

Review Article

Assisted Reproduction Techniques: New Children, New Families

Pier Luigi Righetti^{1*}, Maria Cinzia Zampieri², Rosanna Ciampa³, Andrea Baffoni⁴, Benazzi Francesco⁴, and Salemi Michelangelo⁴

¹Department of Maternal and Childhood, IUSVE University, Italy

²Department of Obstetrics and Gynecology, Mirano Hospital, Italy

³Department of Psychology, University of Padua, Italy

⁴Department of Pathophysiology of Human Reproduction, Conegliano Veneto Hospital (TV), Italy

***Corresponding author**

Pier Luigi Righetti, Maternal and Childhood Department, IUSVE University, Italy, Email: pl.righetti@libero.it

Submitted: 26 July 2016

Accepted: 16 November 2016

Published: 18 November 2016

Copyright

© 2016 Righetti et al.

OPEN ACCESS**Keywords**

- ART: Assisted Reproduction Techniques
- Parenthood
- Motherhood
- Fatherhood
- Family
- Heterologous fertilization
- Homologous fertilization

Abstract

In recent years the desire of “having a child” seems to be the result of a more conscious choice of the couple approaching the path to parenthood. But sometimes, the desire to become parents isn't realized that quickly and for this reason new technologies are increasingly making their own way, in particular the Assisted Reproduction Techniques (ART).

Parenthood comes from the individual wish of the man and the woman to have a child, and this situation leads them to wonder how to become parents, developing from a common way to the hard stage of motherhood and fatherhood, expressed through the parental relationship with the child.

In this paper we are dealing with parenthood and childhood related to ART; we have drawn epidemiological aspects from the literature covering ART and from Italian data, too. Moreover, we subsequently have analyzed the “ART-couples”, with everything concerning their living experience, and the “ART-children”, in relation to their characteristics.

INTRODUCTION

During last year's it's been noticed that Biotechnologies are used more often than before when comes to procreation, especially with Assisted Reproduction Techniques (ART). In this article we will try to understand how ART enters in the lives of the parents-to-be and the future children and in the formation of these new families.

Starting from some theoretical concepts in relation to parenthood, through the meaning of motherhood, Parenthood and Relationship and taking into account the theories of some authors, then we will try to understand how the ART will be considered and lived by the couple that looks to this path.

We will also investigate the epidemiology of ART based on Italian data regarding such event; we will consider what “ART-couple” is and what are the experiences coming along it, analyzing the characteristics belonging to the “ART-child” and then we will make our conclusions.

Parenthood: motherhood, fatherhood, relationship

What does talking about family mean nowadays? “Family

today recalls undoubtedly something that requires a kept word's bravery” [1]. The love of a couple (first) and a family (after) “is not only pleasure, desire, emotion, passion, but it is also commitment, oath, promise. It mustn't «think of it forever only», but it must «commit for it forever». It's a project to build something going to last” [2]. The project of love, which can lead then to a family, is given by the union of «body» and «spirit», Eros and Agape. Eros and Agape, in fact, have to be lived together in the merger of Love.

As claimed by Bertolini [3]: “it's the authentic way to relate with each other: it is the ability to access and understand the other person through the spiritual attitude which Husserl calls [...] *Einfühlung* and which Ricoeur has translated very well with *empathy* [...]. This spiritual attitude that allows you to penetrate the other's own intimate experience is not an intellectual input, but is rather a sympathetic way to feel with the other which requires, so to speak, a very personal effort because it means for each one to see in the other person what he would be if he was in his shoes. Through *einfühlung* the ego knows that it owns an exteriority to the other, to be another for it just as he heard that there was *empathy*, in the body that was offered to his eyes, and a psychic sphere different from his one. And 'only in this

reciprocity I am what I am for the other and the other is himself for me. Moreover, feeling the other's body and my body felt by the other, mutual relationships can happen, real communications of me with the other. For this very reason people can enrich with mutual experiences" [3].

