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Matrix for understanding perinatal psychic processes mediated by assisted reproductive technology

Summary

This writing is the product of more than fifteen years of clinical work with patients who attend to medically assisted reproduction treatments, including our own clinical cases and those of other colleagues. Some of them compiled in the book "*Wishes, children, technologies*", others developed in writings of my authorship in recent years. This clinical material has allowed me to develop a matrix of understanding of the psychological processes that women undergo throughout reproductive treatments, which includes a series of losses that are added to the psychic processing that occurs in natural pregnancies. This general matrix serves as a compass to guide us around some common elements that usually appear in reproductive treatments that last years. Having an ethical horizon of promotion and protection of the right to mental health of women facing reproductive treatments, we propose an interdisciplinary approach to medically assisted reproduction processes with a privileged heeding to singularity.

Keywords: reproductive treatments, chemotherapy, radiotherapy, infertility

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Introduction

Throughout reproductive treatments, *cis*-hetero women go through a series of losses greater than pregnancies due to natural intercourse.[1] This is due to different factors: firstly, women[2] who resort to assisted human reproduction techniques usually do so because they encounter a problem when conceiving naturally. A problem that medically is usually called infertility or sterility with or without apparent cause. Secondly, nowadays the postponement of the parental project that leads to ovarian aging is more common and this is a usual cause of recurrent abortions. In this second case, it is not a pre-existing reproductive problem but rather a personal choice. Finally, we have the cases of people who face a family project alone and those homo-parental projects in which assisted reproduction technology (ART) is a necessary passage. In these cases, medically assisted reproduction techniques manage to intervene by generating a pregnancy that, due to the absence of any of the gametes, is structurally unviable. These latter cases may or may not involve reproductive pathologies in addition to the structural one.

In the case of sterility in a *cis*-hetero couple, the problem consists on the impossibility of the embryo implanting. This is, positive beta is not achieved, pregnancy does not occur. The causes of infertility may be linked to endocrine factors or hormonal alterations that persist over time. Some causes that may cause hormonal problems that affect the endocrine system of ovarian regulation are stress, obesity, anorexia, some thyroid problems, special medication, chemotherapy, radiotherapy, environmental factors, among others. At ovulation, the egg leaves the ovary and waits in the fallopian tubes to be fertilized by the sperm. After fertilization, the embryo moves through the tubes until it reaches the uterus, where it will implant and begin the pregnancy.

[1]We talk about losses because with this concept we encompass loss of pregnancy or spontaneous abortion, loss of reproductive capacity, loss of the parental project, loss of the ability to reproduce with one's own genetic material or loss of the ability to gestate.

[2]We are talking about women in general or we could say bodies with reproductive or pregnant capacity, knowing that there may be trans people with a male gender identity and a female anatomical body and who participate in reproductive processes for themselves or for third parties.

For all of this to be possible, at least one of the tubes, and preferably both, must be permeable and functional. If both tubes are obstructed, female sterility arises due to tubal factor.

Other causes of infertility in women are cervical factors. If there are alterations in the cervix due to polyps or fibroids, or alterations in the cervical mucus (such as inflammation, infections or pH changes), this will generate difficulties for the access of sperm to the fallopian tubes to fertilize the egg. Vaginal problems, such as vaginismus, prevent penetration and this also causes sterility. In the case of infertility, although fertilization occurs and the embryo resulting from the fusion is obtained, it does not develop completely so the pregnancy does not come to term. It is implanted but does not develop or it is lost. This problem involves spontaneous abortions that are more common in the first trimester. This may be due to genetic factors, ovarian aging, among other factors.

Both in cases of infertility and sterility, psychological factors play a central role. Emotions, sensations, traumatic situations, unhealthy family ties and negative feelings play a very important role in reproductive capacity. There are numerous cases that show cases diagnosed as sterility without apparent cause that after psychological treatment achieve pregnancy. The fertile period for women ranges from approximately 16 to 30-35 years. From this age onwards, a woman's fertility progressively declines until the ovarian reserve is completely depleted at menopause. Immune system disorders and autoimmune diseases can cause infertility or sterility in both men and women. These disorders are difficult to diagnose, but approximately 20% of cases of infertility of unknown origin are due to some type of immune disorder. Infertility of immunological origin has different ways of manifesting itself: it can destroy the gametes themselves, prevent embryo implantation or even cause repeated spontaneous abortions.

