A STUDY ON SOCIAL AND AFFECTIVE DIMENSIONS OF THE USE OF ASSISTED REPRODUCTION TECHNOLOGY (ART) BY WOMEN IN TURKEY

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Approval of the Graduate School of Social Sciences

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I certificate that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

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This is to certify that we have read this thesis and that thesis and that in our Opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

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ABSTRACT

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This thesis aims to discuss the concept of Assisted Reproduction Technology and its social and affective impacts. Women will be at the center of this research as it has been thought that emotional stressors are mostly effective on them. In the present work, an investigation will be carried out among women who have used assisted reproduction technology methods and women who are able to reproduce and conceive "naturally". The comparison of these two groups will illuminate problematical aspects of assisted reproduction technology. The research will be based on two sets of questionnaires designed for each group of women. In this study, both qualitative and quantitative data were used. These analyses will not only lead us to compare infertile and fertile women's responses and evaluate the consequences of emergent assisted reproduction technology but also to assess its social and emotional impacts.

Keywords: Assisted reproduction technology, infertility, social impacts, in vitro fertilization, women, Turkey

ÖZ

TÜRKİYE'DE KADINLAR TARAFINDAN KULLANILAN YARDIMLA ÜREME TEKNOLOJİSİNİN (YÜT) SOSYAL VE DUYGUSAL BOYUTLARI ÜZERİNE BİR ÇALIŞMA

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Bu çalışma, yardımla üreme teknolojisi kavramını ve bunun sosyal ve duygusal etkilerini tartışmayı amaçlıyor. Duygusal sıkıntıların kadınlar üzerinde daha etkili olduğu düşünüldüğünden, kadınlar bu araştırmanın merkezinde olacaktır. Bu çalışmada yardımla üreme teknolojilerini kullanan kadınlar ile doğurgan ve "normal" yollardan doğum yapan kadınlar hakkında araştırma yapılacaktır. Bu iki grubun birbiriyle kıyaslanması sonucu yardımla üreme teknolojilerinin sorunlu yönlerini aydınlatacaktır. Bu araştırma, her iki grup kadın için dizayn edilen iki set ankete dayalı olacaktır. Bu çalışmada hem nicel hem nitel verilere yer verilmiştir. Analizler kısır ve kısır olmayan kadınları kıyaslamamızı ve ortaya çıkan yardımla üreme teknolojisinin sonuçlarını değerlendirecek aynı zamanda yardımla üreme teknolojisinin sosyal ve duygusal etkilerini inceleyecektir.

Anahtar Kelimeler: Yardımla üreme teknolojisi,, infertilite, sosyal etki, tüp bebek yöntemi, kadınlar, Türkiye

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CHAPTER 1

INTRODUCTION

The desire to reproduce and having a child has many explanations in social, emotional and biological spheres. For most of the marriages, fertility concerns and sexuality may be the main aspects. The birth of a child is seen as an opportunity to generate, maintain and fulfill the basic needs as well. When couples encounter a barrier for having a child, which is linked with fertility problems, the distressful, anxious and psychological stressful conditions may arise. After this, they may look for alternative patterns for the purpose of having children. With the rapid technological progress, development and discovery of assisted reproduction technologies, medical decision making in order to find out different routes for having a child and new coping strategies with infertility become significant concerns.

Technology has a power to assist in giving birth to babies outside of “natural” means. This is a wonderful development and has given hope for infertile couples. After the coital conception fails, non-coital means of conception that is associated with technology takes over. However it leaves out questions about its social, psychological and emotional impacts. Both the conditions of integration of powerful technologies and their impact on “normal” reproduction and other social “activities” arouse controversies and conflicts that attend these developments. A major source of controversy about these new reproductive technologies might be about their artificial character. Assisted

reproduction technology (ART) includes in vitro fertilization (IVF) that means the fertilization takes place outside the women's reproductive tract in laboratory conditions. The latest technique that is most dominantly used since 1992 is intra-cytoplasmic sperm injection (ICSI), which undertakes the role of fertilization by means of a special micromanipulator, which combines the sperm cell with oocyte.