Based on these considerations, we can say that Eros and Agape, Enteropathy and Relationship are, in our opinion, the basis on which you can build the projects of parenthood: the decision of having a child always gives the impression of progress made by the couple, which, after the challenge of cohabitation, the stability of the union, is preparing to face a second test: having a baby [4].

Wishing to have a child is therefore an evolutionary event that brings the man and the woman - in their individuality - to wonder about becoming parents, from an individual desire we get to the recognition of a couple desire that enables to identify a common field to maternity and paternity that will develop in different but complementary ways merging into the larger concept of parenthood. This concept has evolved over time and today we can say that parenthood is seen as a fundamental part of the personality of each, it's a psychodynamic space that begins to form in childhood, when we gradually internalize the behaviors, verbal and non-verbal messages, expectations, desires, and fantasies of our parents. Following the words of one of the pioneers of this concept, Berne [5], we can say that we have an «Inner Parent» which consists of all the real or imaginary interactions with the significant adult figure who dealt with us. We can also say that our judgments' about ourselves and our ways to relate with people depend from this «Inner Parent». Even attachment theories are on this line. The construct of the Internal Working Model redefines the concept with other words: real-life experiences with attachment figures are internalized in mental models [6].

The term Parenthood does not involve being real parents, but rather is considered an autonomous psychodynamic space that is part of the development of every person, although, of course, the real event of the birth of a child activates in a particular way and intensively this mental and relational space, putting into circulation a series of thoughts and fantasies related to their being children, to most appropriate relational methods. Moreover, within this mental and relational space converge my emotional story, my world of affections, my bonds of attachment, my fantasy world, my narcissism, a sense that my life has for me, my being part of a story, my sexual differentiation, my ability to live multi-dynamic relations (and not being locked in a dual relationship), my relationship with the rules and the social, my ability to contain and regulate my emotional states, my ability to change and being changed, my being one and only, autonomous and independent and at the same time needed to be thought by someone.

Parenthood is protective, emotional, normative, regulative, predictive, representative, meaningful, imaginative, projective, differential, triadic, trans generational [24,6-8-11,12].

Parenthood is also a process that consists of several functions, among which are: the recognition of his own need to have someone to care, the need to recognize the signs of the other and also the ability to project one's experiences in the child in the absence of signals with the risk of making mistakes, having the

power to understand what's on the other's mind, the futurisation, the distinction between fantasy and reality, the ability to attach, establishing a closeness and a relationship, then being protected and protecting, capturing the state of mind of the other, grasping the subjectivity of the other, the realization of the change of the other, the challenge of accepting the other.

We can therefore say that "A child, in fact, can only be born when he finds a place to live in the mental space of his parents" [13].

Moreover, talking about parenthood and desire for parenthood (rather than the desire for maternity and paternity) is not a semantic subtlety but the ability to move in a broader context, dynamic and comprehensive considering the difference between men and women as a source of enrichment and development.

During pregnancy many changes occur due to the process of maternity and maternal too: for Racamier (1961), the first term defines the biological changes of pregnancy, while the second term defines the mental processing of these changes, through which the woman places them among the evolutionary processes of her personality; motherhood [14-18] is a fundamental process that allows not to underestimate the psychological preparation for such an important event.

At the same time, we can say that even the expectant father is experiencing changes that not only affect the social environment (being a father), but also the intrapsychic (feeling father), "feeling like a father" refers to the perception of emotional fatherhood: the right to build an image of himself as a father, as a child and as the future child is therefore the result of an evolutionary and challenging process that, being parallel to the maternal female, can be described as fatherhood.

We can therefore take a substantial parallelism between the experiences of motherhood and paternalistic in relation to personal history, but the lack of a "direct contact" makes fatherhood a slower process, which grows along with the child, following a line that is not straight but "sine" being determined by the continuous need to adapt quickly to internal and external reality (Di Cagno, et al., 1993).