According to the World Health Organization (WHO), an abortion is defined as the spontaneous termination of pregnancy before the fetus is viable (weight less than 500 grams or week 20-22 of gestation). In addition, if we add the situation of "repetition", which means that 3 or more consecutive gestational losses have taken place before week 20, this in itself acts as a disruptive factor on an emotional level that can

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become more or less traumatic depending on personal, familiar and social factors that intervene.

Low and high complexity techniques and concomitant psychological factors

Assisted reproduction techniques are biotechnological interventions on bodies with capacity to gestate, that seek to repair or replace reproductive functions. These medical interventions on bodies have a greater or lower disruptive effect on those who are operated on. With the basis of current statistical studies, we refer to a characterization of the multiple disruptive transformations, which outline potential risk factors for the mental health of women undergoing reproductive treatments at different stages and with different psychological substrates. The Civil and Commercial Code[1] in Argentina has regulated a third filial source, derived from the use of AHRT, specifically and autonomously from the already known filiation by nature and filiation by adoption, in attention to the particularities and characteristics that the use of these techniques has (especially in the cases of heterologous techniques, this is, with the genetic contribution of a donor) and that have a direct impact on the filial field. The central element on which the determination of the filiation of those born using these techniques in Argentina is expressed through the procreational will. The informed consent used in ART must be current and contemporary and must be updated in each procedure.

This agreement embodied in the procreational will of the parents and the non-procreational will of the contributors of gametes or surrogate mothers allows the delimitation of obligations and duties of the parties, but it tells us nothing about the psychological dimension that accompanies interventions in the bodies. It is important, in this sense, to differentiate the free conscious will and the use of reason as a legal figure that guarantees informed consent, from the subjective dimension of the desire of a child that contains unconscious elements unknown to the subject of law himself. Thus, a woman can sign a consent for reproductive treatment but do not wish to have children for different reasons related to her own autobiography (Case E).[2]

Diagnosis of infertility

The diagnosis of infertility in a *cis*-hetero woman is in itself information with traumatic potential.[3] Women have been performed[4] through language and actions with feminine patterns that are repeated in a naturalized and unquestioned way throughout generations. These models link the feminine to the maternal. The social representations around the woman-mother has religious roots[5] and cultural roots that make them unquestionable. Songs, children's games and films[6] show us discourses and actions reiterated throughout childhood that perform women in the functions of care and mothering. This generates the assumption of an indissoluble alliance between gender and motherhood that enters on crisis with the diagnosis of infertility.

Medical proposal for donation of Gametes and concomitant psychic work

Egg donation is part of the wide range of biotechnological resources applied to human reproduction. The first egg donation dates to 1984, when Lutjen and his collaborators managed to carry out the first full-term pregnancy in a woman with ovarian failure who used a donated egg. This is a technique in which, due to problems linked to the production of eggs, genetic material from a third party outside the parental couple is used. Likewise, it is common to resort to egg donation due to postponement of motherhood in women who are facing their family project when their ovarian reserve is not good, or they have aged. There are, then, biological reasons added to social and cultural components, such as the labor insertion of women, the possibility of continuing their university studies or facing other personal projects. Added to this is the increase in life expectancy, which means that motherhood as a project is postponed. The very question of thinking about single parenthood as a family project results in a paradigm shift in the heteronormative family model, giving rise to a multiplicity of family formats, enabled and encouraged by biotechnology. Many women face a family project after the age of 35, as an individual project, which requires the contribution of female and male gametes. In some countries, the donation of eggs from family or friends is allowed and in others, oocyte extractions are carried out for their own and others' reproductive purposes, to lower the cost of their own treatment by "donating" them to others by Viera Cherro.[3]

