

# Ethical Issues in Assisted Reproductive Technologies\*

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## Abstract

Biomedicine approaches infertility as a disease that can be cured with the application of Assisted Reproductive Technologies (ART). This study aims to explore some of the ethical issues that surround the use of these technologies in India. The study was carried out in two well-known private health care settings in Pune, Maharashtra. One of the private hospitals was selected on the basis of familiarity with the doctor; the other on the basis of popularity among patients. Qualitative in-depth interviews were conducted to collect information from a sample of 25 women between December 2007 and April 2008. The study reveals that all the women interviewed found ART treatment to be painful and—at the time of interview—had not achieved a full-term pregnancy. The study also found that there was no uniform protocol specifying the sequenced application of intrauterine insemination (IUI) followed by the enrolment of the woman in in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI). The interviews found that the women were burdened by the treatment. These technologies are based on profit at the cost of women's lives. Literature suggests that there are chances that embryos are made available for research without the consent of couples, and these embryos could be manipulated prior to transfer, thus trying to control birth. Based on the findings from this study and on previous literature (Raymond 1993) these IUI, IVF,

and ICSI technologies should not become medical practice, until they have undergone a scientific evaluation.

**Keywords:** IUI, IVF, ICSI, informed consent, painful, burdened, uniform protocol

## Introduction

India is now a participant in the global health market, where Assisted Reproductive Technologies (ART) are used in the for-profit sector. ART services are heavily privatized and are limited in access due to their high cost. Rothman's argument posits that motherhood rests on three deep-rooted ideologies: patriarchy, technology, and capitalism. He states that these technologies can potentially strengthen the prevailing patriarchal values, particularly in India where there is immense pressure on women to become mothers and produce a 'healthy baby.' (Rothman 2002 as cited in Spilker and Lie 2007) Additionally, Srinivasan observed that women who cannot conceive after a few months of marriage are likely seek help from medical practitioners or traditional healers, whether or not they are actually infertile. (Srinivasan 2010) Many of these women do not have problems related to infertility but are largely driven by the social pressure to bear children. The anxiety produced through social pressure on women to bear children is exacerbated by the evolving definition of infertility. Biomedicine looks upon infertility as a disease that needs an immediate cure. For instance, prior to 1975, a couple was declared infertile when the woman did not conceive after five years of unprotected coitus. In 1975, however, the World Health Organization reduced the time to two years and by 2005 further reduced it to one year. Consequentially, this created an enlarged market for ART. (Priya Ranjan 2007) Scientists and doctors have differing views about the normal length of time it should take to become pregnant, which imposes a variety of definitions of infertility. (Pfeffer 1987)

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These technologies are reshaping the ideas that society traditionally has had about family and relationships. Initially, these technologies were developed with the intention to assist infertile couples to have their own biological children. However, over time, its usage has been expanded for profit-making purposes. This is evident through the transactions of reproductive body parts and the opportunity to choose characteristics of the children based on the quality of the donated eggs and sperm. (Bryson 1999) Thus, sperms and eggs have become potential commodities for the infertility business. If the woman is aged and the man has a low sperm count the couple is advised to use donated sperms or eggs. Previous literature and findings from this study observed that some couples were advised to consider using donor sperm and eggs. There are sperm and egg banks available and these biological materials are donated and borrowed for a “price.”

The use of donated eggs and sperm complicates the notion of biological relationships. As Gimenez points out, with in vitro fertilization (IVF) or donor insemination the child is linked to the mother but not to the father. Through the use of donated eggs, the children would be linked to the father but not the mother. When both the eggs and sperm are donated, the child is not genetically linked to either parent. This has the potential to alter relationships and produce several possible kinds of woman and child relations: genetic, gestational, and social (Gimenez 1991: 344). Many of the central ethical questions relating to ART are debated today; for example, intrauterine insemination (IUI), IVF and Intracytoplasmic sperm injection (ICSI) create a technological form of adultery and awkwardness about what constitutes kinship. If “biological relationship” is the main reason for the use of these technologies, then we must keep in mind that using donor sperm and eggs can create confusion in the way we look at relationships or kinship. They continuously try until the treatment is successful. These are some points on the grounds of which I question ART.

The Indian Council for Medical Research has stressed that clinics providing ARTs be accredited and their work be supervised by an independent state-established body. At present, there is no provision for screening couples for rational indications for ART; instead, it has become an on-demand procedure.

