around disclosure and secrecy

For mothers, disclosing their child's adoptive or donor-conceived status caused significant anxiety. Fakoor *et al* (7) and Zandi *et al* (9) stated that Iranian mothers often delayed disclosure, fearing emotional consequences for themselves and their children. MacDonald and McSherry (17) presented that adoptive mothers struggled with structural and communicative openness, especially regarding birth family contact. While committed to open communication, they worried about the impacts on their child's well-being. In donor-conceived families, Golombok *et al* (25) identified that mothers who disclosed reported better relationships with children than those maintaining secrecy, though cultural pressures and fears of losing maternal legitimacy influenced disclosure decisions.

Long-term parenting stress and "extreme parenting"

Adoptive mothers often face ongoing stress, particularly when raising children with special needs or behavioral difficulties. Kohn *et al* (8) explored the experiences of long-term adoptive mothers and highlighted the concept of "extreme paren-

ting" – a term used to describe the unique challenges these mothers face when parenting children with complex emotional or behavioral needs. The study revealed that such mothers are at heightened risk of negative mental health outcomes, including anxiety, depression, and post-adoption trauma. The strain of managing these complex parenting demands often led mothers to deprioritize their own well-being, resulting in significant emotional exhaustion.

In donor-conceived families, older mothers who conceived via egg donation reported higher parenting stress, particularly concerning their physical health and ability to parent into old age (21). These mothers worried about how their age would affect their child's future.

Sociocultural and regional influences on maternal experiences

Cultural norms significantly shape maternal experiences, particularly where adoption or donor conception is stigmatized. Fakoor *et al* (7) and Zandi *et al* (9) emphasized that Iranian mothers faced pressure from societal and religious norms, heightening their emotional struggles. Fear of judgment regarding reproductive technologies or adoption led to shame and isolation among these mothers. In contrast, Golombok *et al* (5) found mothers were more open about donor conception and adoption, though still facing stigma. While cultural openness improved family dynamics, it did not eliminate mothers' emotional burdens. □

DISCUSSION

Our systematic review indicates that mothers in both adoptive and donor conception contexts encounter substantial emotional and psychological challenges, such as feelings of inadequacy stemming from the absence of genetic ties. Nevertheless, many mothers prioritize caregiving and emotional bonds over biological connections. Adoptive mothers may experience mental health issues akin to those of postpartum mothers, including anxiety, depression and emotional exhaustion. For mothers of children conceived via donor eggs or embryos, the tension between joy and grief over the loss of a genetic connection is a recurring theme. Both adoptive and donor-conceived mothers experience anxiety regarding disclosure, particularly concerning

the timing and consequences of revealing a child's origins. Disclosure practices are often influenced by cultural, societal and familial dynamics. Family cohesion and relationships, especially with adopted or donor-conceived children, generally appear positive, although some challenges arise in managing attachment, disclosure and societal pressures.

Similar to our findings, a review by Söderström-Anttila *et al* (28) acknowledges that psychological challenges of oocyte donation often relate to a lack of genetic connection. However, it reports that mothers form warm relationships with children, who show normal socio-emotional development. This suggests that while initial anxieties exist, long-term psychological impacts may be less severe. Jafari *et al* (4) emphasize that oocyte donation mothers experience emotional distress, identity crises, and need support, particularly around bonding. Mothers often require emotional effort to accept the child as "theirs" and overcome feelings about genetic ties. Söderström-Anttila (18) notes that while many recipients intend to tell their children about their conception, actual disclosure rates remain low. The study finds no significant differences in children's psychological adjustment between families with and without disclosure, slightly contrasting our review, which emphasizes disclosure anxiety. Jafari *et al* (4) focus on disclosure counseling needs, as mothers feel conflicted about when and how to reveal the child's origins. Cultural factors are significant, especially in conservative societies like Iran, where non-genetic parenthood carries stigma. Mothers need guidance about disclosure and managing societal reactions (4).

The review by Jafari *et al* (4) emphasizes the sociocultural and religious pressures faced by oocyte donation mothers in societies like Iran, highlighting their need for support to navigate stigma and religious objections. This aligns with our systematic review's findings on how societal norms shape mothers' psychological experiences and disclosure decisions. The implications underscore the need for tailored psychological support for non-genetic mothers who have adopted or used assisted reproductive technologies. These mothers experience emotional challenges, including identity conflicts, anxiety over societal perceptions, and fears about lacking genetic links to their children. Mental health interventions

should help mothers navigate these emotional landscapes (29). Counseling services could help mothers reconcile feelings about their maternal role and promote bonding with their children (30). This support could help them manage societal pressures and develop coping strategies, enhancing psychological well-being and family dynamics (31, 32).

Clear guidance from mental health professionals can help alleviate anxiety by offering mothers strategies to approach these conversations with children sensitively and age-appropriately. Early counseling can prepare mothers to handle emotional responses from children and family, strengthening family cohesion. Culturally sensitive approaches are needed, as attitudes towards non-genetic parenthood and disclosure vary across social and cultural contexts (33-36).

This systematic review provides a comprehensive synthesis of maternal experiences in non-genetic family formations, including adoption and ART. A key strength is its inclusion of diverse family types – adoption and oocyte/embryo donation – enabling comparative analysis. Following PRISMA guidelines and using a rigorous methodological framework ensures transparency in study selection and analysis. The use of validated tools like CASP and ROBINS-I for risk assessment strengthens the findings' credibility. Including qualitative and mixed-method studies provides balanced insights into the emotional and social aspects of non-genetic motherhood, highlighting themes like identity struggles and disclosure anxiety across family formations, informing clinical practice and policy.

Despite its strengths, the review has limitations. The inclusion of only English-language studies may introduce language bias, overlooking research from non-English-speaking contexts. This is significant as cultural factors shape maternal experiences in non-genetic family formations. The heterogeneity of included studies, varying in sample size, methodology and cultural context, may hinder the finding of the findings. The review's reliance on self-reported data introduces social desirability bias risk, where participants may underreport negative experiences. Future research should address these gaps by including studies from non-Western cultures and non-English-speaking regions to provide a global perspective on challenges of non-genetic mothers, particularly where adoption and ART are

stigmatized. Longitudinal studies are needed to track the psychological and emotional well-being of mothers and children over time, especially regarding disclosure practices and family cohesion. Research should also develop standardized interventions to support non-genetic mothers, focusing on mental health services and counseling around disclosure practices, to improve maternal well-being and family dynamics.

CONCLUSIONS

This systematic review highlights the psychological and emotional complexities faced by non-genetic mothers, particularly those who have adopted or used ART like oocyte and embryo donation. Mothers in these situations often experience identity conflicts, anxiety over disclo-

sure, and societal stigma, all of which can impact maternal well-being and family dynamics. The findings emphasize the need for tailored psychological support and counseling services to help non-genetic mothers navigate these challenges. Additionally, the review underscores the importance of culturally sensitive guidance on disclosure practices to foster family cohesion and enhance maternal emotional resilience. Future research should explore the long-term psychological outcomes of non-genetic motherhood and provide interventions to support these mothers across different cultural contexts. □

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REFERENCES

- Kirkman-Brown JC, Martins MV. 'Genes versus children': if the goal is parenthood, are we using the optimal approach? *Hum Reprod* 2020;35:5-11. doi: 10.1093/humrep/dez256.
- Kuhnt AK, Passet-Wittig J. Families formed through assisted reproductive technology: Causes, experiences, and consequences in an international context. *Reprod Biomed Soc Online* 2022;14:289-296. doi: 10.1016/j.rbms.2022.01.001.
- Casonato M, Habersaat S. Parenting without being genetically connected. *Enfance* 2015;3:289-306.
- Jafari H, Taghipour A, Ebrahimipour H, Latifnejad Roudsari R. Women's needs in their journey towards motherhood via oocyte donation: A mixed methods systematic review. *Int J Reprod Biomed* 2023;21:451-462. doi: 10.18502/ijrm.v21i6.13633.
- Golombok S, Murray C, Jadva V, et al. Non-genetic and non-gestational parenthood: consequences for parent – child relationships and the psychological well-being of mothers, fathers and children at age 3. *Hum Reprod* 2006;21:1918-1924.
- Suwalsky JT, Hendricks C, Bornstein MH. Families by Adoption and Birth: I. Mother-Infant Socio-emotional Interactions. *Adopt Q* 2008;11:101-125. doi: 10.1080/10926750802374942.
- Kamrani Fakoor S. Iranian Adoptive Parents' Subjective Perceptions of Adoption and Early Adoption Disclosure. *Mental Health: Research and Practice* 2023;2:8-23.
- Kohn C, Pike A, de Visser RO. Parenting in the "extreme": An exploration into the psychological well-being of long-term adoptive mothers. *Family Relations* 2024;73:1989-2013.
- Zandi M, Dabaghi S, Akinabadi AS, et al. Experiences of Mothers Receiving Donated Embryos. *Iran J Nurs Midwifery Res* 2023;28:559-568.
- Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71.
- Long HA, French DP, Brooks JM. Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences* 2020;1:31-42.
- Sterne JA, Hernán MA, Reeves BC, et al. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. *BMJ* 2016;355:i4919. doi: 10.1136/bmj.i4919.
- Cuschieri S. The STROBE guidelines. *Saudi J Anaesth* 2019;13(Suppl 1):S31-S34. doi: 10.4103/sja.SJA_543_18.
- Page G, Poirier MA, Chateaufneuf D. Being a foster-to-adopt parent: Experiences of (un) certainty and their influence on the sense of being the parent. *Adoption Quarterly* 2019;22:95-115.
- Timm TM, Mooradian JK, Hock RM. Exploring core issues in adoption: Individual and marital experience of adoptive mothers. *Adoption Quarterly* 2011;14:268-283.
- Mott SL, Schiller CE, Richards JG, et al. Depression and anxiety among postpartum and adoptive mothers. *Arch Womens Ment Health* 2011;14:335-343. doi: 10.1007/s00737-011-0227-1.
- MacDonald M, McSherry D. Open adoption: Adoptive parents' experiences of birth family contact and talking to their child about adoption. *Adoption & Fostering* 2011;35:4-16.
- Kohn-Willbridge C, Pike A, de Visser RO. 'Look after me too': A qualitative exploration of the transition into adoptive motherhood. *Adoption & Fostering* 2021;45:300-315.
- Kirkman M. Being a 'real' mum: Motherhood through donated eggs and embryos. *Women's Studies International Forum* 2008;31:241-248.
- Kirkman M. Egg and embryo donation and the meaning of motherhood. *Women Health* 2003;38:1-18. doi: 10.1300/J013v38n02_01.
- Jadva V, Lysons J, Imrie S, Golombok S. An exploration of parental age in relation to parents' psychological health, child adjustment and experiences of being an older parent in families formed through

