

Assisted Reproductive Technology: Psychological Effects on Offspring

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Full Text: Headnote ABSTRACT: This paper will briefly describe the Assisted Reproductive Technology (ART) techniques used currently, study the psychological impact of ART on the offspring, and consider ways in which more consciousness can be brought to artificial conception. INTRODUCTION Today, a growing number of couples diagnosed with infertility make use of an array of technologies to help them overcome their difficulties in conceiving and pursuing their dreams of creating a family. Different studies show (Malin, 2001; McMahon, 1999) that these technologies have an impact on the couple and more specifically on a woman's emotional and physical well being. Clinical, anecdotal, and experimental evidence in the field of prenatal and perinatal psychology shows that babies are conscious in the womb and that the child's physical, emotional and mental development is directly impacted by the psychology of the mother during the prenatal period (Verny, 1981; Chamberlain, 1988; Castellino, 1995). Based on this information one must ask the following question: What is the psychological impact on the babies conceived using Artificial Reproductive Technologies (ART)? In Vitro Fertilization (IVF) and Related Technologies IVF involves inducing ovulation with fertility drugs for the first ten to twelve days of a woman's cycle and then, using the guidance of ultrasound, retrieving these eggs, fertilizing them with the chosen sperm in a sterile dish, incubating them under laboratory conditions for two to three days, and then transferring viable embryos back into the woman with the hope of a successful pregnancy and birth. Since not all embryos successfully implant, multiple embryos are transferred in the hopes of obtaining one live birth, with the consequence that multiple births are always a possibility (London, 2001, chapter 4, online). Other techniques include Washed Intrauterine Insemination (IUI) or what was previously called Artificial Insemination (AI); Gamete IntraFallopian Transfer (GIFT), which involves the same procedure as IVF, but implants the egg and sperm in the woman's fallopian tube for natural fertilization; Zygote Intra-Fallopian Transfer (ZIFT) involves the transfer of a zygote, (the cell formed by the union of two gametes). Intra-Cytoplasmic Sperm Injection (ICSI) is a procedure that directly introduces an individual sperm into each of the eggs utilized in an IVF attempt. The Frozen Embryo Transfer (FET) involves the transfer of previously fertilized and subsequently frozen embryos. The IVF donorocyte program follows the procedure for IVF but uses an egg donated by a younger woman; and the FVF surrogacy program that employs the use of a third party, "gestational surrogate," and is used when a woman cannot carry her own baby. In IVF surrogacy the child bears 100% genetic identity with the couple, as opposed to 50% genetic identity in conventional surrogacy. Finally, the Blastocyst Transfer Process (BTP) which is one the latest fertility advances and involves letting the embryo grow until the fifth day, when it reaches the blastocyst stage of development because the blastocyst has a higher chance of implantation, and for this reason the amount of blastocyst transferred is normally two, which decreases the possibilities of multiple pregnancies. It is important to take into account that even with the use of this astonishing technology, a woman who chooses IVF has at best about a 20 percent chance of a successful pregnancy in a given cycle. The cost per cycle is about \$10,000, and she may need to undergo treatment for several cycles. Another fact to take into account is that insurance coverage is poor or nonexistent (London, 2001). Current Research on Assisted Reproductive Technologies Being conceived by a couple making love or being conceived through one of the above-discussed procedures are drastically different ways of entering the world. This compels the authors to hypothesize that the use of ART might have an effect on the psychology of the offspring. Interestingly, the studies found for this topic suggest that babies born by ART do equally well or even better than children born naturally on many parameters like bonding and attachment, emotions, behavior, self-esteem, or perceptions of

family relationship. Several of these studies are discussed below.

Figure 1

A.R.T. Procedures

<i>ABREVIATION</i>	<i>NAME OF PROCEDURE</i>	<i>EXPLANATION</i>
<i>I.V.F.</i>	In vitro Fertilization	Involves fertilizing eggs with selected sperm in a sterile dish.
<i>I.U.I.</i>	IntraUterine Insemination	Previously called Artificial Insemination (A.I.)
<i>G.I.F.T</i>	Gamete Intra-Fallopian Transfer	Implants eggs and sperm in the fallopian tube.
Z.I.F.T.	Zygote Intra-Fallopian Transfer	Transfer a zygote (the cell formed by two gametes) in the fallopian tube.
I.C.S.I.	IntraCytoplasmic Sperm Injection	Directly introduces an individual sperm into each of the eggs utilized in an IVF attempt
F.E.T.	Frozen Embryo Transfer	Involves transfer of previously fertilized and subsequently frozen embryos.
D.O.P.	IVF Donor-Oocyte Program	IVF that uses an egg donated by a younger woman.
S.P.	IVF Surrogacy Program	Employs the use of a third party "gestational surrogate".
B.T.P.	Blastocyst Transfer Process	Involves letting the embryo grow until the fifth day (blastocyst stage).

