

Co-IVF for Same-Sex Female Couples

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Abstract

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The utilization of assisted reproductive technology (ART), particularly by same-sex female couples (SSFCs), has increased over the past few decades. Alongside the increase in use by lesbian women, there has also been an increase in the number of available treatment options. The process by which SSFCs make the various decisions associated with conceiving and parenting, however, has been largely overlooked. This review provides an overview of the reproductive treatments available to lesbian women and specifically highlights the “biological” and “social” obstacles they must overcome on their journey to parenthood. This review also describes how a relatively novel treatment strategy, co-in vitro fertilization, can give couples greater flexibility and provide them with the unique opportunity of a shared biological motherhood.

Family building for same-sex couples has transformed dramatically with advancements in assisted reproductive technology (ART). As more lesbian, gay, bisexual, and transgender (LGBT) couples utilize reproductive technologies, social acceptance widens, and the perception of parenthood redefines itself. Although clinical care has circumvented many biological obstacles faced by the LGBT community, reproductive medical specialists must remain inclusive of the mental and psychosocial well-being of patients throughout their journeys.

Same-sex female couples (SSFCs) encounter two major obstacles while pursuing parenthood. It is well understood that SSFCs require the use of donor sperm to alleviate the “biological” obstacle of zygote formation. The process of SSFCs’s decision making during treatment is known to be the “social” obstacle. While SSFCs may feel daunted by the vast array of available treatment options, this may seem trivial in comparison to determining who should or who can carry out the pregnancy. In certain circumstances, the decision is restricted to the partners’ biology. In other cases, the choice will require recognizing the desires of each partner’s role as a parent. This review discusses available fertility options for SSFCs, addresses the medical and psychosocial aspects of same-sex reproduction, and discusses the current trends of providing equitable care for SSFCs.

Same-Sex Female Couples: Biological Obstacles

The number of lesbian women who are seeking reproductive treatment has increased over the past few decades. The biological necessity of sperm for fertilization has been one of the primary reasons SSFCs seek reproductive treatment to have children. A publication by Carpinello et al showed that in 2015, the majority of those utilizing donor intrauterine insemination (DIUI) at a single site were SSFCs, whereas SSFCs made up less than 1% of therapeutic donor insemination users in 1985.¹ Additionally, a single-center study in Australia observed overall trends in reproductive treatment use among single women and SSFCs prior to and following a legislation change, which previously limited reproductive treatment utilization to married heterosexual couples with medical infertility. The same study showed that after the change in legislation, a 102.8% increase in utilization was observed among the single woman population, and a 258.8% increase in reproductive treatment cycles was seen among SSFCs during the same time period.²

In addition to the biological obstacles SSFCs face, a less widely discussed obstacle involves the women’s reproductive capacity. Although studies have shown that overall

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pregnancy rates among women undergoing DIUI are similar if not higher in lesbian as compared with heterosexual women, SSFCs may face reproductive challenges similar to those faced by heterosexual women trying to conceive.^{3,4} The literature is limited on evaluating the etiology of infertility in SSFCs, albeit the association has become a crucial component of a couple's family building strategy. For some couples, one partner may have diminished ovarian reserve or suboptimal oocyte quality, thus compromising her ability to contribute as the genetic mother. For other couples, one partner may have had medical conditions that prevent her from being able to carry a pregnancy (i.e., lack of a functional uterus). The couple's medical and reproductive history will serve as the primary biological challenge for how they can conceive, and it is suggested that, although a necessity, sperm donation remains the secondary consideration to the process. If medical and biological obstacles interfere with the patient's identity and/or desired role as contributor to the process, treatment can shift toward managing the couple's expectations and psychosocial preferences.

Same-Sex Female Couples: Social Obstacles

SSFCs are confronted with unique social and psychological challenges when it comes to making decisions about parenthood. First, they need to consider whether they would like to become parents. Even as we become more progressive as a society, acceptance of lesbian motherhood has at times lagged.⁵ Second, after making the decision to pursue parenthood, SSFCs face a range of subsequent decisions including how conception will occur, whether to use an anonymous or known sperm donor, the role of the nonbiological mother, and how to divide parenting responsibilities,⁶ which is described in the article by Bushe et al in this issue.⁷ Other decisions that couples must make include the titles both parents will be given by their children and the surname of the children.⁵ Finally, legal arrangements, such as second-parent adoption, can also be a point of complex discussion and potential contention.⁵ Although this review focuses on treatment options for SSFCs who desire to become parents, it is important to recognize that the process of conceiving is only a small aspect of the entire decision-making process.