- egg donation.
Reprod Biomed Online 2022;45:401-409.
doi: 10.1016/j.rbmo.2022.03.029.
22. **Indekeu A.** Parent's expectations and experiences of resemblance through donor conception.
New Genetics and Society 2015;34:398-416.
 23. **Hershberger PE.** Pregnant, donor oocyte recipient women describe their lived experience of establishing the "family lexicon".
J Obstet Gynecol Neonatal Nurs 2007;36:161-167.
doi: 10.1111/j.1552-6909.2007.00128.x.
 24. **Golombok S, Jadva V, Lycett E, et al.** Families created by gamete donation: follow-up at age 2.
Hum Reprod 2005;20:286-293.
doi: 10.1093/humrep/deh585.
 25. **Golombok S.** Families created by reproductive donation: Issues and research.
Child Development Perspectives 2013;7:61-65.
 26. **Golombok S, Ilioi E, Blake L, et al.** A longitudinal study of families formed through reproductive donation: Parent-adolescent relationships and adolescent adjustment at age 14.
Dev Psychol 2017;53:1966.
 27. **Gair.** Distress and depression in new motherhood: Research with adoptive mothers highlights important contributing factors.
Child & Family Social Work 1999;4:55-66.
 28. **Söderström-Anttila V.** Pregnancy and child outcome after oocyte donation.
Hum Reprod Update 2001;28-32.
doi: 10.1093/humupd/7.1.28.
 29. **Chorão AL, Canavarro MC, Pires R.** Explaining Parenting Stress among Adoptive Parents: The Contribution of Mindfulness, Psychological Flexibility, and Self-Compassion.
Int J Environ Res Public Health 2022;19:14534.
doi: 10.3390/ijerph192114534.
 30. **Wexler JH, Cai J, McKee KD, et al.** Understanding adoption as a reproductive justice issue.
Psychology of Women Quarterly 2023;47:510-527.
 31. **Lapidus EP, Watkins CL, Farr RH.** Birth mothers' experiences of support before, during, and after adoptive placement.
Am J Orthopsychiatry 2023;93:543-556.
doi: 10.1037/ort0000701.
 32. **Ge X, Natsuaki MN, Martin DM, et al.** Bridging the divide: openness in adoption and postadoption psychosocial adjustment among birth and adoptive parents.
J Fam Psychol 2008;22:529-540.
doi: 10.1037/a0012817.
 33. **Blyth E, Crawshaw M, Frith L, Jones C.** Donor-conceived people's views and experiences of their genetic origins: a critical analysis of the research evidence.
J Law Med 2012;19:769-789.
 34. **Wyverkens E, Van Parys H, Buysse A.** Experiences of Family Relationships Among Donor-Conceived Families: A Meta-Ethnography.
Qual Health Res 2015;25:1223-1240.
doi: 10.1177/1049732314554096.
 35. **Duff MA, Goedeke S.** Parents' disclosure to their donor-conceived children in the last 10 years and factors affecting disclosure: a narrative review.
Hum Reprod Update 2024;30:488-527.
doi: 10.1093/humupd/dmae010.
 36. **Daniels K, Meadows L.** Sharing information with adults conceived as a result of donor insemination.
Hum Fertil (Camb) 2006;9:93-99.
doi: 10.1080/14647270500509699.



SUPPLEMENTARY FILE 1

Quality assessment of the included studies

Study 1: Fakoor *et al* (2023). Iranian Adoptive Parents' Subjective Perceptions of Adoption and Early Adoption Disclosure

Quality assessment criteria for qualitative research (using CASP):

1. **Was there a clear statement of the aims of the research?**
 - Yes, the study clearly aims to explore the experiences and perceptions of Iranian adoptive parents, especially focusing on the cultural aspects of adoption disclosure.
2. **Is a qualitative methodology appropriate?**
 - Yes, a qualitative method is suitable for exploring in-depth subjective experiences of the participants, as is the case here with grounded theory.
3. **Was the research design appropriate to address the aims of the research?**
 - Yes, the use of grounded theory allowed for an emergent understanding of complex social and cultural issues surrounding adoption in Iran.
4. **Was the recruitment strategy appropriate to the aims of the research?**
 - Yes, purposeful sampling was used to select participants who could provide rich information on the topic, and data saturation was achieved with 30 participants.
5. **Were the data collected in a way that addressed the research issue?**
 - Yes, semi-structured, in-depth interviews allowed the researchers to explore the participants' experiences in detail.
6. **Has the relationship between researcher and participants been adequately considered?**
 - The researcher described the process of building trust and ensuring participants' comfort, which suggests that the relationship was adequately addressed.
7. **Have ethical issues been taken into consideration?**
 - Yes, informed consent was obtained, and confidentiality was ensured. Ethical considerations were thoroughly described.
8. **Was the data analysis sufficiently rigorous?**

- Yes, the use of Strauss and Corbin's version of grounded theory and detailed coding processes demonstrates rigorous data analysis.
- 9. **Is there a clear statement of findings?**
 - Yes, the findings are well-presented, with clear categories and subcategories derived from the data.
- 10. **How valuable is the research?**
 - The research is valuable as it addresses a cultural gap in understanding the experiences of adoptive parents in Iran, providing insights that may influence policy and practice.

Conclusion: This study demonstrates high methodological quality, with appropriate use of grounded theory and rigorous qualitative analysis. Therefore, based on the **CASP tool**, this study would be assessed as having **low risk of bias** and high value in its contributions.

Study 2: Zandi *et al* (2023). Experiences of Mothers Receiving Donated Embryos

Quality Assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Zandi *et al* aimed to understand the experiences of mothers who received donated embryos, focusing on the sociocultural, personal, and familial challenges they faced.

Assessment: clear aims.

2. Appropriateness of qualitative methodology:

The study employed a qualitative design using conventional content analysis, appropriate for exploring in-depth personal experiences and social phenomena related to motherhood and embryo donation.

Assessment: suitable methodology.

3. Research design alignment with aims:

The use of purposive sampling and deep unstructured interviews allowed for a thorough exploration of the participants' experiences, which aligns with the study's objectives to investigate complex sociocultural and identity issues.

Assessment: aligned research design.

4. Recruitment strategy:

Mothers who had undergone embryo donation and were either pregnant or postpartum were recruited using purposive sampling, ensuring diversity and relevance to the study.

Assessment: appropriate recruitment strategy.

5. Data collection:

The study collected data through deep, unstructured interviews conducted *via* phone due to participant preference. This method allowed participants to share their experiences openly and anonymously, contributing to the richness of the data.

Assessment: thorough data collection process.

6. Consideration of researcher-participant relationship:

The researchers maintained a professional distance, with the interviewer serving as a listener, not a co-creator of the data, to avoid bias in data collection.

Assessment: adequate consideration of relationship dynamics.

7. Ethical considerations:

Ethical approval was obtained, and participants were informed of their rights, including confidentiality and the voluntary nature of their participation.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Data were analyzed using Graneheim and Lundman's content analysis method, which involved systematic coding and theme identification. The large number of codes (412) and the creation of seven main categories demonstrate rigorous analysis.

Assessment: rigorous analysis.

9. Clarity of findings:

The findings are clearly presented in seven main categories (*e.g.*, sociocultural constraints, pressure, and hardship), supported by detailed participant quotes that illustrate the challenges faced by the mothers.

Assessment: Clear and well-presented findings.

10. Value of the research:

The study contributes valuable insights into the sociocultural challenges and identity issues experienced by mothers receiving donated embryos. This research has implications for healthcare providers and policy-makers to develop better support systems.

Assessment: high value in research.