Golombok, MacCullum, Goodman and Rutter (2002) conducted a prospective study of the quality of parenting and psychological adjustment of Donor Insemination (DI) children at age 12 years old. The participants consisted of 37 DI families, 49 adoptive families, and 91 families with a naturally conceived child. Comparisons were made on standardized interview and questionnaire measures administered to mothers, fathers, children, and teachers. The differences between DI families and the other family types reflected greater expressive warmth of DI mothers toward their children and less involvement in the discipline of their children by DI fathers. The DI children were well adjusted in terms of their social and emotional development. A review of the empirical literature published from 1980 through June 2000 on the psychosocial well-being of parents and their children born after assisted reproduction was conducted by Hahn and ChunShin (2001) of Johns Hopkins University. Several common findings appeared across the studies reviewed. With regard to quality of parenting and family functioning, mothers of children born using assisted reproduction reported less parenting stress and more positive mother and father-child relationships than mothers of naturally conceived children. Overall, they found no statistically significant differences in child functioning in terms of emotions, behavior, self-esteem, or perceptions of family relationship. In order to determine if stress associated with artificial pregnancy treatment might affect early communication between mother and child, Papaligoura and Zaira (2001) utilized video microanalysis to examine face-to-face play between infants and their mothers in the first 5 months. There were three groups of infants. The first group of infants was conceived using IVF, the second through other standard infertility treatments (INF), which did not include IVF, and a control group of naturally conceived children. The authors found no evidence of detrimental effects of infertility treatment on mother-infant communication, but there were "positive" differences in behavior in the pairs where the mother had been so treated. They found that the mothers of IVF children were more playful and exhibited more caretaking episodes with their children. Hahn and Chun-Shin (2001) examined associations between in vitro fertilization (IVF) and quality of parenting, family

functioning, and emotional and behavioral adjustment of three to seven year old children. A cross-sectional survey was conducted in Taiwan with 54 IVF mother-child pairs and 59 mother-child pairs with children conceive naturally. IVF mothers reported a greater level of protectiveness toward their children than control mothers did. Teachers, blind to condition, rated IVF mothers as displaying greater warmth but not overprotective or intrusive parenting behaviors toward their children. Teachers scored children of IVF as having fewer behavioral problems than control children. Gibson, Ungerer, McMahon, Leslie and Saunders (2000) conducted a study in Australia to evaluate infant attachment and mother-child interaction in 65 primiparous women and their singleton infants conceived through in vitro fertilization (IVF) and a control group of 61 women and their infants conceived naturally. At 12 months postpartum, security of infant attachment was assessed using the Strange Situation (Ainsworth, 1978) procedure, and mother-child interaction was assessed in a free play context. IVF children demonstrated predominantly secure attachment relationships with their mothers (64.6% IVF, 55.9% control). There were no significant group differences on maternal (sensitivity, structuring, hostility) or child (responsivity, involving dimensions of interaction during play). The majority of IVF mothers (86%) were rated as sensitive and their infants responsive (91%). The conclusions of Van Balen's study (1998) conducted in the Netherlands were that no serious problems have arisen concerning either the physical or the psychological development of IVF children. On the contrary, there are indications of superior parental competence and warmth.

PSYCHOLOGICAL IMPACT ON THE OFFSPRING All of these studies conducted in different parts of the world are showing us how the use of ART is not having a negative effect on the psychology of the offspring. Furthermore, the research presented suggests that these children do better on some parameters than children conceived naturally. This raises the question of what is present in ART that sometimes is not present in natural conception. The authors believe that the clear element present in the life of ART babies is the fact that they are so loved and wanted by their parents, and that their parents' intention is focused on bringing them to life. Because these families have struggled to conceive, they tend to clearly love and take care of their children. In the authors' opinion, all the previous studies are showing how love is an essential ingredient for our well-being as human beings, and do not necessarily demonstrate that Artificial Reproductive Technologies have no influence in the psychology of the offspring. Verny (1981) writes about the importance of love for the child in order to establish intrauterine bonding: In short, intrauterine bonding does not happen automatically: Love for the child and understanding of one's own feelings are needed to make it work. When these are present, they can more than offset the emotional disturbances we are all prone to in our daily lives (Verny, 1981, pp. 78-79).