Given this context, the objective of this study is to understand the reasons why women seek out technological forms of reproduction and their experiences. The study also explores the ethical repercussions of these procedures.

## **Methodology**

The interview method was used to obtain qualitative information from women regarding their infertility experiences and the use of ART. Interviews were informally structured using a checklist of open-ended questions. The interviews were conducted over a period of five months, from December 2007 to April 2008. The women were usually referred to me by doctors. Written consent was taken from all participants, and their names have been changed to maintain confidentiality. The interview lasted between one hour to one and a half hours in a private room of the hospital. The interviews were conducted in Marathi, Hindi, and English depending on the participant’s fluency in the language. The information gathered was analyzed using thematic analysis. The themes generated were gender, self blame, social disapproval, societal pressure to conceive, adoption, findings related to ethical issues (e.g. informed consent), cost of treatment, number of attempts, use of donated sperm or eggs, and side effects of the fertility drugs. For the purposes of this paper, I limit myself to findings related to ethical issues.

## **Profile of the Participants**

Most of the women in the study were well educated having post-graduate degrees in law, computing or medicine. Most participants in the study belonged to the upper caste and were predominantly Hindu. They were in majority Brahmins (15) followed by Marathas (5), Christians (4) and one Muslim. The working women included teachers, IT professionals, two fashion designers with their own boutiques, and one legal advisor. The age of the women ranged from 23 to 45 years. Some women had married at a very young age (between 16 and 21 years). The rest were married after the age of 25 years. Most had arranged marriages and lived in nuclear families. The couples had used various contraceptives including condoms, oral contraceptive pills, and intrauterine devices. Fifteen women had adopted contraceptive methods for one to three years after marriage. The rest did not use contra-

ceptives and decided to consult the doctor after one to two years of trying to conceive. Two women in the study were consulting the doctor for secondary infertility and the remaining 23 for primary infertility. Almost all women had undergone IUI treatment (range: four to twelve attempts); three had undergone IVF; two had undergone IVF thrice, one of the participants had gone through ICSI, and another was undergoing ICSI treatment at the time of the study.

### **Analysis and Findings**

The data was examined using a thematic analysis approach. Verbatim quotations are used to illustrate the relevant themes.

### **Ethical Issues in Assisted Reproductive Technologies**

Medical professionals sometimes overlook the social aspects of reproduction. Chadwick argued that for medical professionals reproduction appears as a matter of injecting a sperm into an egg, ignoring the fact that reproduction has a social dimension. Now that fertilization can occur in the laboratory and can be transferred to a woman's womb, the question is raised: Who is the biological mother? The woman who bears the child or the woman from whom the egg has come? (Chadwick 1987) Raymond argued that technological reproduction promotes the ideology that infertility needs intervention by medical and technical specialists. Adoption and life without children are not promoted as favorable alternatives. Therefore, because of societal structure, women are left with no choice but to try these technologies. This adds pressure to women as they undergo these procedures repeatedly in the hope of getting pregnant. (Raymond 1993) Some of the women in the study had visited multiple hospitals for treatment. Two women conceived after receiving IUI but one experienced a miscarriage at four months and the other at six months. None of the women interviewed achieved a full term pregnancy.

Pooja is 29 years old. She works in the Human Resource Department of a well respected firm. At the time of the interview she had been married for two years and was under pressure from her in-laws and friends to have a child. Her doctor advised her to pursue IUI, which she has undergone three times. She stated:

*I fail to understand on what basis the doctor advised me to go for IUI treatment. Now, since that [IUI] has failed, he should provide the exact medical reason and when I asked the doctor he had no answers.*

Like Pooja, many women in this study were unaware of why they were encouraged to undergo a repeated number of IUI treatments despite continued failure. This largely depends on the decision of doctor. Most of the women adhered to the doctor's recommendations in order to conceive a child.