1.1. Aim of the Study

For the analysis of the impact of this new developmental technology, an investigation should be made about individuals who have experienced assisted reproduction technology methods as well as a non-IVF group composing of individuals able to reproduce and conceive "naturally". The comparison of these two groups will illuminate problematical aspects of ART.

Assisted reproduction technology appears to integrate into the most sensitive aspect of life. This technology brings a solution for discomfort and deficiency in fertility for desperate couples. However the concept of "reproduction assisted with technology" reveals and reminds couples their deficiency from the beginning of understanding of their infertility end result. Even taking a positive result of pregnancy might not indicate that the infertility stress has ended. Psychological and emotional impacts of such a treatment and the "truth" of being infertile might have serious negative impacts on patients having infertility treatment experience and remain buried into all aspects of their life.

Such an investigation on individuals is of utmost importance to reveal the impacts and dynamics. Women are at the center of an infertility treatment no matter whether they or

their husbands are infertile. All the physical examinations, medical tests and the whole IVF treatment procedure are mostly applied on women. There are many studies supporting the idea that all the physical pressure and emotional stressors are mostly effective on women. While differences in emotional reactions between women and their partners are not consistently found (Freeman et al., 1985), there does seem to be more evidence to support the view that infertility and its treatment have a greater negative impact on women than men (Wright et al., 1989).

The psychological and emotional impact can be examined by investigating women during their IVF treatment as they are at their most sensitive period having intense feelings about their fecundity and the treatment they are undergoing. For an accurate result these impacts on "IVF women" should be compared with fertile women. Women who have conceived at least once might be used for the analysis of fertile women that can be named as "non-IVF group". Their conception via "natural" ways indicates that they are fertile and expresses their fecundity. Choosing women who are undergoing IVF, as a study group is reasonable to view the impacts of treatment. More reliable and clear reactions may be obtained from women during the treatment period. This way the psychological impact of the treatment as well as its importance can be understood much more. The social and emotional side of this impact involving change in life and marital satisfaction, life style, habits and relationships should be considered separately. It is assumed to see a difference between women in the IVF and the non-IVF group in these aspects as a result of possible psychological negative pressure arising from IVF treatment. Also a possible decrease might be observed in life and marital satisfaction as well as in social interactions. For analysis, a multi item questionnaire consisting of several sections were given to both women in IVF and non-IVF groups. The responses

were aimed to be elicited and then compared with each other. This will not only lead us to compare infertile and fertile women responses and evaluate the consequences of emergent assisted reproduction technology but also to criticize its social, psychological and emotional impacts.

1.2. Structure of the Study

Concentrating briefly on the aim and structure of the study, the second chapter goes on to address the definition of infertility and infertility factors. Understanding being infertile and responses to infertility will follow these basic concepts and the importance and necessity of having a child will be focused. Value of a child and desire to have a child are the relevant topics considered in this section.

After defining infertility and its factors, possible reactions aroused by infertility, desire to give birth and decision of "undergoing in vitro fertilization treatment" will be discussed. This treatment seems to be the last chance of having a child for desperate infertile couples. They are faced with the confusion or threat that they will let technology into their most private life.

Assisted reproduction technologies have psychological, social and emotional impact on the couples. However such an impact will be differentially manifested between women and men. Women and men's different reactions to and acceptance of infertility and infertility factors will be examined. Also IVF treatment leaves different impacts on women and men. These variable impacts are to be examined with the review of other studies in literature. The influence of infertility treatment on social aspects of life which may cause any change in marital adjustment, life satisfaction, marital and sexual

satisfaction, life style and habits, relationship with family and friends will be examined in the last section of this chapter.