POTENTIAL PSYCHOLOGICAL CHALLENGES OF ART FOR THE CHILD The fact that ART children are generally doing well does not mean that they do not face challenges. One common challenge for children being conceived by Donor Insemination is the fact that they do not have access to information on their genetic origins. Landau (1998) writes about the accumulated evidence concerning the detrimental effect of secrecy, anonymity and deception in donor insemination, and argues that these practices are not only psychologically and socially harmful but also ethically unacceptable. Another liability of ART is the fact that many couples that use them are of an older age. Levy-Shiff, Vakil, Dimitrovsky, Abramovitz, Shahar, Har-Even, Gross, Lerman, Levy, Sirota and Fish (1998) conducted a study in Israel to assess long-term effects of assisted reproduction technologies of IVF and related techniques of embryo transfer (ET) on children's adjustment. Both the IVF and the ET children were scored lower by teachers on measures of socioemotional adjustment in school and on self-report measures of anxiety, aggression, and depression. Among IVF/ET children, the tendency to be at a greater risk for emotional disturbances was exacerbated among boys and among children whose parents were older. These authors have not found other studies that point towards the possibility that there are other effects of ART in the psychology of the offspring, but would like to connect some of the discoveries in the field of pre- and perinatal psychology that might bring more light into this matter. Thanks to the pioneers of pre- and perinatal psychology we now know that a child's conception (Farrant, 1998; Chamberlain, 1988; Castellino, 1995) gestation (Verny, 1981; Chamberlain, 1988; Castellino, 1995,) and birth experiences (Verny, 1981; Chamberlain, 1988; Castellino,

1995) create a template of the child's emotional, physical and mental health. Castellino (1996), based on his extensive clinical experience, writes about recapitulation cycles and how the experience of conception gets repeated at the moment of birth, and how this experience would be recreated in the future, in the way the person starts new cycles in their life. He also writes about the importance of the way a baby is conceived, and that if parents are making love without the conscious awareness of the new life that may result, this can have a traumatic impact to the incoming consciousness. Because babies are conscious beings, at least from the moment of conception, how the mother feels during conception, gestation and birth has an impact on the baby (McCarty, 1996; Luminare-Rosen, 2000). From this perspective it is important to take into account the struggles and difficulties that women undergo when they use ART, because those experiences are directly communicated to the babies in the womb. London (2001) found that women who have successfully undergone infertility treatments go to "First-Time Moms over Forty" support groups with a mixture of deep gratitude for the child they eventually gave birth to and enduring issues about the physical, emotional, financial, and spiritual toll that the treatments took on their lives. Knowing that the stress mother undergo affects their babies, it would be important to consider ways to reduce this stress and to support mothers and parents in their process of artificial conception.

BRINGING MORE CONSCIOUSNESS TO ARTIFICIAL REPRODUCTIVE TECHNOLOGIES More and more couples are using ART in our global societies. DavisFloyd and Dumit (1998) refer to how some authors "see the technologization of reproduction as a regression-away from what is natural and important" (p. 9). The authors of this paper believe that it behooves us to exercise caution in the use of ART as we bring more awareness into the field. Before resorting to ART parents should be made aware of the many books on the subject of conceiving naturally (Conkling, 1998; Wesson, 1999; Malpani, 2001), as well as therapy programs (Payne, 1997). Some authors like Payne propose effective ways to work in therapy in order to bring more consciousness into what is blocking the couple to conceive naturally. She has a high rate of success in working with couples with infertility problems. The use of these resources could significantly reduce the need to use ART in couples that are having difficulties conceiving. It is unrealistic to believe that we are going to slow or stop the use of ART, especially when it is the last and only viable option for many couples to conceive. In those situations, it would be interesting to bring more consciousness to the procedures. Conception should not be considered just as a laboratory protocol, but as a process where new consciousness is coming into life. Some additional considerations should be given to such questions as: When does life start and is it moral to freeze embryos? Also, how can ART become a more sacred and empowering experience for the whole family? One way this could be done is by introducing the concept of a doula or a witness who would be present to support and educate the parents during the whole process of ART.

CONCLUSION To summarize, the goal of this paper was to discuss present day ART techniques, the psychological impact of ART on children so conceived, and ways in which more consciousness can be brought to ART conceptions. The existing studies suggest that children conceived through ART are not at a psychological disadvantage compared to children conceived naturally. The authors hypothesize that the fact that babies conceived artificially are wanted and loved is the main reason why they are not at a disadvantage or indeed do better on some of the psychological parameters. Taking into account the latest research from pre- and perinatal psychology, which shows how babies are conscious beings from conception, these authors suggest that more consciousness could be held around these procedures. At the same time, more research is needed from the perspective of pre- and perinatal psychology to establish if and how the use of ART is having an impact on the psychology of the offspring.

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