Sneha is a 26 year old housewife married to a businessman. She was treated for reproductive health problems and irregular menstruation. As a result of the pressure she received from her husband and in-laws to conceive, she started treatment five years ago. She is on heavy medication and feels sick all the time. Following the third attempt, she conceived but had a miscarriage after six months. It was a twin pregnancy. Her pain was evident while narrating this story. She wants to quit treatment but cannot because of the pressure from her husband and in-laws. She stated:

*It has been years... I am coming to the hospital and taking treatment for infertility and nothing is happening. I am fed up. I want to adopt a baby. I have been able to conceive and also I feel that my body cannot take any more treatment for infertility. I am fed up taking treatment and I have lost hopes of conception. Moreover reasons are not explained for the treatment failure.*

The obligation to obtain informed consent from a woman before any medical intervention is a fundamental right of any woman. (Gupta 2007) In the above two cases we see that none of the hospital staff explained the possible failure of the treatment to the patients. Gupta points out that the desperation of Indian women who are unable to have children has been exploited for ages by all kinds of quacks, herbalists, faith healers, and perhaps now by infertility specialists. It is a lengthy process to explain to clients treatment procedures and the costs and side effects of the medicines; the physicians are expected to provide these details. (Gupta 2007) In most of these cases, this was not done.

## **Right to Information: How Ethical is the Informed Consent**

During this study, I examined the form used by the hospitals for obtaining informed consent and observed the consent process. The form is written in English and is explained in Marathi to non-English speakers. Many women in this study were unaware of the medical procedures involved and could not follow the consent form and the medical language. There was no process in place to check whether the women understood what was explained. This is what I would like to highlight.

This raises the questions of accountability and who is responsible for providing information to the woman. It is usually the assistant doctor who takes informed consent and if the assistant doctor is busy they inform the “patient” that “it is just about the procedure, nothing else, and you have to sign it.” No counseling is provided to the couples seeking treatment, and very often the couples do not fully understand the procedure. From my interviews with the women, it was evident that there is no uniform protocol specifying why IUI is suggested to some women and IVF or ICSI to others. I learnt that women were given incomplete information. The doctors mostly talked about the success of the treatment and rarely about the failures or side effects. Clinics are focused on creating a positive atmosphere by displaying attractive program names and baby pictures on the wall. Posters depict how special the baby is and how the doctors help them fulfill their dreams. These positive images may support patients through the procedure, but they may also be seen as manipulative because the emphasis is on positive effects and not about failure and side effects.

Sheetal is 27 years old. She completed her studies and has been married for three years. Her relations with family members are estranged. She loves her job and finds the only way to put her problems aside is by working. Her husband supports her but the pressure to conceive persists. When they approached the doctor, scanty information was provided regarding the technology. The consent form was in English but was explained to her in Marathi. Though she understands English, the medical terminologies in the form were difficult for her to comprehend. She says:

*After consulting the doctor they advised me to go for IUI first and then do IVF if required. Doctors are so*

*busy that they can't give us enough time for discussing the problem. The total cost, number of attempts, side effects there could be, was not explained.*

The purpose of obtaining informed consent is to ensure that the woman knows what doctors propose to do. However, if they grant their permission and the treatment fails, they have a right to ask questions. But this may be difficult to achieve in cases where the unequal power relations prevalent in society mitigate against women's self-determination. (Fasouliotis and Schenker 1999:35)

Most women in the study underwent many unsuccessful IUI and IVF cycles and had been through various unfortunate experiences with this technology. They experience this as a personal failure rather than a failure of the technology. (SAMA 2007)

### **Donor sperm and eggs**

Aarti is 35 years old. She belongs to a high caste and high-class family. She works in a software company. When she saw the doctor for treatment, she was asked to undergo IUI and now has had five unsuccessful attempts. She shares her pain at the failure of the treatment as well as the feeling of being “cheated” by the hospital. She said:

*Doctors said it will happen some day; we have to keep trying and take the treatment. Success depends on chance too. Later, we came to know that they were using donor sperms. It's hard enough not having the ability to conceive on your own, and then having to think about using someone else's sperms is not a comfortable experience. We had no idea that they were doing this. When we asked about this, they said that the system is like that only. I feel that I was cheated. It was a horrible experience. All this while I didn't even know what were they doing to me. It was like a double blow to my emotions: one that the treatment constantly failed and the second that they cheated us.*

Kirti, a 40 year old has undergone IVF three times, twice with her husband's sperm and once with a donor's sperm. She says:

*The only problem is that I want to conceive as soon as possible. That is bothering me a lot and is a constant worry for me. At this age I feel embarrassed and completely unworthy that I do not have a child and everyone around me does. I was asked about the characteristics I would wish to see in my child. I*

*gave the details of education, family background and color. The details of the sperm donor or availability details are kept anonymous.*

These experiences demonstrate that the market for sperm is flourishing, and this remains a largely unregulated business. In 1999, Debora Spar observed there were more than 100 sperm banks in the US. She noted that California's Cryobank provides volumes of information about the sperm donor; this includes age, height, weight, family background, religion, education, hair/eye color, and employment details. If this was not enough, the clients also send pictures of the person they would like their child to resemble. Most of the donors are students from colleges who donate their sperm at least thrice a week for several years for quick cash for university fees. (Spar 2006:37) Kimbrell observed that students are paid \$50 per sperm donation. Sperm samples are then sold to clinics and physicians for as much as \$200 a sample. We do not have any such study in India.