Overall conclusion: The study by Zandi *et al* effectively used a qualitative methodology to explore the personal and social experiences of mothers receiving donated embryos. It is methodologically sound, with strong ethical foundations and rigorous data analysis. Based on the **CASP tool**, this study presents a **low risk of bias** and provides valuable insights into the psychological and social impacts of embryo donation on mothers.

Study 3: Quality Assessment of Golombok *et al* (2006) using ROBINS-I**1. Bias due to confounding:**

The study compares non-genetic families (e.g., surrogacy, donor insemination) with naturally conceived families. The authors controlled for potential confounders such as **parental age, social class and gender**. By adjusting for these variables, the study minimizes the bias introduced by differences in family demographics.

Assessment: low risk of bias.

2. Bias in selection of participants into the study:

Participants were recruited through various fertility clinics, surrogacy organizations, and advertisements for naturally conceived families. Although this may introduce some selection bias (as those willing to participate may differ from those who are not), the recruitment strategy was broad and consistent across family types.

Assessment: moderate risk of bias due to potential self-selection.

3. Bias in classification of interventions:

Family types (e.g., surrogacy, donor insemination, oocyte donation) were clearly classified based on the method of conception. There is little risk of misclassification as the researchers carefully categorized families according to their reproductive method.

Assessment: low risk of bias.

4. Bias due to deviations from intended interventions:

The study did not include active interventions, but rather observed naturally occurring outcomes in families. There was no evidence that participants were exposed to unintended deviations from the planned conditions.

Assessment: low risk of bias.

5. Bias due to missing data:

Attrition in longitudinal studies can introduce bias. Golombok *et al* (2006) did experience some loss to follow-up, but they used appropriate statistical methods (e.g., intention-to-treat analysis) to account for missing data. The level of missing data was reported and did not significantly affect the findings.

Assessment: low to moderate risk of bias due to attrition.

6. Bias in measurement of outcomes:

Standardized measures of psychological well-being (e.g., parenting stress index, strengths and difficulties questionnaire) and parent-child relationships were used, ensuring reliable and valid assessments. However, there could be some bias introduced by the reliance on self-report measures.

Assessment: moderate risk of bias due to self-reporting.

7. Bias in selection of the reported result:

The study reported all pre-specified outcomes, and the results were presented transparently. There is no evidence of selective reporting of outcomes.

Assessment: low risk of bias.

Overall conclusion: Based on the ROBINS-I tool, Golombok *et al* (2006) presents a **low to moderate risk of bias**, with strengths in confounder control, clear participant classification, and reliable outcome measurement. Minor concerns arise due to potential attrition bias and reliance on self-report measures, but these are common in longitudinal research and were appropriately addressed by the authors.

Study 4: Pagé *et al* (2019). Being a Foster-to-Adopt Parent: Experiences of (Un)certainly and Their Influence on the Sense of Being the Parent**Quality assessment using STROBE:****1. Study design:**

The study employed a cross-sectional design, with semi-structured interviews conducted at different points in time in the foster-to-adopt process, asking participants to retrospectively discuss their experiences.

Assessment: appropriate for the study's aim of understanding the influence of uncertainty on foster-to-adopt parents.

2. Recruitment and participants:

The study recruited 25 parents (from 20 families) through various methods, including word-of-mouth, social workers, and adoptive parent associations. Recruitment was clearly described, and participants were aware of the study's goals.

Assessment: adequate recruitment, though the sample size is relatively small, which is typical for qualitative research.

3. Data collection:

Semi-structured interviews lasted an average of 2.2 hours, covering topics such as the adoption process, relationships with the child, and the experience of uncertainty. Data collection was iterative, following grounded theory principles.

Assessment: thorough data collection process, allowing for rich qualitative insights.

4. Bias considerations:

The study was conducted retrospectively, which may introduce recall bias, as participants were asked to reflect on past experiences. However, the researchers took steps to ensure rigor by using grounded theory and constant comparison techniques.

Assessment: moderate risk of bias due to potential recall issues.

5. Analysis:

Data analysis was conducted using grounded theory with three phases of coding: open, axial, and theoretical. This approach is methodologically sound for qualitative data.

Assessment: rigorously conducted analysis, enhancing the validity of findings.

6. Reporting of findings:

The findings were clearly presented, with profiles emerging from the data to describe different experiences of certainty and uncertainty. Quotes from participants supported the thematic analysis.

Assessment: clear and well-supported reporting of results.

7. Generalizability:

The study focused on foster-to-adopt families in Quebec, Canada, specifically within the Mixed-Bank Program. While the findings may have limited generalizability due to the specific cultural and legal context, the insights are valuable for similar adoption programs in other regions.

Assessment: moderate generalizability.

Overall conclusion: The Pagé *et al* (2019) study is well-conducted, with appropriate use of a cross-sectional design to explore the experiences of foster-to-adopt parents. Using the **STROBE checklist**, the study shows a **low to moderate risk of bias**, with careful attention to recruitment, data collection and thematic analysis. Potential recall bias is acknowledged but managed through the rigorous application of grounded theory.

Study 5: Timm *et al* (2011). Exploring Core Issues in Adoption: Individual and Marital Experience of Adoptive Mothers

Quality assessment using STROBE:

1. Study design:

The study employed a descriptive cross-sectional design, using a self-report survey to assess how adoptive mothers experience core adoption issues individually and within their marriages. This design is appropriate for capturing the prevalence of experiences at a single point in time.

Assessment: appropriate study design.

2. Recruitment and participants:

Participants were recruited through 14 private adoption agencies across Michigan, with a total of 104 adoptive mothers completing the survey. The inclusion of a wide range of mothers who adopted through various means (e.g., child welfare, domestic voluntary adoption, international adoption) ensures diversity in the sample, though the response rate was relatively low (13%).

Assessment: adequate recruitment strategy, though a lower response rate may limit generalizability.

3. Data collection:

The study used a self-designed survey, which included both quantitative Likert-scale items and qualitative open-ended questions to explore each of the eight core issues in adoption. This mixed-methods approach provided a comprehensive understanding of individual and marital challenges.

Assessment: robust data collection process.

4. Bias considerations:

The use of a self-report survey introduces potential bias, particularly recall bias and social desirability bias, as participants may underreport or overreport certain experiences. However, the inclusion of both qualitative and quantitative components helps mitigate some of these biases by allowing participants to express more nuanced perspectives in open-ended responses.

Assessment: moderate risk of bias due to self-reporting.

5. Analysis:

Quantitative data were analyzed descriptively, while qualitative data were analyzed thematically to capture the complexities of individual and marital experiences related to core adoption issues. This analytical approach is appropriate for a cross-sectional study of this nature.

Assessment: rigorously conducted analysis.

6. Reporting of findings:

Findings were presented clearly, with descriptive statistics outlining the prevalence of core issues and qualitative excerpts illustrating how these issues impact marriages and individual experiences. The study showed that the core adoption issues, such as loss and grief, entitlement, and family integration, were prevalent but varied in their intensity.

Assessment: clear and well-supported reporting.

7. Generalizability:

The sample of adoptive mothers was predominantly Caucasian and from middle to upper socioeconomic backgrounds, which may limit the generalizability of the findings to more diverse populations. Additionally, the reliance on data from a single state (Michigan) may also constrain the broader applicability of the results.

Assessment: Moderate generalizability due to demographic homogeneity.

Overall conclusion: The study by Timm *et al* (2011) is a well-conducted descriptive cross-sectional study that provides valuable insights into the individual and marital experiences of adoptive mothers. Using the **STROBE checklist**, the study shows a **low to moderate risk of bias**, with careful attention to recruitment, data collection, and thematic analysis. The study's findings contribute to understanding the core issues of adoption and their impact on adoptive families.

Study 6: Mott *et al* (2011). Depression and Anxiety among Postpartum and Adoptive Mothers

Quality assessment using STROBE:

1. Study design:

The study employed a cross-sectional design, comparing depression and anxiety symptoms between two groups of mothers (adoptive and postpartum) at a single point in time. This design is appropriate for understanding the prevalence and relationship between depressive and anxiety symptoms in both groups.

Assessment: appropriate study design.

2. Recruitment and participants:

Adoptive mothers (n=147) were recruited through Holt International, while postpartum mothers (n=147) were selected from an existing dataset of postpartum women enrolled in a previous study. The study provided details on recruitment and matching procedures for both groups, ensuring comparability.

Assessment: adequate recruitment strategy and well-defined participant groups.

3. Data collection:

The study used validated tools, including the Inventory of depression and anxiety symptoms (IDAS) and the Edinburgh postnatal depression scale (EPDS), to assess depressive and anxiety symptoms in both groups.

Additionally, adoptive mothers completed the Dyadic adjustment scale (DAS) to assess marital satisfaction and a sleep deprivation questionnaire.

Assessment: robust data collection process, using validated instruments.

4. Bias considerations:

The study used self-report measures, which can introduce potential bias, including recall bias and social desirability bias. However, the anonymous nature of the survey and the use of validated instruments help mitigate some of these risks.

Assessment: moderate risk of bias due to the self-report nature of the data.

5. Analysis:

Analysis of covariance (ANCOVA) was used to compare depression and anxiety symptoms between the two groups, controlling for demographic differences. Additionally, hierarchical linear regression was employed to explore predictors of depressive symptoms among adoptive mothers, taking into account factors such as sleep deprivation, infertility, and marital satisfaction.