In the third chapter, generally assisted reproduction methods will be presented. Different treatment methods as well as definition and explanation of each will be brought to light. The fourth section includes all the steps of in vitro fertilization treatment cycle. The treatment cycle starts with first check up and ovary stimulation in which comprehensive history is obtained and physical examinations are completed and a series of testing procedures are initiated. Starting an infertility treatment is an important stage since couples learn about their fertility potential and come up with the truth of infertility diagnosis for the first time. Thus the psychological and emotional reactions of couples will be examined in the first section of third chapter. Next, oocyte aspiration and then sperm preparation will be discussed. The manipulations of human gamete cells prior to fertilization will be followed by patients' worries and stresses about their cells. Another important stage of IVF is fertilization. There are two methods discussed in this section by which fertilization takes place. In the process of intra cytoplasmic sperm injection (ICSI) oocytes and sperm cells are combined through a micromanipulator and in classical in vitro fertilization (IVF) sperm cells are let to penetrate the oocytes spontaneously. After fertilization, morphological differentiations will take place in the fertilized oocyte, which is now called embryo. Cleavage of embryos and maintaining their viability reflects their quality and make them a candidate for embryo transfer. Embryo transfer constitutes the last stage of an IVF cycle. The most qualified embryos are selected to be transferred into the woman's uterus. Patients are thought to have strong anxiety and stress about the fertilization of their cells, quality of their embryos and success of embryo transfer.

Giving examples from literature will also reveal and support these negative thoughts and worries. In the next section of the chapter, the stage at which couples wait to find out if the treatment has resulted in pregnancy will be discussed. The necessity and importance of counseling and support, the positive and supportive approaches of medical staff as well as professional psychotherapists will be examined. An unsuccessful result, which brings out disappointment and stress will be mentioned. Deciding another trial after they had an unsuccessful experience will also be discussed in this section. Despite a positive result is taken which indicates a healthy ongoing pregnancy, impacts of infertility and infertility treatment on the rest of couple's life will also take part in this section.

In the fourth chapter, methodology of the research and characteristics of women sample will be presented. Information about the questionnaire and the anxiety test that was attached at the end of the questionnaire will be given. The methods that will be used in the analysis of questionnaire answers will be mentioned. Questions in the questionnaire and their adaptation for two groups of women samples will be examined in details. In the next section characteristics of two groups of women samples; women undergoing IVF treatment and women having children "naturally" will be presented. Demographic features of both group are clarified. Demographic features will include age, educational status, occupation, working conditions and the place of longest residence. Also infertility history of women in IVF group will be examined.

The fifth chapter constitutes the result part of the research and contains both qualitative and quantitative analyses for the questionnaire. The answers given by the women in IVF and non-IVF groups to questions will be compared and the differences will be

revealed by statistical analyses. These quantitative analyses will be supported by women's answers which reflect their emotions. For statistical analyses, SPSS program was used and many statistical methods were made use of such as cross tabulation, regression analysis and factor analysis. Some of women's answers were recoded into new variables that enable to determine the differences between women's answers. The answers of women for the open-end questions constituted the most important part of the qualitative analysis. Making correlation between answers of two groups of women underlines the desire to have a child that may result in the decision of having a child via coital reproduction or assisted reproduction technology. The source of IVF information, integration of science and technology into reproduction, awareness about male infertility and importance of having a child through women's expectations from life were the relevant questions asked as open-end questions. The last section of this chapter ends with the analysis of women's answers to Beck Anxiety Test. In this part the anxiety levels of women will be tried to be determined and compared by considering some independent variables such as, age, husband's age, years of education, years of marriage, working conditions and support form social environment.

The conclusion constitutes the final chapter in this thesis. The summary of the findings of the thesis will be presented as a conclusion. The qualitative and quantitative analyses in the fifth chapter will be discussed and as a result the emotional, social and psychological characteristics of fertile and infertility treated women will be underlined. In the discussion and conclusion section, the findings of this thesis will be compared and enriched with other studies in literature. The limitations and suggestions of this research will also be evaluated.

CHAPTER 2

INFERTILITY: SOCIAL AND PSYCHOLOGICAL IMPACTS ON LIFE

In this chapter definition of infertility as well as its possible impacts on entire life of infertile couples will be examined. The effects of assisted reproduction technology (ART) will be studied in psychological, social and emotional aspects. Assisted reproduction technology is an example of how technology has integrated into our social lives even into the unit of "family". There should be great impacts of this integration on the members of these units as well as on the whole society. Assisted reproductive technologies have become common practice in many countries today. The rapid evolution and progress of assisted reproduction technologies have revealed certain social issues that has to be investigated.