*Sperm donation involves ethical issues for unlike donation of many other body parts, donated sperm can create the irreplaceable, a child. (Kimbrell 1993:77)*

*One of the leaders in this market is Cryos International Sperm Bank, a firm from Aarhus, Denmark that sells sperm around the world. Currently it exports sperms to more than 50 countries in the world. (Spar 2006:38)*

Recently Cryos set up a base in Mumbai, making it the first international sperm bank in India. As observed on the web site, the company's area of expertise includes maintaining information about semen related clinical products. The company invested around 1 crore Indian Rupees (US\$200,000) in India. This raises concerns: Should we promote this kind of donation when the donor does not intend to parent the child and would have several genetically-related children around the world?

In the present study the two hospitals were affiliated with a sperm bank that is on the outskirts of Pune city. Details regarding this bank were not provided by the clinic. Fertility clinics such as Biogenetics Formation, Inc. and Repository for Germinal Choice, offer "elite" ova and sperm that have supposedly come from the best, brightest, and the most

beautiful in society. These fertility clinics not only sell biological materials and reproductive technology, but also market the notion that characteristics such as beauty, intelligence, athletic ability, and economic success are genetic in origin. Thus, the sperm banks and egg agencies are heavily influenced by the notion—which they then spread—that certain social and physical traits are more desirable than others. (Tober 2002) The desire to have a baby with particular characteristics may suggest a new form of eugenics. (Shildrick 2004)

In recent years, the laissez-faire market approach used in the sale of sperm has been extended to the sale of eggs. In 1978, eggs became potential commodities for the infertility business. Currently, ten clinics in the United States provide lists of healthy young women who would provide eggs for about \$2,000 per removal. With the aid of these new genetic diagnostic tools perhaps "defective" embryos can be identified and destroyed and desirable ones can be implanted. (Spilker and Lie 2007) Despite these concerns, clinics involved in egg donation are essentially unregulated. Another example illustrating how the market of eggs has been making profits occurred in 1999 when an "egg auction" of models was held; eggs were sold for \$15,000 to \$150,000 in \$1,000 increments (Schonfeld 2003:168). We also see that in many cases egg agencies and sperm banks are founded or staffed by physicians and nurses. They are representatives of a musicalized market and as such have the power to shape the process of selling eggs and sperm. (Almeling 2007) Again, in India, we have no study on egg donors and egg banks.

Kirti is 40 years of age and was married at 33 years. She married relatively late because she wanted to concentrate on her life and career. She said marriage was inevitable and she did it for the sake of her family. Now, since she is unable to conceive, she started treatment. Considering her age she was asked to go for an IVF to see what happens. The next treatment plan for her was to consider donated eggs as she does not have quality eggs. She says:

*I felt that doctors are not giving accurate information. When I came to this hospital, no one advised me to go for IUI but straightway told me to go for IVF and if that fails, I am asked to consider donated eggs.*

Komal, a 38 year old, had undergone twelve IUIs and one IVF. They all failed. She feels embarrassed to go and sit in the outpatient department (OPD) every time the treatment fails. The doctors performed a laparoscopy in one of the hospitals and told her she had fibroids in the uterus; as a result she cannot conceive. But the doctors continued with IUI anyway. In the present hospital the consulting doctor even guaranteed that she would conceive. This shows that doctors, irrespective of the medical condition and after several failed attempts, knowing that she would never conceive, advised her to go for the IUI and IVF. She says:

*I have no idea why the treatment fails every time and doctors have no time to discuss with us in detail. I have been asked to consider an egg donation.*

Looking at Komal's case, we might wonder that there are no reliable means to predict whether the use of ARTs will be successful and how many attempts will be necessary. The complexity of these procedures thus makes it difficult for women to evaluate whether a specific ART treatment that is offered to them is really necessary or appropriate. This is particularly the case early into their treatment.