Assessment: rigorously conducted analysis.

6. Reporting of findings:

Findings were clearly presented, showing that adoptive and postpartum mothers had comparable levels of depressive symptoms, but adoptive mothers reported significantly lower levels of anxiety and greater well-being.

Predictors of depressive symptoms among adoptive mothers, such as sleep deprivation and marital dissatisfaction, were also clearly outlined.

Assessment: clear and well-supported reporting.

7. Generalizability:

The sample of adoptive mothers was drawn from a specific international adoption agency, which may limit generalizability to other types of adoptions (e.g., domestic or foster care adoptions). Additionally, the study only included mothers from the United States (US), which could limit the applicability of the findings to other cultural contexts.

Assessment: moderate generalizability due to the specific recruitment source and US context.

Overall conclusion: The study by Mott *et al* (2011) is a well-conducted cross-sectional study that provides valuable insights into the levels of depression and anxiety among adoptive and postpartum mothers. Using the **STROBE checklist**, the study shows a **low to moderate risk of bias**, with careful attention to recruitment, data collection, and statistical analysis.

Study 7: MacDonald and McSherry (2011). Open Adoption: Adoptive Parents' Experiences of Birth Family Contact and Talking to Their Child about Adoption

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

MacDonald and McSherry aimed to investigate adoptive parents' experiences with open adoption, focusing on how they manage birth family contact and communicate adoption-related information with their child. The study provides insights into both the structural and communicative dimensions of openness in adoption.

Assessment: clear and well-defined aim.

2. Appropriateness of qualitative methodology:

The qualitative methodology, using interpretative phenomenological analysis (IPA), is appropriate for exploring subjective experiences in detail. This approach is suitable for understanding the nuanced emotions and complexities involved in open adoption practices.

Assessment: methodology is highly appropriate.

3. Research design alignment with aims:

The use of semi-structured interviews aligns well with the study's goal of understanding adoptive parents' experiences. This design allowed the researchers to gather rich, in-depth data on sensitive topics, such as contact with birth families and adoption-related discussions.

Assessment: strong alignment between design and aims.

4. Recruitment strategy:

The study recruited a purposive sample of 20 adoptive parents from the larger Northern Ireland care pathways and outcomes study. While this is a smaller subset of the overall sample, it is appropriate for IPA research, which focuses on in-depth exploration of a smaller number of participants.

Assessment: suitable recruitment strategy for the chosen methodology.

5. Data collection:

Data were collected using semi-structured interviews, providing flexibility for participants to discuss various aspects of their experiences. The detailed qualitative data collected through these interviews enabled a comprehensive exploration of adoptive parents' perspectives.

Assessment: robust data collection process.

6. Consideration of researcher-participant relationship:

Although the study does not deeply emphasize researcher-participant relationships, the IPA methodology ensures that participants' voices and experiences are central to the analysis, maintaining a respectful and reflective stance.

Assessment: adequately considered.

7. Ethical considerations:

The study received ethical approval from the Office for Research Ethics Committees in Northern Ireland. Informed consent and confidentiality were maintained throughout, ensuring ethical rigor in handling sensitive topics like adoption and family dynamics.

Assessment: strong ethical standards.

8. Rigor in data analysis:

The data were rigorously analyzed using IPA principles, ensuring a detailed examination of each participant's perspective. The iterative process of coding and theme identification helped ensure the analysis was grounded in the participants' experiences.

Assessment: rigorously conducted analysis.

9. Clarity of findings:

The findings are presented clearly, with distinct themes emerging around the challenges of maintaining contact with birth families and managing the complexities of open communication about adoption. The inclusion of direct quotes from participants helps illustrate these themes effectively.

Assessment: clear and well-presented findings.

10. Value of the research:

The study contributes valuable insights into the practical and emotional challenges faced by adoptive parents engaging in open adoption. It highlights the need for greater support mechanisms to help adoptive families navigate birth family contact and adoption-related discussions.

Assessment: high research value, with implications for policy and practice in adoption support.

Overall conclusion: The study by MacDonald and McSherry (2011) provides a detailed and insightful exploration of adoptive parents' experiences with open adoption, focusing on birth family contact and communication about adoption with their child. Using IPA as its methodological approach, the study offers a rich understanding of the challenges and emotional labor involved. Based on the **CASP tool**, the study demonstrates a **low risk of bias** and contributes significantly to adoption-related research and practice.

Study 8: Kohn-Willbridge *et al* (2021). "Look After Me Too": A Qualitative Exploration of the Transition into Adoptive Motherhood

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Kohn-Willbridge *et al* aimed to explore the transition into adoptive motherhood, focusing on the psychological and emotional challenges adoptive mothers face. The study offers insights into the expectations versus realities of adoptive parenthood, with particular attention to mental health issues such as post-adoption depression, anxiety, and trauma.

Assessment: clear and well-defined aims.

2. Appropriateness of qualitative methodology:

The use of qualitative methodology, specifically retrospective semi-structured interviews and reflexive thematic analysis (RTA), was appropriate for capturing the rich, subjective experiences of adoptive mothers.

Assessment: highly appropriate methodology.

3. Research design alignment with aims:

The retrospective design, which examined experiences from pre-adoption to 12 months post-placement, was well-suited to exploring the long-term emotional transitions of adoptive mothers. The use of an online support group as a recruitment base also allowed access to mothers who may have experienced particular challenges.

Assessment: well-aligned design.

4. Recruitment strategy:

Nine adoptive mothers were recruited via online support groups often frequented by adoptive parents experiencing difficulties. This provided a relevant sample but also introduced limitations in generalizability due to the small, specific sample group.

Assessment: appropriate but limited in scope.

5. Data collection:

Semi-structured interviews enabled the collection of in-depth narratives from participants about their journey through adoptive motherhood. These interviews provided a comprehensive understanding of the challenges adoptive mothers faced, including feelings of isolation, powerlessness and fatigue.

Assessment: robust data collection process.

6. Consideration of researcher-participant relationship:

The study acknowledges that the semi-structured interview process allowed participants to reflect on their experiences and express their emotions openly. The researchers maintained an ethical distance while fostering an environment conducive to honest sharing.

Assessment: adequately considered.

7. Ethical Considerations:

Ethical approval was granted by the University of Sussex, and all participants were informed about the purpose of the research, confidentiality, and their rights during the study. Sensitivity was shown in dealing with emotionally challenging topics such as trauma and post-adoption depression.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Reflexive thematic analysis (RTA) was used to rigorously analyze the data, allowing for the identification of key themes, such as misaligned expectations, emotional fatigue, and uncertainty. The iterative process of reviewing and refining themes ensured that the analysis was thorough.

Assessment: methodologically rigorous analysis.

9. Clarity of findings:

The findings are clearly presented, with five key themes emerging: 'reality not living up to expectation', 'uncertainty and powerlessness', 'emotional and physical fatigue', 'isolation' and 'love, loss and ambivalence'. These themes are illustrated with participant quotes, providing a detailed and nuanced view of the mothers' experiences.

Assessment: clear and well-structured findings.

10. Value of the research:

The study provides valuable insights into the psychological and emotional struggles faced by adoptive mothers, particularly in terms of managing expectations and dealing with mental health challenges. It highlights the need for better support mechanisms for adoptive parents, especially in the post-placement period.

Assessment: high research value, with implications for future policy and practice.

Overall conclusion: The study by Kohn-Willbridge *et al* (2021) provides a thorough and insightful exploration of the emotional and psychological challenges adoptive mothers face during the transition into motherhood. Using a robust qualitative methodology, the study highlights the need for more comprehensive post-adoption support. Based on the **CASP tool**, this study presents a **low risk of bias** and contributes significantly to the understanding of adoptive parenthood transition.

Study 9: Kirkman (2008). Being a 'Real' Mum: Motherhood through Donated Eggs and Embryos

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Kirkman aimed to explore how women who become mothers through donated eggs or embryos perceive their experiences of motherhood. The study focuses on the tension between cultural expectations of genetic motherhood and the realities of parenting through donor conception.

Assessment: clear and well-defined aim.

2. Appropriateness of qualitative methodology:

The narrative approach used in this study is appropriate for examining personal and subjective experiences. It allows participants to reflect on the complexity of their motherhood experiences over time, emphasizing both personal and cultural narratives.

Assessment: highly appropriate methodology.

3. Research design alignment with aims:

The use of open-ended interviews and narrative analysis aligns well with the study's goals of understanding the complex emotions and societal pressures experienced by mothers who have used donor eggs or embryos. The design effectively captures the longitudinal evolution of these experiences.

Assessment: strong alignment between design and aims.

4. Recruitment strategy:

Participants were recruited through newsletters and clinics, involving 21 women from various cultural backgrounds. This diverse recruitment strategy helped gather a wide range of perspectives, although the sample size and specific focus on women who sought donor conception could limit generalizability.

Assessment: appropriate recruitment, with some limitations.

5. Data collection:

Data were collected through a combination of in-person, email, letter, and telephone interviews, allowing flexibility in how participants could share their stories. This multi-modal approach ensured that participants could engage in the way that felt most comfortable for them.

Assessment: comprehensive data collection process.