In in-depth interviews with women who attend to egg donation and in workshops aimed for couples and/or women who resort to egg donation, [4]different fears appear:

a. Concerns regarding the physical similarity that the child will have with them
b. Concerns regarding questions that arise in the family or friend network due to the absence of physical resemblance.
c. Concerns regarding the maternity or paternity of the person who has been replaced in the provision of gametes by a donor, in cases of heterosexual couples.[7]
d. Concern about paternity claims by the donor
e. Concerns about the bond they will have with that child
f. Concerns about the possibility that the baby will inherit unwanted traits or diseases from the donor.
g. Concerns about the story of origins, and in the case of heteronormative couples, frequently, the concealment of them.[8]

All these fears imply the acceptance of different losses or narcissistic wounds that will be essential to process before the consummation of pregnancy and birth to improve the bond with the newborn. And as losses, they demand a grieving process.

Suspended duel. Embryo cryopreservation

Assisted reproduction techniques follow a path that goes from low to high complexity. In the first case, these are hormonal stimulations and the introduction of semen into the female body, while, in the second case, these involve interventions with sedation to extract genetic material from one's own or another body and the process of fusion of gametes are made outside the pregnant body. This gives a time gap that can range from five days without cryopreservation to more than twenty years with this technique. This period allows genetic diagnoses of the embryo to be carried out, opening possibilities for their selection, for medical or social reasons.

During the years 2016 to 2020, I accompanied Natacha Lima in her doctoral and postdoctoral thesis as director, with whom we addressed research on the representations of AHRT users of embryos. In 2018 we published progress of this research.[9] However, at that time I did not analysed the question of grief on embryos. During 2021, I had to supervise a judicial investigation into a case of cryopreserved

[3]In November 2023, an international symposium was held entitled: Medical interventions on pregnant bodies: abortion and surrogacy. Interdisciplinary and transnational dialogues. In which Mariana Viera Chero from Uruguay participated, commenting on this type of donation practice "forced for economic reasons"

[4]The workshops for AHRT users are a space offered by the Psychology School of the University of Buenos Aires in agreement with Centro Dos and are carried out in person and virtually as an extension program: https://www.psi.uba.ar/extension.php?var=extension/programas/ormart.php

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embryos that were stranded between frontiers due to the pandemic and thawed, which led me to resume these investigations. What is lost when an embryo is lost? The religious dimension in this case is of utmost importance, since, for some religions such as Catholicism, the embryo is human life. But in addition to the religious issue, for those who are looking for a pregnancy, the embryo is a hope, it is the long-awaited possibility of a child to come. Doctors often do not assess the impact that language has on the subjectivity of the parents; talking about "good or bad" embryos, from a medical point of view, does not consider the ordinary connotation of that term. A good embryo is referred to by patients as almost a child, a child in a dormant state, a child waiting to see the light. One patient referred to her cryopreserved embryo as the "eskimo" and another wondered if the embryo felt cold in the cryopreservation tank. That future child, which is then implanted and does not nest, is felt like a baby that was had and was lost. Sometimes years pass between cryopreservation of the embryo and its frustrated use. And that stopped time makes possible the deployment of hopeful fantasies or a future full of indefinite fears. During the pandemic in Argentina, the percentage of embryonic cryopreservation increased by 68%. For many couples, it was a way to use their savings on a future project. A project that is always uncertain and that does not have the assurance that a consumer good provides, but that is often libidinally invested as a future child. During the pandemic, I had to supervise an expert report in a case of psychological damage of a woman caused by the loss of her embryos at the frontier, due to the negligence of the transport company. What emotional value does the loss of an embryo have? Is it comparable to the loss of a child? And what trimester of pregnancy is the loss limited to? In this case, these embryos were the result of cryopreserved eggs; it had been twenty years since that woman's reproductive project had begun, mediated by biotechnology. Twenty years longing for her latent children, now lost.