Priti is a 45 year old working woman. She was inconsolable during the interview. She has not been able to conceive for a long time. According to medical reports, her husband's vas deferens is blocked. The doctors suggested an IVF for her with donor sperm and donor eggs, since she does not have "quality eggs" because she is too "aged" to produce good ones. Three IVF treatment cycles have failed. While talking, she was in tears and said:

*I feel dejected all the time because of my condition, treatment failure and asking money from people for the treatment. I have undergone two IUI's and three IVF treatment cycles. My husband's vas deferens is blocked therefore; he did not object using donor sperms. I worry about this constantly. It makes me feel I am worthless.*

Priti expressed her bewilderment at the doctor, who quoted the same reason for the failure of two different procedures.

*Doctor advised to go for IUI. I did as he said and that failed. I was very depressed because of all this. Doctor told us that there are no quality eggs and they are less in number also, so the treatment was a*

*failure. So he told us to undergo IVF. I have done two procedures of IVF and both of them have failed*

Based on the findings, I would suggest that these technologies are largely unregulated in the Indian market. There is currently no entity that monitors these programs. There should be some protocol. The basic principles of ethics include autonomy, justice, and non-maleficence. This broadly means there would be truthfulness, confidentiality, informed consent, voluntary participation, and no harm. The age of the woman has always been an important criterion that decides her chances of getting pregnant. It is surprising that women like Priti are offered these technologies without informing them that chances of success were limited compared to younger women. These women could be at increased risk for chromosomal abnormalities, spontaneous abortion, and stillbirth. Women in this age group have a higher rate of Caesarean Section compared with those who are younger. Complications from delivery include an increased risk of postpartum hemorrhage. (Perla 2001) Is it necessary to promote a technology that puts women's lives at risk?

The women in the study who have gone through the cycles of egg retrieval had no idea how many eggs were retrieved. As mentioned by the doctors in the clinic, it ranges from five to ten and sometimes even fifteen. Some of these eggs could be harvested and donated or cryopreserved. They could be used for stem cell research. The women in the study had no idea about this. Stem cells are the building blocks for other types of specialized cells such as nerve, bone, and fibrous tissue. This research is a new and experimental biotechnology with its own ethical ramifications. (Perla 2001)

One of the central ethical questions relating to egg, sperm, and embryo donations is whether a child conceived in this way should or should not be told of her or his origins. Women who want to become egg donors must undergo stimulation of ovaries and painful egg retrieval procedures. These procedures involve risks and are not in the donor's best medical interests. (Kuhse 2001:310) While harvesting ova, usually a number of them are removed without the donor being told how many. Neither the donor nor the recipient is provided with any information on the source and destination of the ova. (Gupta 2007) There should be a right to confidentiality, but at the same time the Indian

Council of Medical Research (ICMR) guidelines mention that if the child wants to know about his or her origin, he or she has the full right.<sup>†</sup> How could these competing imperatives be reconciled? Both ICSI and oocyte activation raise a number of concerns. There could be risks of monozygotic twins (identical twins that share the same chorion) and they seem to be linked to low birth weight, poorer health, and decreased survival of infants. (Kuhse 2001)

### **Health problems: The side effects of fertility drugs**

Unlike sperm donation, egg donation involves several risks for women. In IVF, these risks include complications arising from hyperstimulation of the ovaries which could increase the risk of an ectopic pregnancy. The reported incidence of ectopic pregnancy after IVF treatment ranges between one and two per cent of all pregnancies. After one ectopic pregnancy, the risk of recurrence is between 10 to 20 per cent. The risk of stillbirth increases by about 2.55 fold. Babies are born with a low birth weight and have a higher risk of being small for gestational age. (Sutcliffe and Ludwig 2007) The risk of cleft palate is increased in children conceived with ICSI, in addition, two to three per cent of children born from ICSI have developmental delays. However, this is never mentioned to couples. (ICMR 2002, as cited in Gupta 2007)

No medical treatment is free from pain and side effects, and this is also the case with fertility drugs. Literature has shown that the fertility drugs given to women to stimulate egg production are associated with risks like Ovarian Hyper Stimulation Syndrome (OHSS), multiple pregnancy, and adnexal torsion (ovarian twisting). (Budev, Arroliga, Falcone 2005; Practice Committee of the American Society for Reproductive Medicine 2008), Adnexal torsion occurs when the stimulated ovary twists on itself, cutting off its blood supply. The overall risk is about 0.2 per cent. Ovarian torsion may cause severe pain and tenderness in the lower abdomen. Treatment includes surgery to untwist the ovary or removing the ovary entirely. Excessive stimulation of ovaries could lead to OHSS, some-