More simply we might say: motherhood + fatherhood = parenthood. Maternal and paternalistic, in the phenomenological sense, are two dynamic and evolutionary processes that find their expression in parenthood; these processes occur in an objective (physical relationship with the child) and in a fantasy way (representational relationship with the child). In the parental relationship with the child bidirectional bonds and contacts are set, seen only when expressed in maternal and paternal parenting.

"[...] Psychology studies how to make the contact boundary in the organism / environment field [...] We call Self the complex system of contacts necessary for adaptation in a difficult field" [18]. In Gestalt therapy the self is conceived as an experiential event and mediation between the body and the environment: in this sense we are not only ourselves but also the phenomenon that we are living [19].

The self is the principal agent of growth and development,

is an experiential event that takes place in the relationship - the integration - of the organism with the environment. In these terms, human development proceeds through relationships: from "we" relationships to "me-you" ones.

Considering the self in half way between the body and the environment means giving it a epistemological, semantic, experiential and relational place: the experience of self is relational experience, as well as the making of the self is to make experiences and relationships. If, in these terms, the self is experience, relationship and contact, then parenthood is given by an intertwining relationship of the self of the mother (motherhood), the self of the father (fatherhood) and the self of the child. The shaping of parenting can be read and analyzed in terms of its relationship and contact. The contact is the experience and experience sets up at the "contact boundary" between organism and environment, a sort of dividing line - always dynamic, not static - between the body and the environment in which the interaction takes place.

And since the first months of life - and even before the prenatal period - the child knows the world and its relational environment through continuous contacts between organism / environment (which are called Gestalt Cycle of Contact), learns and takes part to the shaping of parenthood through relationships.

The child is then in the environment and becomes relational. Therefore, we speak of development and growth of self giving it a relational meaning, that is to say that what is developing is not "just" the child but it's a child inside a relational context.

Medically Assisted Procreation and Parenthood

In recent years we are experiencing an increased use of biotechnologies in Procreation and, consequently, an increased number of ART-born children.

There are doubts and prejudices about the growth of these children, as well as about the development of parenthood of those couples approaching this kind of path. Also, the lack of observational longitudinal studies about this event represents a limit.

Sterility as biological limit may have some psychological aspects, such as a perceived attack on self-esteem, an self-destructive image, locked imaginary life of the couple, a feeling of loss. In addition, the recourse to ART dips into physiological components against psychological ones.

There are various techniques and different levels in ART path that are more or less invasive for the couple (and in particular for women) and from a straight medical, surgical, pharmacological and psychological-emotional point of view: techniques where the goal is to overcome infertility looking directly into a conception in the female organism, or in the laboratory with homologous or heterologous methods. Several authors have focused their studies on homologous and heterologous ART-born children. In particular, we can mention the studies of Golombok and associates (1996, 2002) and of La Sala and associates (1999).

Epidemiology on ART: the Italian data

Tables (1-5) below show the main epidemiological data referring to the ART situation in Italy.

ART-couples

What experiences does a ART-couple have? (Tables (6-8) below represent the situation of couples undergoing ART in Italy).

Infertile man and woman lack "evolubility" (the so-called "evolutionary event") not only physically but also psychologically, this "lack" may in fact affect the psychological well-being and balance leading to psychopathology.

It's important to note that the infertility diagnosis can paralyze the inner imaginary life and lead to a temporary failure of the "maternal constellation and "parental constellation".

Infertility is thus seen as the most disturbing experience of life of couples who undergo ART, and although there aren't important psychopathological features, these couples are those who have more emotional distress, anxiety, depression, low self-esteem. Even the repetition of cycles and ART attempts interrelate with psychological experience.

Some care and clinical symptomatology, the result of the experience in psychological interviews with infertile couples undergoing ART protocols, leads us to believe that these couples are living a kind of an emotional and strongly related to the result "short-circuit".