In-Vitro Fertilization and Embryo Transfer is a medical technique, which is available for the treatment of infertility in many parts of the world (Mori et al., 1997). It has the potential to benefit both individual patients and society. It seems that assisted reproduction technology not only offers diagnosis for infertility, but also enhances fundamental studies of human reproduction and contraception.

In spite of the diagnosis and services ART has offered, some may think ART as leading society in a worrying or inappropriate direction. It is widely accepted that ART did not create the essence of the issues despite the complex social and ethical issues imposed by ART (Schafer et al.,1995). It seems that "traditional" family has changed and its boundaries has expanded to alternative patterns for the purpose of having children. As a result of acknowledgment of the enormous social evolution, claims that medical technology merely implements the technological imperative fail. (Seibel et al., 1996)

With the rapid growth and discovery of new assisted reproduction technologies, medical decision making for the purpose of finding different routes for parenthood and coping with infertility become significant concerns. Counseling which involves guiding individuals through difficult decisions played an important role to cope these issues.

After 1978 when Louise Brown; the first in vitro fertilized baby was born, reproductive topics became the focus of media attention. The nature of human reproduction has irreversibly changed since that date even if only a small percentage ever use those techniques.

2.1. Definition of Infertility

Infertility is defined as the failure to conceive after one year of regular sexual intercourse without the use of contraceptives (Benson 1983). The World Health Organization (WHO) also defined infertility as the inability of a couple to conceive after a period of regular, unprotected intercourse (World Health Organization, 1995)

and also it was recognized and defined as a public health problem and is the manifestation of one or more pathological conditions either of female or male origin (World Health Organization, 1991). Furthermore it had been shown that while about 50 percent to 60 percent of infertile couples eventually conceive and deliver, the remaining 40 percent to 50 percent will remain infertile (Andrews,1991).

Infertility was confounded by various social, cultural and political determinants of family planning, sexual mores and conventions thus it is very difficult to assess the prevalence of infertility in the population (Damjanov, 1993). Reports from different countries indicated that infertility was widespread and may be as high as 30% in sub-Saharan Africa (Rantala and Koskimies,1986) or as low as 5% in China (Li et al.,1990). Nevertheless there was no evidence that there were more infertile couples in highly developed, industrial countries or that modern civilization has an impact on fertility. There are many claims about the increase in infertility cases. Authors think that infertility seems to become more prevalent in recent years (Aral and Cates,1982), furthermore it appears that the number of women who remain childless has increased during the last decades (Johnston et al,1987).

Suspicion about infertility arises only when the couples decide to have a baby and do not become pregnant after several attempts. There are several stages of an infertility treatment. The first step of a treatment is to understand the cause of infertility. Infertility should be considered as a disease and be known that a treatment is needed. At this point when the treatment is accepted, technology interferes the marital, sexual and social lives of couples.

2.2. Infertility Factors

According to recent data, 10-15% couples at the age of fecundability are infertile. The cause of infertility in these couples arises from 20% male factor, 38% female factor, 27% both female and male factor and 15% unexplained factors (McElreavey,2000). The distribution of etiologic factors in infertile couples varies among different centers and different countries as they serve different populations (Hammond and Talbert, 1992). Table 2.1 shows the factors involved in single etiology infertility according to one source.

Table 2-1 Factors Responsible for Single-Etiology Infertility

459 Cases	***Percent of Cases***
Endometriosis	25%
Male Factor	18%
Tubal Factor	12%
Luteal-Phase Defect	7 %
Anovulation	16%
Cervical Factor	5 %
Uterine Factor	2 %
Other	16%

Source: Hammond and Talbert, 1992

Fertility of men is not influenced by age but age affects the fertility of women. It was found that the marital fertility rates decrease gradually with the increase in age of female consort (Menken et al.,1986).

2.3. Being Infertile and Responses to Infertility

It should be pointed out that not every woman will have reproductive potential, and that there may be good reasons why nature is not allowing them to reproduce. The possibility of having trouble about having a child may come as a surprise to most individuals when they first encounter a fertility problem. Menning (1980) argued that adjustment to infertility involved successfully going through a series of stages, which include surprise, denial, anger, isolation, guilt, grief and resolution. Nevertheless couples cannot achieve resolution until they are certain that they will be childless unless they go through an infertility treatment.