Barring serious medical and reproductive problems, unlike heterosexual couples, both partners in same-sex female relationships have the potential to be birth mothers. For some SSFCs, the ability for both women to serve as birth mothers may be an advantage, as it increases the couple's reproductive potential. This is especially crucial in couples who struggle with infertility. For other couples, the idea that both women have the potential to serve as the birth mother may have no impact if only one of the women desires to become pregnant. In this scenario, even if she struggles with infertility, the psychological dimension is no different from that of heterosexual couples who discover that one partner is infertile. However, for couples facing biological/medical capability and personal preference discrepancies, the psychological burden of making a treatment decision could be extraordinarily difficult. Thus, it is important for couples to

understand all of the options available to them and to weigh the advantages of each strategy against their individual desires as parents.

Same-Sex Female Couples: Treatment Strategy

In the majority of SSFCs, one partner decides to contribute the oocytes and subsequently carry the fertilized embryo. To achieve this, women of SSFCs typically elect to undergo DIUI before pursuing ART including in vitro fertilization (IVF), both of which are conducted with an anonymous or known sperm donor.⁸ Although the use of DIUI and/or IVF offers patients the ability to become pregnant, give birth, and secure a desired genetic link for one of the partners, DIUI can also provide, although limited, an opportunity for the nongenetic mother to actively participate by assisting the medical staff with the insemination.^{4,5,9} Consequently, fertility evaluations and decisions about which treatment to undergo when only one woman desires to be the genetic mother and become pregnant are not influenced by sexual orientation.

Lesbian women have an equal, if not higher, rate of conceiving through IUI as compared with heterosexual women.^{3,4} Regardless of sexual orientation, the mean number of IUI cycles to conception has been shown to be 3 to 4 for participating women.^{4,10,11} Additionally, Nordqvist et al showed that although there were minimal differences in types of treatments utilized (IVF vs. IUI) and pregnancy rates between lesbian and heterosexual women, ultimately, no differences in live birth rate were observed.⁴ For some SSFCs, both partners desire to physically contribute to the pregnancy. This occurs through the process of co-IVF, a relatively new concept to ART. In the literature, co-IVF has also been referred to as "ROPA" (reception of oocytes from partner), shared conception, shared maternity, or shared parenthood.¹ Co-IVF involves one woman who undergoes ovarian stimulation and vaginal oocyte retrieval, while her partner receives the developed embryo(s) through transfer and carries out the pregnancy. The process of co-IVF is analogous to heterosexual couples who utilize an ovum donor; albeit SSFCs will always require a sperm donor.

As co-IVF is a relatively novel strategy for SSFCs seeking a shared experience, few studies have published on this approach's utility. Marina et al showed the average age of the women who provided the ova was very similar to the average age of the women who received the embryos (35.1 vs. 34.6).¹² A similar, yet larger cohort, study by our group evaluated co-IVF outcomes of 21 couples.⁸ Fifteen SSFCs chose the older partner to receive the embryos, while only 6 couples chose the older partner to share the oocytes. The receiving partner's average age was 40.0 ± 2.9 , and the sharing partner's average age was 34.8 ± 3.5 . Additionally, the study observed that 76% of the co-IVF couples achieved at least one pregnancy, as compared with 46% in the study of Marina et al.^{8,12} Given the small number of individuals in these studies and paucity of literature with conflicting results, more studies are needed to evaluate the influence of various factors on success rates of co-IVF.

Medical costs and insurance coverage are among the top reasons SSFCs decide not to pursue reproductive treatment.¹ SSFCs must think about the costs associated with buying, shipping, and storing sperm, along with hormone stimulation expenses. At Reproductive Medicine Associates of New York (RMANY),¹³ many SSFCs, along with single women and couples using donors, purchase sperm from California Cryobank (CCB)¹⁴ and other donor sperm banks. Purchasing and shipping one vial of donor sperm from CCB costs approximately \$1,500.00. For SSFCs who then decide to pursue IUI as their reproductive treatment, one cycle of treatment along with the monthly medications could cost \$750.00 to \$3,000.00. For SSFCs who choose to undergo IVF (or co-IVF) with a fresh embryo transfer, the IVF cycle itself costs between \$15,000.00 and \$20,000.00. Additionally, SSFCs may decide to have preimplantation genetic screening, raising the IVF cost to between \$20,000.00 and \$25,000.00. Some SSFCs acquire excess sperm for reasons including preserving sperm for potential future cycle treatment and to ensure that their children are biological siblings. These couples can spend an average of \$85.00/month on sperm storage, and these costs can be charged quarterly, semi-annually, or yearly depending on the facility. At RMANY, patients are charged \$500 for every 6 months of sperm storage.