It's clear that a psychological support for the "ART-couples" is important in order to reduce any anxieties and experiential backgrounds that occur in the relationship between the "medical" and "psyche" from the diagnostic phase to the achievement of the result.

The path for the ART-couple goes across parenthood, starting from the individuality of women and men, through an evolutionary process that is realized thanks to the ART procedures, giving the chance to have a baby, representing in this case the aim of the course taken.

ART-child:

Who is the ART-child anyway?

Very little is said in the psychological literature on about ART born babies: surely the most interesting investigations have been proposed by the group of La Sala and associates (1999) in Reggio Emilia (Italy) who took care of the families resorted to homologous fertilization, and Golombok and associates (2002) in Italy, Spain, Holland, Britain who have dealt with families resorted to homologous and heterologous fertilization.

The results of these studies - compared with families and children born by natural reproduction - carry some interesting reflections.

Table 1: General data of ART in Italy (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA. 2011; <http://www.iss.it/rpma/>).

20-30% of infertile couples in Italy
50% of Italian couples that would go abroad for ART
3 of 10 children born in Italy by ART
Italy is the first country in Europe for "reproductive tourism": 1 of 3 couples seeking help in a foreign country to have a child is Italian. It is estimated that about 25,000 Italian couples a year "migrates" in European ART centers

Table 2: General data of ART in Italy (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

Treated couplet	2005	2006	2007	2008	2009	2010	2011
N° of treated couples (°)	46.519	52.206	55.437	59.174	63.840	69.797	73.570
N° of born alive	4.940	7.507	9.137	10.212	10.819	12.506	11.933

(°) from 2005 to 2011 treated couples are increase of 30%

Table 3: General data of ART in Italy (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

Year 2008 (out of 10.212 born alive)	Sole	Twins	Triplets or more
Birth kind	75 %	21 %	2,7 %
Underweight	6,2 %	54,5 %	95 %
Pre-term	7,8 %	54,3 %	95 %

Table 4: General data of ART in Italy (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

ART centers	Private	Public	NHS Private	Total
Centers ART	214	117	26	357

Table 5: The profile of the ART couples (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

Place of residence of ART couples	%
North west	19,7
North east	24,7
Center	25,6
South and islands	30,00
Total	100,0

1) In the case of families resorted to homologous fertilization:

- For parents: emotions reported by mothers are similar. there is affection, emotional involvement, interaction with children, perhaps a greater concern and protection;

- As far as children are concerned: there is an advance in some stages of growth (language, self -walk), and affection, warmth, pleasure of time spent with parents, emotional and relational aspects are similar.

2) In the case of families resorted to heterologous fertilization:

- For parents, there is a greater emotional involvement and interaction with children by fathers and more pleasure of motherhood by mothers;

- As for the children: the results are similar to children born from homologous fertilization.

As regards the question of conception, the parents resorted to homologous fertilization, the birth corresponds to conception, in fact we can see the event of “fecundation” as a sort of a “first birth” after a long “mental pregnancy”. For heterologous fertilization parents, however, there is a secret about conception, because none of the parents reveals to the child the existence of a donor who has made the conception possible.

Moreover, the results confirm that the “ART-child” sleep is normal, so also the diet and weaning. The achievement of verbal skills and the walkway are normal and there aren’t neurological

and neurosensory problems, psychological development during the first 8 years of age is normal, as well as growth. The experience of parenthood is normal.

Therefore we can say that overall the picture that emerges is of children growing up like any other.

At this point it is necessary to note about the fact that if (at present) the psychological literature does not report worrying data on ART-child and ART-parents, are often of scientific data show that instead of worrying about medical aspects and health of both ART-child and ART-parents. Here in particular the results of two meta-analysis:

- IVF singletons are at significantly increased risk of PTB, LBW, VLBW, IUGR, shorter mean gestations and lower birth weights compared to spontaneously conceived singletons, after matching or controlling for maternal age at least. All couples considering IVF should be counseled about the increased perinatal risks so that they are truly informed when they consent for the procedures [20].