The wish for a child and feeling bad about the absence of a child in the family makes infertility a depressive condition. Infertility is evaluated as undeniably a major life crisis and psychologically stressful for many couples (Leiblum and Greenfield, 1997). For most of the marriages, fertility concerns and sexual behavior may be central aspects. Learning the truth about being infertile is something difficult to overcome, as fertility has been believed to exist until that moment. A number of investigators have suggested that there is considerable high negative psychological, behavioral and social effects of infertility on both members of a couple who desire a child by using anecdotal evidence (Andrews et al.,1991).

The understanding of the cause of infertility will distress couple, as the address of deficiency will be revealed as well. It is often difficult for couples to address this problem openly and this may keep back the couple to identify a solution. In the study of Lee et al. (2001), wives in couples with a female infertility factor experienced higher global and self-esteem distress, guilt and blame than their spouses. At the same time, wives with female factor infertility reported higher distress in the global distress and distress in self-esteem than wives with male factor.

When one of the partners is the cause of infertility, this may be more difficult for the couple to treat as a common problem. For years, to feel healthy and fertile until being faced with an infertility problem and being threatened with never having a child and understanding the situation was caused by one's partner will rise the question of "why me?". Moreover, once the decision is made, the IVF treatment will be applied on women even if male is the cause of infertility. Women will feel all the physical pain and suffering in her healthy body during treatment despite the fact that deficiency was in male partner. However, it has been reported that women are very protective of their partners even to the point of taking responsibility for a male factor problem (Miall,1986). This is such a situation that even when only one partner is biologically infertile, they may have to accept each other as an infertile couple.

Understanding that they are unable to conceive and rising off the wish of desiring for a child is the period when couples should cling together. They have to struggle with the feeling that they've failed in the most basic of all roles: reproduction.

Also a sort of psychosocial chain is needed among relatives and friends and they tend to avoid discussing these issues and give support. Then, first the acceptance of infertility then the treatment is difficult. In acceptance and diagnosis, to share the deficiency as a common problem is important to prevent conflicts in marriage and carry the hope for a child by undergoing trials of IVF treatments.

Women faced with infertility might be referred to psychotherapy since they were thought to be confused about their sexual identity or rejecting their traditional roles. In a review of the psychological literature on infertility, Dunkel-Schetter and Lobel (1991) found differences between clinical and empirical studies. Clinicians described infertility as producing serious and enduring distress that could interfere with normal activities. According to their empirical studies in which infertile and fertile women were compared, it had been shown that the two groups did not differ significantly from each other on measures of self-esteem, relationship satisfaction, and psychological functioning. (Dunkel-Schetter, Lobel 1991)

2.4. Desire For A Child

Family is thought to be the smallest unit of a society. The question of what creates a family has controversial answers like getting married, solidarity or having a child. Having a child may be seen as an indicator of a marriage's continuity, devotion and integrity. Family without a child may be seen as incomplete like a hole in a puzzle that is useless unless it is completed. Sometimes the desire to be a mother can be more

dominant than establishing a family. To feel as a mother, to give a birth, to be able to create a life and to feed may be a life-long dream for some women.

For most adults, deciding to have a child brings out excitement and satisfaction. This decision follows "naturally" the developmental processes of forming a settled home, beginning a career and establishing a long-term relationship. Such an order of goals in life might be carried on and completed with having children.

The desire to reproduce and having a child also have explanations in biological aspects. Genetical and hormonal dominance on woman and woman's fecundity tend to make woman a mother. Motherhood might be viewed as essential to achieve the fulfillment of motherly senses. Maternal instinct might make women believe that giving birth would bring happiness, satisfaction and a female identity. Importance of motherhood for a female identity reminds women their fertility.

Kagitcibasi (1982) had shown in Turkish Value of Children Study that people's perceptions and values were affected by socio-economic-cultural factors and they were reflected in intra-family relations. Fertility behavior was affected by perceptions, values and family dynamics as social-psychological mechanisms in turn.