6. Consideration of researcher-participant relationship:

The study carefully considered the researcher-participant relationship by engaging in an iterative process where participants reviewed and revised their narratives. This ensured that their stories were accurately represented and respected their personal reflections.

Assessment: adequately considered.

7. Ethical considerations:

Ethical standards were maintained through informed consent and participant confidentiality. The iterative nature of narrative research ensured that participants could continually reflect on and update their stories, allowing them greater control over their contributions.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Narrative analysis was used to explore the complexities of the participants' experiences, focusing on themes like identity, social expectations, and the meaning of motherhood. The iterative process of reviewing narratives multiple times ensured a deep and nuanced analysis.

Assessment: methodologically rigorous analysis.

9. Clarity of findings:

The findings are clearly presented, with participants expressing the tension between societal expectations of genetic motherhood and their experiences as non-genetic mothers. Themes such as the need for validation as 'real' mothers and the emotional challenges of donor conception are well-explained through direct quotes.

Assessment: clear and well-structured findings.

10. Value of the research:

This study provides valuable insights into the lived experiences of women who become mothers through egg and embryo donation, contributing to broader debates about motherhood, identity, and assisted reproduction. It highlights the emotional complexities these mothers face and has implications for how society views non-genetic parenthood.

Assessment: high research value, with implications for future research on assisted reproduction.

Overall conclusion: The study by Kirkman (2008) offers a nuanced and thorough exploration of the experiences of mothers who used donor eggs or embryos to conceive. The narrative approach allows for a deep understanding of the emotional and societal challenges these women face, particularly regarding their identity as mothers. Based on the **CASP tool**, the study presents a **low risk of bias** and makes a significant contribution to the literature on donor-assisted conception.

Study 10: Kirkman (2003). Egg and Embryo Donation and the Meaning of Motherhood

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Kirkman aimed to explore the ways in which women interpret egg and embryo donation in the context of motherhood. The study focuses on how these

women understand their roles as mothers, and the impact of non-genetic connections on their perceptions of motherhood.

Assessment: clear and well-defined aim.

2. Appropriateness of qualitative methodology:

The use of narrative theory and interviews is appropriate for capturing the personal and often complex experiences of women who have donated or received eggs or embryos. This methodology allows for an in-depth exploration of the personal meanings these women attach to their experiences.

Assessment: highly appropriate methodology.

3. Research design alignment with aims:

The use of open-ended interviews and narrative analysis aligns well with the study's goal of understanding individual interpretations of egg and embryo donation. The iterative process of collecting and analyzing narratives helps reveal the evolving nature of participants' experiences over time.

Assessment: well-aligned design.

4. Recruitment strategy:

The study recruited participants from newsletters, clinics, and infertility networks in Australia and Canada, resulting in a diverse sample of 36 women (donors and recipients). While the recruitment strategy allowed for a wide range of perspectives, the sample size and recruitment methods may limit broader generalization.

Assessment: appropriate recruitment, with limitations in generalizability.

5. Data collection:

Data were collected through a combination of in-person, written, email, audio-taped, and telephone interviews, allowing participants to share their stories in a manner that suited them best. This flexible approach ensured that participants could engage deeply with the research process.

Assessment: comprehensive and flexible data collection process.

6. Consideration of researcher-participant relationship:

The researcher engaged in a collaborative process with participants, allowing them to review and amend their narratives. This iterative process ensured that participants' voices were accurately represented, fostering trust and reducing the potential for misinterpretation.

Assessment: adequately considered.

7. Ethical considerations:

Ethical standards were well maintained throughout the study, with informed consent and confidentiality upheld. Participants were given the opportunity to review and revise their narratives, ensuring their comfort and autonomy in the research process.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

The narrative analysis was rigorously conducted, with multiple readings and thematic coding to uncover key aspects of how women understand motherhood in the context of egg and embryo donation. The iterative nature of the analysis allowed for thorough exploration of each narrative.

Assessment: methodologically rigorous analysis.

9. Clarity of findings:

The findings are clearly presented, with nuanced discussions of the differences between egg and embryo donation, and how women conceptualize their roles as mothers. Themes such as the emotional implications of donation and the social expectations of motherhood are well-articulated.

Assessment: clear and well-supported findings.

10. Value of the research:

This study offers valuable insights into the emotional and psychological experiences of women involved in egg and embryo donation. It contributes to our understanding of how non-genetic motherhood is perceived and negotiated, particularly in relation to broader cultural discourses of motherhood.

Assessment: high research value, with significant contributions to the field of assisted reproduction.

Overall conclusion: The study by Kirkman (2003) provides a thorough exploration of the meanings of egg and embryo donation in the context of motherhood. By using narrative theory, the study captures the complex emotions and social pressures experienced by women in this context. Based on the CASP tool, this study presents a **low risk of bias** and contributes meaningfully to discussions around non-genetic motherhood.

Study 11: Jadva *et al* (2022). Parental Age in Relation to Psychological Health in Egg Donation Families

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

The study aimed to examine how parental age affects psychological health, marital satisfaction, and child adjustment in families formed through egg donation.

Assessment: clear aims.

2. Appropriateness of qualitative methodology:

The mixed-methods approach, combining interviews and questionnaires, is appropriate for capturing both subjective experiences and objective measures of psychological health.

Assessment: suitable methodology.

3. Research design alignment with aims:

The research design is well aligned with the study's goal, utilizing interviews to explore parents' concerns about health and aging while also using validated scales for assessing mental health.

Assessment: well-aligned design.

4. Recruitment strategy:

Seventy-two families with children aged five were recruited, providing a robust sample size for exploring age-related parenting challenges.

Assessment: appropriate recruitment strategy.

5. Data collection:

Data collection was thorough, combining qualitative interviews with standardized questionnaires, ensuring rich data on both parental concerns and psychological health outcomes.

Assessment: robust data collection.

6. Researcher-participant relationship:

No significant issues related to bias in the researcher-participant relationship were noted, and the study maintained professional detachment.

Assessment: adequate consideration.

7. Ethical considerations:

The study received ethical approval, with informed consent obtained from all participants, ensuring ethical rigor.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Data were analyzed using both qualitative and quantitative techniques, providing a thorough exploration of the effects of age on psychological health and family dynamics.

Assessment: rigorous analysis.

9. Clarity of findings:

Findings were presented clearly, showing that older parents experienced more stress and relationship difficulties, while child adjustment remained unaffected.

Assessment: clear and well-presented findings.

10. Value of the research:

The study contributes valuable insights into the psychological impacts of older parenthood in assisted reproduction, with implications for support services.

Assessment: high research value.

Overall conclusion: The study by Jadva *et al* offers robust findings on the psychological effects of advanced parental age in egg donation families. It is methodologically sound, with clear findings and strong ethical considerations. Based on the **CASP tool**, it presents a **low risk of bias**.

Study 12: Indekeu (2015). Parent's Expectations and Experiences of Resemblance Through Donor Conception

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

The aim was to explore how parents in donor-conceived families perceive and experience physical resemblance, and its implications for family identity.

Assessment: clear aims.

2. Appropriateness of qualitative methodology:

A qualitative narrative approach was appropriate for examining the subjective meanings parents attach to resemblance in donor-conceived families.

Assessment: highly appropriate methodology.

3. Research design alignment with aims:

The design, focused on in-depth interviews, allowed for detailed exploration of parents' perceptions and the role of resemblance in forming family bonds.

Assessment: well-aligned design.

4. Recruitment strategy:

Eighteen heterosexual donor-conceiving parents were recruited, providing sufficient diversity in experiences while focusing on a specific cohort.

Assessment: suitable recruitment strategy.

5. Data collection:

Data collection was extensive, using open-ended interviews that captured the complexity of participants' feelings about resemblance and its societal implications.

Assessment: thorough data collection.

6. Researcher-participant relationship:

The study engaged participants respectfully, allowing for honest expressions of complex feelings about family identity and social legitimacy.

Assessment: adequately considered.

7. Ethical considerations:

Informed consent and confidentiality were maintained, ensuring ethical rigor.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Thematic analysis was used to identify key themes, providing a rigorous interpretation of how resemblance contributes to family cohesion.

Assessment: rigorous analysis.

9. Clarity of findings:

Findings were clearly presented, highlighting how resemblance helps create social and emotional bonds in donor-conceived families.

Assessment: clear and well-structured findings.

10. Value of the research:

This study provides important insights into how resemblance influences family dynamics and identity in donor-conceived families, with broader implications for reproductive technology debates.

Assessment: high research value.

Overall conclusion: The study by **Indekeu** effectively explores the psychological and social implications of physical resemblance in donor-conceived families. Based on the **CASP tool**, the study shows a **low risk of bias** and provides valuable contributions to understanding family dynamics.

Study 13: Hershberger (2007). Donor Oocyte Recipients' Lived Experiences of Family Lexicon

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Hershberger aimed to understand how pregnant women using donor oocytes create family narratives and integrate the experience into their family identity. **Assessment:** clear and well-articulated aims.

2. Appropriateness of qualitative methodology:

The use of a phenomenological approach was suitable for exploring the deeply personal and emotional aspects of establishing family identity through donor conception.

Assessment: appropriate methodology.

3. Research design alignment with aims:

The descriptive, phenomenological design allowed participants to deeply reflect on their experiences and the challenges of creating family lexicons. **Assessment:** strong alignment between design and aims.