Beyond the fact that science establishes medical criteria to talk about human life and religion has its own, what is at stake on the emotional level is the feeling of union with an object considered "part of me", "substitute", "offspring". In some cases, when pregnancy is achieved and embryos from the same "litter" remain, the mourning is not only for the future child, but also for their "little brothers" who are waiting for their chance to live. Couples who find themselves in this dilemma feel that medicine gave them a power that they did not ask for and were not looking for. "We only wanted one child… what do we do now with the others?" reported a couple who, after several attempts, had achieved a successful pregnancy, but still had two embryos. Given the financial difficulties they were experiencing at that time and the age of both, they decided to say goodbye and hold a funeral for the unimplanted embryos. Clearly, at this point the dimension of grief and loss are present, mourning family life. They created life and now "they had to let it go."

Embryonic duels are a direct product of biotechnological development. They are its side effects. The transition through these duels, as we will see later, is multi-caused and on a case-by-case basis, it is essential to listen carefully to know what hurts each subject.

Medical proposal for pregnancy by surrogacy and processing of losses

The highly complex technique that involves the greatest legal, psychological, and bioethical difficulty is, without a doubt, surrogacy. Three components necessarily intervene in this technique: the parents (who express their procreational will), the provider of the egg (who may or may not coincide with the parents), the provider of the uterus or pregnant woman (who expresses her non-procreational will).

In Argentina, surrogacy is carried out in fact, without legislation and based on prior jurisprudence in favor.[10] In the City of Buenos Aires, the registration of the clients as parents of the future child is permitted before the pregnancy occurs. This makes it possible to avoid a subsequent trial challenging maternity. After the pandemic and after the war in Ukraine, Argentina became one of the most requested reproductive tourism destinations, due to the low cost, the suitability of professionals and the legal vacuum.[5]

It is often said that motherhood involves genetic, biological and emotional elements, that in the case of surrogacy are fragmented. So, the egg donor provides her genetic material, the surrogate provides the biological dimension of the pregnancy, with its implications at an epigenetic level, and the parents express the will to develop an emotional and legal bond with that future child. However, this theoretical fragmentation is quite difficult to achieve in practice, especially in its affective dimension. How a woman or pregnant body (whatever gender) goes through pregnancy and throughout it libidinizes the fetus carried in her own belly, being extremely difficult to predict *a priori* her possibility of detaching herself from that baby when it is born. What representation do the children of the surrogate have when they see their mother pregnant with another baby, but who is not their brother? I will not develop the perspective of the donor or the surrogate at this point. In this writing I will focus on the clients, who can be a man, two men, a woman who does not have a uterus or who has passed the age of 52 (in Argentina it is the maximum age to conceive a pregnancy in one's own body), a single mother, straight, homo or transsexual woman. Surrogacy is for many women the last possibility of becoming mothers, when all other techniques have failed.

From the emotional point of view, the clients must process the losses indicated above, but other aspects are added to them:

a. Grief due to the impossibility of conceiving with one's own body (especially in women over 52 years of age).
b. Concern throughout pregnancy about the health of the pregnant woman and the care she takes in relation to her own body.
c. Concern about illnesses that the pregnant woman could suffer.
d. Concern about the pregnant woman's diet and the health conditions of her home.
e. Concern about fetal diseases during pregnancy
f. Concern about the refusal to give the child up for adoption, even if there is a legal contract that provides sanctions to the parties for non-compliance.
g. Concern that the surrogate mother will choose not to carry the pregnancy to term and decide to abort. Abortion is enabled in Argentina until the 14th week of pregnancy (Law No. 27,610/21 - Access to Voluntary Interruption of Pregnancy (IVE),[11] obligation to provide comprehensive and free coverage.

All these elements added to the previous ones imply requirements for psychic processing of losses and grief due to different dimensions of motherhood that cannot be fully consummated.