> …A further refinement is brought to the commonly observed (causal) relationship between socio-economic development and decreased fertility by introducing the concept, of the perceived value of children. The understanding is that, with social change and development, the needs are satisfied by children; thus, functions of children change. This is reflected in modifications in the values attributed to children, and consequently in the numbers of children desired, eventually affecting fertility (Kagitcibasi, 1982:pp:152).

2.5. Deciding To Undergo IVF

It has been widely found that in-vitro fertilization (IVF) is also a particularly stressful experience, especially for woman (Beutel, 1999). Assisted reproduction technologies do offer important benefits for desperate people however they bring out some significant personal or societal price tag. For example IVF is a physically tiring and expensive procedure. Infertility treatment is long and exhausting; marital sexuality is disturbed involving physical suffering. All these may lead to emotional disorders (Kopitzke *et al*., 1991). Nevertheless, according to research into infertility, the diagnosis of infertility, IVF and possible failure do not provoke the same threat to all individuals since there are numerous personal and contextual variables affecting the psychological response to infertility (Ardenti *et al*.,1999).

Mostly, the treatment of the unfulfilled wish for a child may involve a cycle of repeated interventions. Therefore, throughout this long process that can have a specific emotional stresses combined with disappointment and possible desperation way surface. Psychological factors are related with the experience of infertility however it is uncertain that stress and infertility are related with each other as a cause or consequence. Anxiety and depression are the main psychological problems that may arise. Anxiety may result from stressful times of treatment procedures including the worry about the probability of failure of the treatment. In fact, authors think that the most important psychological determinant of reactions during IVF is the uncertainty of treatment procedures (Boivin et al.,1998). Waiting to find out whether each stage of IVF has been passed or failed causes incredible amounts of ambivalent feelings involving distress and more positive feelings of hope and emotional closeness. Thus,

treatment involves uncertainty and lack of control and exposes the couple to the possibility of failure.

After realizing, understanding and accepting the concept of infertility, couple begins to search for the cure of their problem and they encounter infertility treatment, which includes any of the assisted reproduction techniques. Before deciding to undergo this treatment they investigate the procedures, financial cost and certainty of treatment by going about from one clinic to another. Meanwhile they realize the importance and seriousness of the psychological problems that will arise during the period of treatment. They have no choice about the treatment method appropriate for them. Fertility specialists recommend the treatment cycle, which has been found to be proper for the couple on the basis of the previous tests and infertility history. To accept or reject that treatment depends only on the decision of the couple.

While trying to give a decision about undergoing IVF treatment, many factors should be considered and analyzed in detail. Social factors are determinant at this point. First, it is important whether the infertile couples have shared their problem with others. Some of them may feel this is such a sensitive subject that it should be kept confidential. The reason of such an action may be out of shame, weakness, disability or fear of labeling. As a result of these feelings, they isolate themselves from their environment including their relationships, habits and activities. The fear of being condemned by the social environment that they live in may have an important influence on rejecting the treatment.

On the other hand support or initiative may come from others. This eases and helps the couple in sharing information about the problem and its treatment. In an retrospective study, Baram et al.(1988) found that women were more likely than men to seek support from family and friends during treatment especially during the days prior to the pregnancy test. Sharing the psychological difficulties with their social environment and not feeling lonely but stronger is very important. Thus, the role of the social environment and their awareness and support effect the decision of undergoing IVF treatment.

As a result of recognition and acknowledgement of possible solutions for infertility problems, reproductive technologies exhibit many choices available to couples. Assisted reproductive techniques are among the topic that have attracted wide public attention and have increased the hopes as well as stress of infertile couples (Andrews,1991).

Increase in use of technology for reproduction reminds us that the decision to have or not have children is no longer a matter of God or nature. It has been made subject to human determination and technical capability. Also it became a matter of choice whether people reproduce now or later and whether they overcome infertility.