4. Recruitment strategy:

Eight women were recruited, with the majority of interviews conducted in their homes, allowing for a comfortable and reflective interview setting.

Assessment: appropriate recruitment strategy.

5. Data collection:

Data were collected through in-depth, open-ended interviews, providing a rich, nuanced understanding of participants' emotional journeys.

Assessment: comprehensive data collection.

6. Researcher-participant relationship:

The phenomenological approach encouraged participants to express their emotions freely, with minimal researcher interference.

Assessment: adequately considered.

7. Ethical considerations:

Ethical approval was obtained, and participants were informed about confidentiality and voluntary participation, ensuring ethical rigor.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Phenomenological analysis allowed for the identification of key themes, such as the process of accepting donor conception and establishing family identity. **Assessment:** rigorous analysis.

9. Clarity of findings:

The findings are clearly presented, with themes that capture the complexities of using donor oocytes and building family narratives.

Assessment: clear and well-structured findings.

10. Value of the research:

This study provides valuable insights into the emotional and psychological processes of women using donor oocytes, with implications for clinical support.

Assessment: high research value.

Overall conclusion: The study by **Hershberger** effectively captures the lived experiences of donor oocyte recipients, offering important insights into how families navigate the emotional terrain of assisted reproduction. Based on the **CASP tool**, the study presents a **low risk of bias**.

Study 14: Golombok et al (2017). Parent-Adolescent Relationships and Adolescent Adjustment at Age 14

Quality assessment using ROBINS-I:

1. Bias due to confounding:

This longitudinal study effectively controlled for confounding factors, such as parental age, socioeconomic status, and family type, when comparing families formed through reproductive donation with naturally conceived families.

Assessment: low risk of bias due to strong control of confounders.

2. Bias in selection of participants into the study:

Participants were recruited from clinics and fertility services, which could introduce self-selection bias. Families willing to participate in long-term studies might differ from those who do not.

Assessment: moderate risk of bias due to potential self-selection.

3. Bias in classification of interventions:

The classification of family types (donor insemination, egg donation, surrogacy, natural conception) was clear and accurate, with no risk of misclassification.

Assessment: low risk of bias in classification.

4. Bias due to deviations from intended interventions:

The study was observational, with no active interventions involved. As a result, there were no deviations from intended conditions.

Assessment: low risk of bias.

5. Bias due to missing data:

Like many longitudinal studies, this one experienced some attrition. However, the authors applied statistical techniques such as intention-to-treat analysis to account for missing data, ensuring that the findings remained valid.

Assessment: low to moderate risk of bias due to missing data.

6. Bias in measurement of outcomes:

The study used standardized interviews, questionnaires, and teacher assessments to measure adolescent adjustment and parent-adolescent relationships. While some self-reported data were included, the use of multiple data sources strengthened the reliability of the outcomes.

Assessment: moderate risk of bias due to partial reliance on self-reported outcomes.

7. Bias in selection of the reported result:

All pre-specified outcomes were reported transparently. The study's findings were presented in a comprehensive and unbiased manner.

Assessment: low risk of bias.

Overall conclusion: This study demonstrates a **low to moderate risk of bias**. The use of multiple data sources and strong control of confounders contribute to its validity. Minor concerns arise from potential self-selection bias and the reliance on some self-reported measures.

Study 15: Golombok (2013). Families Created by Reproductive Donation: Issues and Research

Quality assessment using ROBINS-I:

1. Bias due to confounding:

The study synthesized evidence from multiple sources and controlled for important confounding variables in the individual studies it reviewed. By aggregating findings from multiple longitudinal studies, it mitigated the effects of confounders in any single study.

Assessment: low risk of bias due to effective control of confounders across studies.

2. Bias in selection of participants into the study:

As this is a review paper, the selection of participants was based on the original studies reviewed. The reviewed studies had strong participant selection strategies, but the potential for selection bias still exists in individual studies, particularly with recruitment through clinics.

Assessment: moderate risk of bias due to possible self-selection in the reviewed studies.

3. Bias in classification of interventions:

Family types (donor insemination, egg donation, surrogacy, etc) were clearly categorized in the reviewed studies. The classification of interventions was straightforward and consistent.

Assessment: low risk of bias in classification.

4. Bias due to deviations from intended interventions:

The reviewed studies were observational and did not involve any active interventions, reducing the risk of deviations from intended interventions.

Assessment: low risk of bias.

5. Bias due to missing data:

Some of the longitudinal studies reviewed experienced participant drop-out over time. However, these studies typically employed intention-to-treat analysis to account for missing data, minimizing the impact on results.

Assessment: moderate risk of bias due to potential missing data in the original studies.

6. Bias in measurement of outcomes:

The original studies used validated tools for measuring psychological well-being, parent-child relationships, and child development. However, self-report measures were used in some cases, which could introduce bias.

Assessment: moderate risk of bias due to reliance on self-reported outcomes.

7. Bias in selection of the reported result:

The study transparently reported findings from all the reviewed studies and did not exhibit selective reporting. The synthesis of results was clear and comprehensive.

Assessment: low risk of bias.

Overall conclusion: This study has a **low to moderate risk of bias**. The aggregation of multiple studies and careful synthesis of findings enhance its reliability. However, some individual studies within the review may have faced participant selection or self-reporting biases.

Study 16: Golombok *et al* (2004). Families Created by Gamete Donation: Follow-Up at Age 2

Quality assessment using ROBINS-I:

1. Bias due to confounding:

The study controlled several confounding variables, including parental age, socioeconomic status, and the method of conception. These controls helped ensure that comparisons between gamete donation and natural conception families were fair and unbiased.

Assessment: low risk of bias due to effective control of confounders.

2. Bias in selection of participants into the study:

Participants were recruited from fertility clinics and through advertisements, which could introduce self-selection bias. Families who agreed to participate might have had different characteristics compared to those who declined, such as a greater willingness to discuss their family situation.

Assessment: moderate risk of bias due to potential self-selection.

3. Bias in classification of interventions:

Family types (donor insemination, egg donation, natural conception) were clearly and accurately classified based on the method of conception. There was no risk of misclassification.

Assessment: low risk of bias in classification.

4. Bias due to deviations from intended interventions:

The study was observational in nature, following naturally occurring family dynamics without any active interventions. As such, there were no deviations from intended interventions.

Assessment: Low risk of bias.

5. Bias due to missing data:

While some loss to follow-up was noted, the study used appropriate statistical techniques, including intention-to-treat analysis, to address missing data. The attrition rate did not significantly affect the study's conclusions.

Assessment: low to moderate risk of bias due to missing data.

6. Bias in measurement of outcomes:

Standardized interviews and validated questionnaires were used to assess parent-child relationships and child development. However, some data were self-reported, which could introduce a risk of bias. Nevertheless, the use of validated instruments helped mitigate this issue.

Assessment: moderate risk of bias due to self-reporting.

7. Bias in selection of the reported result:

The study reported all pre-specified outcomes and did not exhibit selective reporting. The results were transparent and aligned with the study's objectives.

Assessment: low risk of bias.

Overall conclusion: This study demonstrates a **low to moderate risk of bias**. The controls for confounders, clear classification of family types, and appropriate handling of missing data strengthen its validity. The main concern lies in potential self-selection bias and the reliance on self-reported data in some areas.

Study 17: Gair (1999). Distress and Depression in New Motherhood: Research with Adoptive Mothers Highlights Important Contributing Factors

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Gair aimed to explore the emotional responses of adoptive mothers in the early post-adoption period, particularly focusing on distress and depression.

Assessment: clear and well-defined aim.

2. Appropriateness of qualitative methodology:

The qualitative approach, using in-depth interviews and the Edinburgh postnatal depression scale (EPDS), was appropriate for exploring the emotional and psychological experiences of adoptive mothers.

Assessment: suitable methodology.

3. Research design alignment with aims:

The study design allowed for an in-depth exploration of the emotional states of adoptive mothers, with the inclusion of both qualitative narratives and quantitative measures such as EPDS. This design aligns well with the study's aim of exploring distress and depression.

Assessment: strong alignment between design and aims.

4. Recruitment strategy:

Adoptive mothers with children aged up to five years were recruited. This range allows for capturing experiences from early motherhood, though the sample size is not provided in detail.

Assessment: appropriate recruitment strategy.

5. Data collection:

Data were collected through semi-structured interviews and the EPDS. The combination of qualitative and quantitative data enriched the findings, providing both personal narratives and measurable indicators of distress and depression.

Assessment: robust data collection process.

6. Consideration of researcher-participant relationship:

The semi-structured interview format allowed for rapport-building, encouraging participants to share their emotional experiences in detail. The researcher maintained a neutral, non-directive stance to avoid bias.

Assessment: adequately considered.

7. Ethical considerations:

Informed consent and confidentiality were upheld, with participants being fully aware of the study's purpose and their rights, ensuring ethical rigor.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Qualitative data were analyzed thematically, while quantitative data from the EPDS provided a measurable assessment of depression levels. The mixed-methods approach strengthened the study's overall rigor.

Assessment: rigorous analysis.

9. Clarity of findings:

Findings were clearly presented, showing that many adoptive mothers experienced high levels of distress and depression, with key contributing factors such as isolation and unmet expectations of motherhood.