- IVF twins are at significantly increased risks of PTB (both <37 weeks, and <32–33 weeks), LBW, and lower mean birth weight compared to spontaneously-conceived twins after matching or controlling for at least maternal age and often many other factors. The number of twins, both monochorionic and dichorionic, are increasing in part due to IVF, and increased risks of poor perinatal outcomes in IVF twins exist despite the fact that their outcomes should in theory be better due to the generally lower proportion of monochorionic twins compared to spontaneously-conceived twins. Thorough counselling of all couples considering IVF and its risks is very important [21].

Even though the discrepancy in the results of studies on ART makes us think whether or not to believe that the ART is not dangerous or a dangerous technique.

CONCLUSIONS

From what emerges from the literature and data available to us, we can say that the treatment of Assisted Reproduction

Table 6: Age of Italian woman and man (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

Age	2005	2011
Woman age	33,8 anni	36,1 anni
Man age	34,7 anni	37,7 anni
in 1 out 4 cycles the patient is more than 40 years old		

Table 7: The profile of the ART couples (data collected by Istituto Superiore di Sanità – Registro Nazionale PMA, 2011; <http://www.iss.it/rpma/>).

Kinds of couples	%
Married couples	87,0
Cohabiting couples	13,0
Total	100,00

Table 8: To live ART (Fonte: Censis-Serono, 2008).

Experiencing ART	%					
Age	Up to 31	32-34	35-36	37-39	+40	Totale
We are aware of a possible insuccess	90,5	86,2	87	88,9	88,7	88,2
ART is the foregone conclusion of our situation	73,3	75	83,5	77,8	76,3	77,3
Facing together the problem has strengthen our relationship	74,3	75	83,5	76,2	77,3	77,3
We are convinced we will have a baby	77,1	70,7	73	72,2	59,8	70,8
This problem is nagging, sometimes we don't think about anything else but it	45,7	46,6	46,1	42,1	39,2	44
The therapy has changed our sexual relationships	27,6	25	29,6	31,7	29,9	28,8
The choice to try ART was hard to take	16,2	30,2	28,7	26,2	34	27
We fear our relationship may fester without a baby	12,4	10,3	8,7	4,8	11,3	9,3
Therapy needs are undermining our couple relation	8,6	7,8	14,8	7,9	7,2	9,3

Techniques does not interfere with the taking of parental functions. We can also say that such treatment leads to a strengthening of the pair and greater awareness. Also in this type of route shows a greater importance of the relationship.

The absence of a genetic link between parent and child does not seem to interfere with family functioning. In this respect we can therefore think that the ART treatment can lead to a good relationship between parents and child, and this gives us hope for the development of a peaceful emotional climate of the new family.

It's still important the possibility of an integrated psychological support (medical and psychological) for the most difficult times in order to facilitate and accompany the process of being parents [22-24].

In this regard, José Miguel Mayorga dealt with this issue in his speech "Information needs of infertile couples: a qualitative investigation" at the II Conference on "Assisted Reproduction Techniques and the Italian National Registry" [24].

"The survey of couples who have begun the process of assisted reproduction has revealed, in addition to the need of information, a necessity of psychological support too. The groups interviewed identified three different forms of support:

qualified psychological support, support offered by the operator that follows the path of ART and the peer support offered by other couples who have already lived or are living the same experience. For participants qualified psychological support should be offered to all as part of the route, leaving to the couple the decision to apply for it or continue to use it. Associations and health professionals are, however, noted how difficult it is to get a commitment of couples when visiting the psychologist, a professional too often still linked in the perception of people to the care of mental health problems. The psychologist should be an integral part of the route as a member of the team that meets and interacts with couples. Health professional is expected to give a less structured support: we are referring to welcome, listening, empathy.