Methodology

As we explained previously, there are numerous biological causes of infertility and sterility, but there are also components that we could call socio-cultural that are linked to the organic dimension. Humans

[5]You can read a journalistic note about it at: https://www.eldiarioar.com/sociedad/vacio-legal-tipo-cambio-favorable-argentina-destino-maternidad-subrogada_1_10736763.html?fbclid=PAAaZUJFOvD1i94IYD4N1yPMu_WOx3dpRNnXRncF5VaTzdTkYM6d1pXAtXt Ik

are complex beings in which the genetic, the epigenetic, the social, the cultural, the linguistic, the representational and the singular dimension are intertwined in an absolutely different way. In this sense, we can make descriptions of human phenomena from a general or statistical perspective knowing that said approach is always inconclusive and contingent on each subject. For this reason, as we address different topics, we will make unique exemplifications of documented clinical cases.[5] We will use a casustry of cisgender female patients affected in different ways by assisted reproduction techniques who have gone through grief at different times in their lives. To do this, we developed a multivariate analysis model.[6] The epistemology of complexity by Edgar Morín[12] serves as an approach model, together with the proposal of complementary series[13] of psychoanalysis enables us to think of these phenomena as multicausal events.

Discussion

The preceding matrixes allow us to make visible a series of losses (Figure 1) that may or may not affect women undergoing reproductive treatments. While in Figure 2 we can observe the multicausal nature of the dimensions that are intertwined in different ways throughout the menstrual cycles and the losses that occur between one treatment cycle and another. We call environment, in this case, to the psychosocial dimension of women who attend to biotechnology to achieve their own reproductive project and who find themselves in a context that can be facilitating or disruptive to consummate the said project. The context or environment has different dimensions:

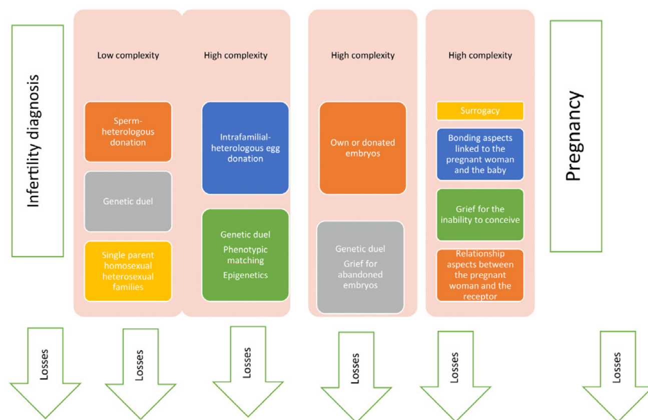

Figure 1 Own elaboration.

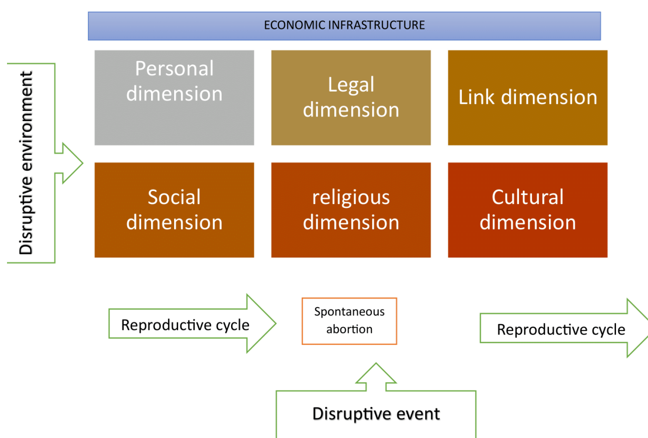

Figure 2 Own elaboration.

The personal dimension that includes the personality characteristics and ego abilities to cope with difficulties or resilience of the woman undergoing reproductive treatment.

The bonding dimension includes the primary bonds that can function as a network or support for the woman, be absent or be adverse to reproductive treatment.

The social dimension that includes secondary ties: work, neighbourhood or community. Here we also locate the social networks that are of utmost importance in the case of ART.[6] The religious dimension that has to do with beliefs about life and the beginning of it.[14] Infertility is conceived as a divine punishment in the Bible. Fertility is an attribute of female deities in different cults. Myths and beliefs that have been sustained throughout the centuries and that today reappear in virtual communities as pleas to healing fathers. The cultural dimension that has to do with the social representations of the culture in which women find themselves. Here we also include the cultural achievements (biotechnology) that we have as a society. Patriarchy as a social phenomenon of development of certain power asymmetries is a cultural context that must be taken into account as a background for the development of biotechnologies that medicalize and intervene in reproductive bodies.