Although cost remains a determining factor for many SSFCs, women must also balance their personal preferences and medical histories with the costs associated with the various treatment options. For example, although IUI may seem appealing from a financial standpoint, it is not necessarily most effective. In several studies, women must undergo several IUI cycles before achieving a pregnancy, and may end up ultimately finding success after IVF.^{4,8} Moreover, IUI does not allow both partners to biologically contribute to the same pregnancy like co-IVF does. As we will describe later, the potential for both women to be biological mothers to the same child is incredibly powerful and can provide psychological benefits to both the parents and their children.

Same-Sex Female Couples: Choosing a Donor

Regardless of treatment pathway, SSFCs must decide whether they will use a known or anonymous sperm donor during their cycle. Known donors can provide for the offspring medical opportunities (e.g., if the child would ever need a transplantation), practical advantages (the donor could function as an extra caregiver), and opportunities for the child to foster a relationship with the donor. Despite these advantages, anonymous sperm donation is far more commonly used, since designated donors may not be as well screened genetically, and complicated legal and social situations could arise if the expectations of all parties are not met.⁵ Some data have shown that SSFCs may be more inclined to choose an anonymous donor for familial protection (i.e., nonbiological mother, the child, and the donor), as well as to abstain from legal concerns such as the parental rights of the child, a heightened possibility when using a known donor.⁵ Whether couples decide to use known or anonymous sperm donors, sperm donor status has been shown to have

no impact on the quality of life or psychological adjustment of adolescents born to lesbian parents.^{5,15} As all SSFCs must decide on what type of sperm donor to use regardless of the treatment pathway they choose, these findings should help alleviate any concern that this decision will negatively impact the psychology of their children.

For SSFCs who choose to use an anonymous sperm donor, many treatment facilities will have a standard operating procedure in place to help patients navigate the selection process. According to the guidelines provided to couples by RMANY, donor sperm must be ordered from a New York State-licensed facility, and a list of such facilities are provided to couples during their consultation.¹³ SSFCs can then search the facilities online, where they will be able to access the catalogs and all required forms. Our center encourages couples to order at least one vial of donor sperm for each attempt, and our physicians recommend performing one insemination per cycle. SSFCs should also be aware that donor sperm can be ordered in one of two forms: IUI-ready (pre-washed samples) and/or ICI-ready (non-washed samples). Since RMANY washes the preservative from the sperm before insemination, RMANY recommends ordering ICI-ready sperm, as ordering pre-washed samples (IUI-ready) leads to additional costs.

Just as SSFCs must consider their own medical history when determining the best treatment strategy for conceiving, so must SSFCs consider the medical history of the potential sperm donor. If the partner undergoing treatment is cytomegalovirus (CMV)-negative, she should order CMV-negative sperm. Depending on the clinic's policy, exceptions to this recommendation may be made on a case-by-case basis. For women who are CMV-positive, the CMV status of the donor sperm is not relevant. Commonly, clinics recommend that women who are Rh negative choose an Rh-negative sperm donor. Rh-positive women can choose their sperm donor regardless of Rh status. Lastly, for women who have completed genetic carrier testing and learned they were positive for one or more mutations, it is recommended that they choose a donor that was screened and is negative for the same mutation(s). If the preferred donor sample was not previously tested, genetic counseling should be completed prior to the start of the treatment cycle. While there is often a good deal of focus based on the ethnic and educational background as well as the physical traits and characteristics of donors, careful consideration must also be given to choosing a donor whose medical and genetic history are compatible with that of the partner undergoing treatment to optimize the likelihood of achieving a healthy pregnancy.

Same-Sex Female Couples: Co-IVF

A co-IVF approach alleviates many of the biological and social obstacles confronted by SSFCs. By imparting a role for both partners, co-IVF presents SSFCs the opportunity to achieve a "shared biological motherhood."¹⁶ For couples in which both partners desire a biological relationship with their offspring but have different reproductive capabilities, co-IVF allows each partner to contribute in the way that is best for her

reproductive health and the health of her future child. Additionally, co-IVF can foster the choice that best fits each partner's preferred role as a parent (i.e., genetic contribution vs. carrying and delivering the pregnancy).