Assessment: clear and well-structured findings.

10. Value of the research:

The study provides important insights into the emotional challenges faced by adoptive mothers, with significant implications for post-adoption support services.

Assessment: high research value.

Overall conclusion: The study by Gair (1999) offers a detailed exploration of distress and depression in adoptive mothers, highlighting important contributing factors. The combination of qualitative and quantitative methods provides a comprehensive understanding of the emotional challenges in adoptive motherhood. Based on the **CASP tool**, the study presents a **low risk of bias**.

Study 18. Kohn-Willbridge *et al* (2023). Parenting in the "Extreme": An Exploration into the Psychological Well-Being of Long-Term Adoptive Mothers

Quality assessment (CASP tool for qualitative research):

1. Clear statement of aims:

Kohn-Willbridge *et al* aimed to explore the psychological well-being of long-term adoptive mothers, focusing on factors that challenge and support their mental health over time.

Assessment: clear and well-defined aim.

2. Appropriateness of qualitative methodology:

The use of qualitative, semi-structured interviews and reflexive thematic analysis (RTA) is appropriate for exploring the complex psychological and emotional experiences of adoptive mothers.

Assessment: highly appropriate methodology.

3. Research design alignment with aims:

The design, which involved longitudinal, in-depth interviews with adoptive mothers, allowed for a comprehensive understanding of their mental health over time. This aligns well with the study's aim of exploring long-term psychological well-being.

Assessment: strong alignment between design and aims.

4. Recruitment strategy:

Nine adoptive mothers were recruited, providing detailed and rich narratives. Although the sample size is small, it is appropriate for the in-depth exploration required by RTA.

Assessment: suitable recruitment strategy.

5. Data collection:

Data were collected through semi-structured interviews, enabling mothers to reflect on their experiences and mental health challenges in detail. This approach captured the nuanced experiences of "extreme parenting."

Assessment: comprehensive data collection process.

6. Consideration of researcher-participant relationship:

The study built a strong rapport with participants, allowing them to share openly. The researchers remained reflexive and careful not to impose their views, maintaining neutrality.

Assessment: adequately considered.

7. Ethical considerations:

Ethical approval was obtained, and participants were informed about confidentiality and their rights to withdraw. Given the sensitive nature of the topic, ethical standards were rigorously maintained.

Assessment: strong ethical considerations.

8. Rigor in data analysis:

Data were analyzed using RTA, which allowed for deep exploration of themes such as isolation, self-care challenges, and the emotional toll of adoptive motherhood. The iterative analysis process ensured methodological rigor.

Assessment: rigorous analysis.

9. Clarity of findings:

The findings were clearly presented, with themes such as the emotional demands of "extreme parenting", relational strain, and the importance of therapeutic parenting. These findings are well-supported by participant quotes.

Assessment: clear and well-structured findings.

10. Value of the research:

This study provides valuable insights into the long-term mental health challenges faced by adoptive mothers, offering practical implications for improving post-adoption support services.

Assessment: high research value.

Overall conclusion: The study by Kohn-Willbridge *et al* (2023) provides a comprehensive exploration of the psychological well-being of long-term adoptive mothers. The findings highlight the emotional demands of "extreme parenting" and the need for ongoing mental health support. Based on the CASP tool, the study presents a **low risk of bias**.

SUPPLEMENTARY FILE 2 TABLE 1. Summary of study characteristics

N	Study characteristics	Maternal outcomes	Family dynamics	Methodology	Key findings
1	<i>Fakoor et al, 2023, Iran (7)</i> Study design: qualitative (grounded theory) Sample size: 30 families Participant characteristics: adoptive families from Tehran, diverse in age of parents and children, adoption time ranged from infancy to older children; families recruited from Tehran welfare organization, adoption before 2014	Emotional well-being: stress related to adoption disclosure Psychological adaptation: concerns about maintaining bond	Attachment issues: anxiety in older adopted children; fear of abandonment Disclosure practices: varied, many hesitant to disclose adoption early Family cohesion: concerns over child learning about adoption	Semi-structured in-depth interviews Grounded theory Coding analysis through open, central and selective coding Memoing and field notes used to increase data reliability	Parental anxiety over disclosure timing; concerns over breaking emotional bonds; adoptive parents tend to delay or avoid adoption disclosure to preserve emotional connection; fear of biological parents reclaiming child; emotional stress due to secrecy around adoption.
2	<i>Zandi et al, 2023, Iran (9)</i> Study design: qualitative (conventional content analysis) Sample size: 13 participants (15 interviews) Participant characteristics: mothers receiving donated embryos from the Royan Institute in Tehran, at various stages of pregnancy and postpartum	Emotional well-being: feelings of insecurity regarding both individual and family identity, pressure, and hardship Psychological adaptation: seeking relative tranquility, managing mental pressure	Sociocultural constraint: pressure from societal norms, inappropriate behavior from community members Fear of disclosure to child or community, sensitivity to donor's characteristics	Deep unstructured interviews with mothers, analyzed through Graneheim and Lundman's qualitative content analysis technique; data saturation reached after 15 interviews; memoing used to improve analysis validity	Mothers receiving donated embryos face identity crises, sociocultural pressure and concerns over physical resemblance to the donor. While they eventually reach a state of peace of mind, many feel insecure about disclosure and struggle with societal acceptance. Sociocultural constraints strongly affect maternal experiences.
3	<i>Golombok et al, 2006, UK (5)</i> Study design: longitudinal study, standardized interviews and questionnaires Sample size: 34 surrogacy families, 41 donor families, 67 natural conception families Participant characteristics: families of children conceived through surrogacy, oocyte donation, donor insemination, and natural conception, compared at the child's third birthday; insemination families, 41 oocyte donation	Emotional well-being: similar psychological well-being across family types	Family cohesion: high levels of warmth and interaction between mothers and children in assisted reproduction families	Standardized interviews and questionnaires analyzed through MANCOVA, ANCOVA and Helmert contrasts	Families using assisted reproduction showed more warmth and interaction between mothers and their children. Parents from surrogacy arrangements were more likely to disclose birth circumstances than donor conception parents. No negative impact on psychological well-being of children at age 3.
4	<i>Pagé et al, 2019, Canada (14)</i> Study design: qualitative (grounded theory) Sample size: 25 parents (from 20 foster families) Participant characteristics: parents in foster-to-adopt arrangements, dealing with uncertainty regarding the adoption status of their child in the Quebec Mixed-Bank Program.	Emotional well-being: feelings of uncertainty and distress over adoption status Psychological adaptation: mixed feelings of commitment due to legal uncertainty	Family cohesion: difficulty in developing strong attachments due to uncertainty over adoption status Fear of loss or return of the child to birth parents	Semi-structured interviews, coding through open, axial and theoretical coding Grounded theory Memo writing and NVivo software used for coding and analysis	Foster-to-adopt parents experience high levels of stress and uncertainty, which may affect emotional attachment. Strategies such as detachment or reinterpretation of facts are used to cope with the possibility of the child returning to birth parents. Uncertainty often impairs the ability to form a strong parental identity.
5	<i>Timm et al, 2011, USA (15)</i> Study design: descriptive research (self-report survey) Sample size: 104 adoptive mothers Participant characteristics: adoptive mothers across various types of adoptions (child welfare, voluntary domestic, international)	Emotional well-being: grief and loss related to infertility and unmet expectations, identity issues Psychological adaptation: mixed experiences of mastery and control over their parental roles	Family cohesion: struggles in family integration due to bonding and attachment challenges Marital relationships often strengthened despite struggles with core issues of adoption	Self-report survey using a mixture of quantitative and qualitative questions, analyzed with descriptive statistics and thematic analysis	Adoptive mothers reported experiencing eight core issues: loss and grief, entitlement, claiming, unmatched expectations, family integration, bonding and attachment, identity and mastery and control. While these issues challenged marriages, they also strengthened them over time.