Great emphasis is given instead to the importance of peer support pairs. It's a Support that comes from the encounter with others, from the discussion, comparison and sharing of experiences. Many couples have, in fact, highlighted the strong sense of loneliness of couples who are about to face the path of medically assisted procreation".

REFERENCES

1. Cian L. Cammino verso la maturità e l'armonia, Torino: Elle Di Ci. 1989.
2. Alberoni F, Ti amo, Milano: Rizzoli. 1996.

3. Bertolini P. L'esistere pedagogico. Ragioni e limiti di una pedagogia come scienza fenomenologicamente fondata, Firenze: La Nuova Italia. 1988.
4. Righetti PL, Sette L. Non c'è due senza tre. Le emozioni dell'attesa dalla genitorialità alla prenatalità, Torino: Bollati Boringhieri. 2000.
5. Berne E. Analisi transazionale e psicoterapia, Roma: Astrolabio. 1971: 252.
6. Stern DN. La costellazione materna, Torino: Bollati Boringhieri. 1997.
7. Brazelton B, Greenspan S. I bisogni irrinunciabili dei bambini, Milano: Cortina. 2001.
8. Erikson EH. Infanzia e società, Roma: Armando. 1966.
9. Fava Vizziello G. Psicopatologia dello sviluppo, Bologna: Il Mulino. 2003.
10. Fivaz-Depeursinge E, Carboz-Warnery A. Il triangolo primario, Milano: Cortina. 2000.
11. Manzano J, Palacio Espasa F, Zilkha N. Scenari della genitorialità, Milano: Cortina. 2001.
12. Stern DN. Il mondo interpersonale del bambino, Torino: Bollati Boringhieri. 1987; 309.
13. Cardinali F, Guidi G. La coppia in crisi di gravidanza. Sulla necessità di ripensare l'intervento istituzionale, *Terapia Familiare*, n° 38. 1992.
14. Righetti PL, Luisi S. La procreazione assistita, Torino: Bollati Boringhieri. 2007.
15. Righetti PL, Mione M. Toward a Concept of Prenatal Self in Gestalt Therapy, *Gestalt Review*. 2007; 11: 136-143.
16. Righetti PL. Ogni bambino merita un romanzo. Lo sviluppo del sé dall'esperienza prenatale ai primi tre anni di vita, Roma: Carocci Editore. 2005.
17. Righetti P. (eds), *Psicoterapia della Gestalt*, Padova: UPSEL. 2005.
18. Perls F, Hefferline RF, Goodman P. Teoria e pratica della terapia della gestalt, Roma: Astrolabio. 1997.
19. Spagnuolo Lobb M. The theory of self in Gestalt Therapy: a restatement of some aspect, *Gestalt Review*. 2001; 5: 276-288.
20. McDonald SD, Han Z, Mulla S, Murphy KE, Beyene J, Ohlsson A. on behalf of the Knowledge Synthesis Group, Preterm birth and low birth weight among in vitro fertilization singletons: A systematic review and meta-analyses. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2009; 146: 138-148.
21. McDonald SD, Han Z, Mulla S, Ohlsson A, Beyene J, Murphy KE. On behalf of the Knowledge Synthesis Group, Preterm birth and low birth weight among in vitro fertilization twins: A systematic review and meta-analyses. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2010; 148: 105-113.
22. Casadei D, Righetti PL. (eds), *L'intervento psicologico in ginecologia*, Roma: Edizioni Scientifiche Ma. Gi. 2007.
23. Righetti PL, Galluzzi M, Maggino T, Baffoni A, Azzena A. La coppia di fronte la Procreazione Medicalmente Assistita, Milano: Franco Angeli. 2009; 144.
24. Bowlby J. Costruzione e rottura dei legami affettivi, Milano: Cortina. 1982.

Cite this article

Righetti PL, Zampieri MC, Ciampa R, Baffoni A, Francesco B, et al. (2016) Assisted Reproduction Techniques: New Children, New Families. *JSM Invitro Fertil* 1(1): 1005.