Legal dimension: in the field of ART, the legal aspect changes from one country to another and this leads to different access possibilities. At the same time, these different legislations involve reproductive tourism and transportation (exports and imports of human products (eggs, semen, breast milk) between countries and continents. For example, a woman may have few subjective resources to face a disruptive event but she may have a partner who supports and accompanies her (bonding dimension), a group of people who share her reproductive difficulty with whom she participates in workshops (social dimension), religious beliefs that sustain her in the community through prayer and support, and she may be living in a culture that welcomes the growing female empowerment in terms of reproductive rights. These factors enhance the ability to cope with disruptive events.

The economic infrastructure sets up the conditions that make the access to reproductive techniques possible. Although in Argentina they have a legal framework (legal dimension) that provides medical coverage through social work and prepaid medicine, there is a large portion of the population that is under the line of poverty and cannot access these techniques. We call disruptive events what we had defined as successive losses that women suffer during their reproductive journey. The longer they are resorting to attend to reproductive treatments, the more disruptive events they will go through and the greater amount of psychosocial support they will require. Likewise, exposure to continuous disruptive events weakens ego defences and the ability to cope with these situations. The passage of time in adverse conditions leads to a greater influence of the decreasing environment. Relationships that were solid at first begin to deteriorate and what was experienced as support from family and friends is becoming a demand. The duels of the ancestors are reissued in the duels that women and couples face in the ART.[15]

Conclusion

From the theoretical framework of psychoanalysis, in every pregnancy there are two types of losses: narcissistic and oedipal.[16] Narcissistic losses are linked to the value of the child as an extension of oneself and the differences between the expected/longed-for child and the real child. It is always about housing the difference, the incalculable. The Oedipal losses linked to the value of the child as a

[6]Presented at the Second Congress of Perinatal Psychology of the University of Mar del Plata as a guest panelist.

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gift from the father[17] collide with disagreements with parental figures, rivalries and claims for what could not be.

As a woman undergoes reproductive treatments, the desire to start a family and have children increases and becomes idealized. From the point of view of psychoanalysis, he idealization of the grieving object (call it a child or family) constitutes an obstacle in the process of libidinal disinvestment.[18] We call libidinal disinvestment to the process of removing the libido from the object (which in this case is the child or the family) and being able to use that psychic energy for other purposes. These duels are sustained for years in the techniques and generate in their users the feeling that life itself is paused. The other "plans or projects" depend on what happens in the treatment.

Likewise, Freud[18] links reproduction to the human desire to transcend one's own finitude in a narcissistic aspect. Seeing myself reflected in my son or daughter, knowing that I continue to live in my progeny. This narcissistic aspect is strongly affected by the use of genetic material from third parties, since phenotypic traits are compromised. Biotechnology offers certain safeguards through the promise of epigenetics and the phenotypic matching calculation to continue "guaranteeing" resemblance.[19]

Any psychological approach in the field of ART requires in-depth training in psychology that contemplates the different dimensions involved and the openness to an interdisciplinary dialogue immediately with the medical and legal discourse.[20] But psychology has a feature that differentiates it from other disciplines; in its clinical aspect, listening to what is unique to that subject is essential. What do you project about your family in that new family you want to form? How to be a mother different from your own? What intergenerational secrets are experienced in the silenced origins of children conceived by these techniques?[21] What family destinies are repeated in these living and dead embryos? The singular dimension cannot be trapped in the sieve of statistics or theoretical models. However, having this general knowledge allows us to listen competently and individually. Having training in the psychological clinic of infertility is necessary knowledge, but not sufficient. The dimension of multiple griefs that biotechnology opens is a scenario to be inhabited in multiple clinical ways. It is essential to know the traumatogenic value of disruptive events aggravated by disruptive environments, knowing that this generates devastating effects for the immune and endocrine system. The bio-psycho-social complexity of the human being is an ethical horizon that we cannot lose sight of. Assisted human reproduction techniques are biotechnological efforts that must be accompanied by comprehensive and ethical approaches to health.[22,23]

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None.

Conflicts of interest

There is no Conflicts of interest.

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