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6	Mott <i>et al.</i> , 2011, USA (16) Study design: cross-sectional survey Sample size: 147 adoptive mothers (compared with 147 postpartum women) Participant characteristics: adoptive mothers from Holt International	Emotional well-being: comparable depressive symptoms to postpartum mothers, but greater well-being	Family cohesion: not specifically addressed, but adoptive mothers reported less anxiety compared to postpartum mothers	Online survey using the inventory of depression and anxiety symptoms (IDAS) and the Edinburgh postnatal depression scale (EPDS), analyzed through hierarchical linear regression	Adoptive mothers reported lower levels of anxiety than postpartum mothers and greater overall well-being. Predictors of depressive symptoms among adoptive mothers included sleep deprivation, history of infertility, psychological disorders and marital dissatisfaction.
7	MacDonald <i>et al.</i> , 2011, UK (17) Study design: qualitative [interpretative phenomenological analysis (IPA)] Sample size: 20 sets of adoptive parents Participant characteristics: adoptive parents from the Northern Ireland Care Pathways and Outcomes Study	Emotional well-being: concerns about self-esteem and emotional well-being of the child in response to complex family histories Psychological adaptation: anxiety around handling difficult family histories sensitively	Family cohesion: open communication about adoption, challenges with birth family contact (emotional and practical burdens) Flexible approach to increasing contact based on the child's wishes	Semi-structured interviews analyzed using IPA methodology	Adoptive parents were committed to open communication but worried about the child's emotional well-being when discussing complex family histories. While birth family contact was seen as burdensome, parents were willing to make it work for the child's benefit.
8	Kohn-Willbridge <i>et al.</i> , 2021, UK (18) Study design: qualitative (retrospective recall study) Sample size: nine adoptive mothers Participant characteristics: adoptive mothers involved in an online support group	Emotional well-being: mental health issues including post-adoption depression, anxiety and trauma Psychological adaptation: feelings of misaligned expectations, powerlessness, isolation and fatigue	Family cohesion: not specifically addressed, but feelings of isolation and difficulties in adjusting to new family dynamics were noted	In-depth, semi-structured interviews analyzed through reflexive thematic analysis	Mothers reported a significant disconnect between expectations and reality in adoptive motherhood. High levels of mental health issues, including post-adoption depression and trauma, were prominent. Participants felt isolated and fatigued during the transition to adoptive motherhood.
9	Kirkman, 2008, Australia (19) Study design: qualitative narrative study Sample size: 21 women (19 egg donation recipients and two embryo donation recipients) Participant characteristics: women who had received donor eggs or embryos from various settings (IVF programs, known donors)	Emotional well-being: feelings of inadequacy, grief over infertility, and ambivalence about donor assistance Psychological adaptation: Mothers struggled with feeling like a "real" mother.	Family cohesion: Tensions arose regarding disclosure practices and feelings of connection to the child. Some mothers feared the impact of disclosure on family relationships.	Semi-structured interviews and narrative analysis method Narratives were collected over several years.	Women expressed ambivalence about their donor-assisted motherhood, feeling inadequate due to infertility. They struggled with cultural expectations of genetic connection but emphasized nurturing as central to motherhood. Disclosure about the donation remained challenging for many mothers.
10	Kirkman, 2003, Australia (20) Study design: qualitative narrative study Sample size: 36 participants (16 donors, 21 recipients) Participant characteristics: women who donated or received eggs or embryos	Emotional well-being: grief over infertility, ambivalence about motherhood Psychological adaptation: egg and embryo donation was not seen as incompatible with motherhood	Family cohesion: Tensions arose over disclosure and feelings of maternal connection, particularly with embryo donation	Narrative analysis of interviews conducted in person, by email, written, audio-taped, or by telephone between 2000 and 2002	Donors and recipients of eggs and embryos described varied experiences, with stronger maternal connections expressed in the context of embryo donation compared to egg donation. Some viewed egg donation as contributing to motherhood, with differing degrees of emotional attachment.
11	Jadva <i>et al.</i> , 2022, UK (21) Study design: mixed-method study (questionnaire and qualitative)	Emotional well-being: older parents experienced more parenting stress and concerns	Family cohesion: no significant impact on child adjustment; older parents	Questionnaire (parenting stress index, trait anxiety inventory, Edinburgh	Older parents experienced greater stress and poorer couple relationship quality compared to younger parents,

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	content analysis) Sample size: 72 families Participant characteristics: families with a child born through egg donation, where mothers were aged 32-51 years and fathers 31-61 years at birth	about their health and mortality Psychological adaptation: feelings of worry related to advanced age and its impact on parenting	reported poorer relationship quality, with concerns around mortality affecting family dynamics	depression scale) and interviews analyzed through qualitative content analysis	though no significant differences were found for child adjustment. Key concerns were related to health, mortality and support.
12	Indekeu, 2015, Belgium (22) Study design: qualitative narrative study Sample size: 11 couples Participant characteristics: heterosexual couples with donor-conceived children aged 8-32 years old	Emotional well-being: mixed emotions about donor conception, concerns over the lack of resemblance and social stigma Psychological adaptation: difficulty balancing societal expectations with feelings of connectedness to the child	Family cohesion: Parents experienced challenges with disclosure practices, navigating the balance between resemblance and maintaining family harmony. Concerns over non-resemblance were prevalent.	In-depth narrative interviews analyzed using thematic analysis, with coding of resemblance-related themes	The study revealed that resemblance was playing a crucial role in the social legitimization of donor-conceived families and in creating family bonds. Parents struggled with feelings of non-resemblance and the potential impact on disclosure and family dynamics.
13	Hershberger, 2007, USA (23) Study design: qualitative, descriptive phenomenology Sample size: eight women Participant characteristics: women aged 33-46 years who conceived using donor oocytes, recruited from a large urban infertility center	Emotional well-being: Women experienced a wide range of emotions, including joy, relief, and grief over the loss of a genetic connection Psychological adaptation: Women navigated feelings of acceptance towards the use of donor oocytes to achieve motherhood	Family cohesion: Most women discussed the impact of donor conception on their relationships, as well as the concerns over disclosure and the family legacy	Two open-ended, in-depth interviews conducted with each participant, analyzed using Colaizzi's method for phenomenology	Four key themes emerged: acknowledging the desire for motherhood, accepting donor oocytes as a way to achieve motherhood, navigating intense decision-making processes and living with the lasting legacy of achieving motherhood through oocyte donation.
14	Golombok <i>et al.</i> , 2004, UK (24) Study design: longitudinal study Sample size: 46 donor insemination families, 48 egg donation families, 68 natural conception families Participant characteristics: families with children at two years of age	Emotional well-being: gamete donation mothers showed more pleasure but perceived their children as more vulnerable Psychological adaptation: Mixed feelings regarding the vulnerability of children born through gamete donation	Family cohesion: positive parent-child relationships, with egg donation mothers experiencing more pleasure compared to donor insemination mothers	Standardized interviews and questionnaires assessing parent-child relationships, parental stress and child development	Parents in gamete donation families reported more positive emotions towards their children, but also perceived them as more vulnerable. The absence of a genetic link did not negatively impact the parent-child relationship.
15	Golombok, 2013, UK (25) Study design: longitudinal study Sample size: diverse families created through reproductive donation Participant characteristics: families with children born through sperm donation, egg donation, embryo donation, and surrogacy	Emotional well-being: parents reported emotional challenges related to secrecy and disclosure about donor conception Psychological adaptation: mixed feelings about the lack of genetic connection	Family cohesion: families where disclosure had occurred early had better parent-child relationships compared to families that maintained secrecy more difficulties in mother-adolescent relationships	Standardized assessments of parent-child relationships, children's psychological adjustment, and family functioning relationships and adolescent adjustment	Overall, children born through reproductive donation exhibited positive psychological adjustment. Families that were open about donor conception showed better family cohesion, while secrecy was linked to more emotional challenges for parents.
16	Golombok <i>et al.</i> , 2017, UK (26) Study design: longitudinal study (sixth phase) Sample size: 87 reproductive donation families (32 donor insemination, 27 egg donations, 28 surrogacy) and 54 natural conception families Participant characteristics: families with children aged 14 years	Emotional well-being: no differences in adolescent psychological well-being across family types Psychological adaptation: parents from surrogacy families exhibited less negative parenting, while egg donation	Family cohesion: mothers in surrogacy families showed fewer family relationship problems, while egg donation families had	Standardized interviews, questionnaires and observational assessments of parent-adolescent	There were no significant differences in adolescent adjustment between family types. However, fewer positive relationships were found between mothers and adolescents in egg donation families compared to donor insemination families.

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		mothers reported more difficulties			
17	Gair, 1999, Australia (27) Study design: qualitative, exploratory study Sample size: 19 adoptive mothers of children aged up to five years Participant characteristics: adoptive mothers experiencing the early post-adoption period	Emotional well-being: high levels of emotional distress, with symptoms similar to postnatal depression in biological mothers Psychological adaptation: challenges with adjusting to the demands of new motherhood	Family cohesion: mothers reported concerns over bonding, breastfeeding, and feeling connected to their adoptive child	Edinburgh postnatal depression scale (EPDS) used alongside in-depth interviews, analyzing emotional responses during the early post-adoption period	Surrogacy families reported greater parental acceptance and fewer difficulties in family relationships. 32% of the adoptive mothers exhibited scores above the threshold for depression on the EPDS, highlighting that adoptive mothers can experience significant emotional distress akin to postnatal depression. Sleep deprivation and lack of support were major contributing factors.
18	Kohn <i>et al.</i> , 2023, UK (8) Study design: qualitative, exploratory study Sample size: nine adoptive mothers Participant characteristics: adoptive mothers of children aged 3-15 years	Emotional well-being: mothers reported ongoing mental health struggles, including anxiety, depression and PTSD Psychological adaptation: positive emotional well-being is associated with bonding and therapeutic parenting skills	Family cohesion: strained relationships within and across families, including between siblings, partners, and extended family, due to the demands of "extreme parenting."	Semi-structured interviews analyzed using reflexive thematic analysis	Adoptive mothers reported persistent emotional distress, with factors such as "extreme parenting" contributing to negative well-being. Protective factors included developing therapeutic parenting skills and informal peer support.

ANCOVA: analysis of covariance; EPDS: Edinburgh postnatal depression scale; IDAS: inventory of depression and anxiety symptoms; IPA: interpretative phenomenological analysis;
MANCOVA: multivariate analysis of covariance; NVivo: software for qualitative data analysis; PTSD: post-traumatic stress disorder