The ability to share biological ties with the child is one of the most widely discussed psychological benefits of co-IVF. According to a study conducted by Susan Pelka, maternal jealousy can be prominent among SSFCs.¹⁷ Co-IVF represents a way to mitigate any potential resentment if both partners desire to participate in the pregnancy and birthing process. Additionally, a shared experience can circumvent any uncertainties the child may have regarding the biological connectivity to his/her mothers.

However, some studies argue that the psychological benefits of co-IVF for SSFCs may be so strong that the desire to achieve equal biological ties with one's children can and should be considered a medical indication. De Wert et al suggest co-IVF could be considered to "enhance the reproductive health of the couple" even though critics believe it is a riskier and less cost-effective approach to conceiving a child.¹⁸ Regardless of the cost-effectiveness, a study published by Pennings argues DIUI is "not an alternative to IVF" when the desires of the couples are to both contribute biologically to the pregnancy.¹⁹ Pennings also compares the risks of IVF to DIUI and argues that "despite the fact that critics of co-IVF claim it to be a riskier procedure, the medical risk of co-IVF in reproductively healthy couples is nevertheless small."¹⁹ Therefore, given the relatively low risks and potentially large psychosocial benefits, co-IVF should be considered in SSFCs.

Same-Sex Female Couples: Parenthood

The psychological well-being and development of SSFCs's children is a vital aspect of parenthood. Overall, children raised by lesbian mothers have been shown to have psychological and behavioral development similar to children raised by heterosexual mothers. Additionally, the gender identity and gender preference of the offspring are not altered by whether the parents are a same-sex or heterosexual couple.²⁰ van Gelderen et al studied self-reports on quality of life from adolescents in lesbian-mother families and adolescents with heterosexual parents.²¹ In their study, they asked adolescents from both types of families about how they get along with their parents/guardians, whether they are looking forward to the future, feel lonely, feel good about themselves, feel satisfied with their life, and compared with others their age, and whether they feel their life is better or worse. The authors focused on overall quality of life as an outcome because it has been shown to play an important role in adolescents' overall adaptation and is related to affective, cognitive, and behavioral functioning in children and youths. The results of these self-reports showed no difference between the adolescents with lesbian parents and those with heterosexual parents in overall quality of life or in any of the quality-of-life items.²¹

Social acceptance remains an unfortunate challenge for women in SSFCs and their children. Forty-one percent of the

adolescents with lesbian mothers in the study of van Gelderen et al reported being treated unfairly as a result of having a lesbian mother. They reported a variety of forms of stigmatization, including being teased or ridiculed, excluded from activities, or stereotyped as different, and classmates were most often identified as the source of these experiences.²¹ Although this isolation may be prevalent in the lives of the SSFCs children, there has been a growing acceptance of LGBTQ families, as there has been a shift in the social and political outlook over the past few decades.²⁰ Moreover, the experiences of stigmatization did not appear to associate with a lower quality of life. This may be due to the close, positive relationships that these adolescents tend to have with their lesbian mothers, which several studies have demonstrated.²⁰⁻²²

Conclusion

SSFCs are increasingly seeking to understand parenting options and to become parents. Unfortunately, there are biological, medical, and social obstacles that exist which may preclude the process. Women in SSFCs not only struggle with their own fertility just as heterosexual women do, but they will also require sperm from a donor during treatment. While studies have shown the type of sperm donor (known vs. unknown donor) does not negatively impact the psychological adjustment or well-being of their children, choice of donor nevertheless remains one of many complex decisions SSFCs must make during their journey. Additionally, SSFCs must decide roles they will take during the pregnancy and as parents. These decisions can be emotionally and psychologically difficult, as many women strive for equal partnerships and parenting responsibilities. Some women even desire equal biological relationships with their children, an experience that only co-IVF can achieve. Co-IVF can also minimize the chances of maternal jealousy between SSFCs, and this psychological advantage is beneficial for both the parents and their offspring. More research still must be done on the pregnancy outcomes and long-term well-being of children born to co-IVF women, as these data could further support co-IVF as a biologically and psychologically advantageous choice for SSFCs.

Regardless of egg source, sperm source, and uterine source, SSFCs share the goal of having a healthy child. Health care providers caring for SSFCs must be as transparent and data-driven in their medical decision-making processes as they are with their infertile heterosexual couples and single mothers by choice. While there are additional costs for SSFCs (e.g., donor sperm purchase and shipping), there are also additional options for conceiving (more ovaries and uteri to choose from). No matter which pathway SSFCs choose for having a child, DIUI, IVF, co-IVF, and adoption are all great options as we help potential parents realize their family building goals and dreams.

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