<sup>†</sup> See ICMR National Guidelines for Accreditation, Supervision and Regulation of ART Clinics in India, Chapter 3 "Code of Practice, Ethical Considerations and Legal Issues", Accessed online at: [http://www.icmr.nic.in/art/Chapter\\_3.pdf](http://www.icmr.nic.in/art/Chapter_3.pdf) on 01/03/2011

times life threatening. Other side effects include abdominal discomfort, nausea, weight gain, and mild abdominal swelling. Symptoms include nausea, vomiting, marked abdominal pain, diarrhea and dehydration. Fluid can accumulate in the abdominal cavity and chest, causing abdominal swelling and shortness of breath. There is a reduction in urine produced. Severe complications associated with severe OHSS include blood clotting disorders, kidney damage, and ovarian torsion. The complications and the post-treatment psychological consequences have seldom been highlighted by the media or made explicit by doctors.

Asha, who has undergone different treatments at different hospitals and has been taking medicines for a long time, for a variety of problems says:

*Medicines are causing side effects: nausea, weight gain, feel thirsty all the time, weakness, feel dull throughout, cannot concentrate on anything, burning sensation in the vaginal area and sweating.*

### **Cost of Treatment: A Burden**

Costs varied at both the private hospitals from a minimum of Rs. 50,000 (US\$ 960) to a maximum of Rs. 80,000 (US\$ 1550) for one round of IVF. The social and psychological costs of infertility for the couple have increased with the advancement of ART. The emotional costs involved when the treatment fails are difficult to measure and not easy for women to cope with. All the women worried about repaying the money they have borrowed. There is an imbalance between the level of sophistication and the care given to every small detail of the technologies used for assisted reproduction and the attention given to the feelings, fears, and anxieties of the infertile couple. (Hardy E and Makuch 2001)

Rubina, who is 23 years old, was the youngest woman in the study. She is fluent in English. She is a graduate and got married at 21, though she did not want to. She finds marriage and child bearing to be a horrifying experience. She wanted to study further but had to marry under parental pressure. She was unable to conceive after marriage and has started seeing the doctor. She has the most painful story to recount. Not only is the cost of the treatment exorbitant for her with a monthly income of Rs.15, 000 (US\$ 290), but the cost of a rented accommodation adds to the burden. She adds:

*We have already spent Rs. 90,000 (US\$ 1740) till now. We have taken a loan from the bank and mortgaged ornaments for this treatment. I am staying far away from the hospital (50 kms) and travelling this distance repeatedly was very tiring for me. Therefore we have rented a house nearby and will stay here till the treatment is over.*

## Discussion and Conclusion

This study was conducted for five months in two private hospitals. Therefore it cannot be generalized to the overall experience women who undergo ART. The time period was short and therefore these women could not be followed up in the study to learn more about their experience related to the treatment. Even though the information provided by the participants was true and based on their treatment, I did not verify these findings with the physicians due to time constraints. I interacted with three physicians but did not have in depth discussions with them regarding ART. I do not intend to project the doctors as insensitive and being unethical, rather I attempted to bring out the reality in the context of ART. Since the technology is being pushed in the market, couples feel compelled to try it. Since ART has been introduced in India it has given desperate couples hope of having their own baby, but as evident from the study this hope is often misplaced. The most striking feature that I observed was the obvious gap between the created desire for a biological child and the ability to produce one. There should be a focus on non-technological solutions such as preventive measures for infertility, adoption of children of both sexes, and raising consciousness to reduce the social pressures for biological parenthood. There is also an urgent need to regulate medical practice. In the case of IVF, women do not know how many eggs are retrieved and what happens to the unused embryos. Eggs and sperm are now commodities used by the technocrats, pharmaceutical industries, sperm banks, and egg agencies. (Glasner 2005).

The details of number of attempts or the number of pregnancies spontaneously terminated should be recorded. Proper in-depth analysis and long term studies are required to establish the safety of ART. These technologies should not become routine medical practice, until they have undergone scien-

tific evaluation, which unfortunately in the case of IUI, IVF. and ICSI has not happened.

Some observers fear that the availability of ART will give humans the ability to manipulate their genetic heredity. Rao observed that the genetic industry has been gaining so much funding and popularity in the USA that it is creating hype about the genetic basis of human skills, racial purity and the creation of disease free offspring. (Rao 2010) Perhaps that is exactly what ART attempts to do.

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