2.6. Differential Impacts of IVF Treatment on Women and Men

Diagnostic procedures and medical treatment that the ART involves have an important effect on the intimate life of the couples. Life changes dramatically for couples after

medical treatment begin. The physician makes plans for the reproductive life of the couple and they have to depend on these plans for their conception. Their attention becomes focused on the single lack of accomplishment and all of their other goals and needs are neglected. This focus has an irresistible negative impact on their confidence, self-esteem, health, relationships, security and even ambitions (Hynes, 1992). This impact may involve the loss of these values as well as status or prestige, the hope of fulfilling an important desire and someone of great symbolic value. Any of one of these losses could precipitate a depressive reaction in an adult. In varying degrees, experience infertility creates a crisis of major proportions to many couples (Mahlstedt,1985;1987). Thus, the change in couple's relationship, their sexuality and ability to cope with the psychological and emotional effects caused by the treatment should be considered.

Throughout their lifetimes, while women are more likely to mobilize their supports and adapt to emotional expressions to these supports, men tend to have more extensive but less intense networks (Jordan and Revenson, 1999). Men are traditionally seen as the financial providers of the relationship (Kagitcibasi, 1982). They are usually known to feel more threatened expressing themselves since they have often been conditioned to repress their emotions. Kagitcibasi made an evaluation and comparison of ideal sex roles that were never realized in practice but were theoretically for men and women.

> Men are expected to be strong and powerful, unafraid of anything, active, independent, unemotional, intelligent and interested in things not people. They are also expected to be unlimited in their sexual appetites. Women on the other hand, are expected to demonstrate the opposite of these states: weakness, passivity, helplessness, submissiveness, dependency, emotional expressiveness, nurturing, clever but not too intelligent, and interested in people not things. Women are also expected to be undersexed (Kagitcibasi, 1982; pp:337).

Men and women give different responses to conditions and problems they face. Thus, men and women seem to be affected by infertility in different ways. Most couples may experience the struggle in much the same way but it might be considered that women are socialized to be more emotionally sensitive, to connect with their inner feelings and to express those feelings (Ptacek et al.,1992). As the social support literature has documented, women's social networks are multifaceted providing more emotional and health related support (Shumaker and Hill,1991). In addition, coping through the processing and sharing of emotions may be more socially acceptable for women than men (Stanton et al., 1994).

A number of studies carried out in recent years have examined gender differences in reactions to IVF. There is much evidence to suggest that women react much more intensively to IVF than men (Edelmann,1990; Boivin et al.,1998). Previous studies have shown that prior to treatment women report more anxiety and depression (Slade et al.,1997), less self esteem (Shaw et al.,1988; Boivin et al.,1998) and more stress during IVF (Collins et al.,1992) than men. The few studies that address reactions during treatment show that men and women may also differ in terms of their assessment of the stress of IVF. While there was much similarity in the response pattern of men and women, women did react to treatment with more distress than men, especially at the time of oocyte retrieval and at the time of pregnancy test (Boivin et al.,1998).

2.7. Impact of IVF Treatment on Social Aspects of Life

Reproductive technology is available in an era of rapid change in sexual practices, gender roles, divorce rates, family structure, and economic life. The impact of infertility on social and psychological functions is a complex matter influenced by a number of variables. The investigative procedures involved, the duration of the infertility, the quality of a couple's relationship with each other and with social environment may have impact on the psychological and emotional situations of the couple. Infertility may create a wall separating them from fertile couples, parents and friends. Lack of information about infertility and infertility treatment is a contributing factor to the tension between the couple and their family and friends.

Any change in marital adjustment, life satisfaction, marital and sexual satisfaction, life style and habits, relationship with family and friends will lead to the extensive pains aroused during infertility experience. After their acknowledgement of their infertility and attendance to treatment will bring out changes in all the aspects of their life. These changes should be carefully investigated and monitored.

Literature is full of anecdotal evidence about the linkage between infertility and stress. The deleterious impacts of a fertility problem are said to have effect on the functioning of a marriage and the life quality of the spouses (Andrews et al.,1992). Marital conflict, sexual self-esteem, sexual dissatisfaction, frequency of intercourse and several aspects of subjective well-being are influenced by substantial amount of stress associated with a fertility problem (Andrews, 1991). Furthermore, couples may become less able to fulfill

each other's needs and become depressed not only by their failure to conceive but also by their loss of closeness and ability to understand each other. Then, marriages and interpersonal relationships of the couples, family and friends suffer during infertility treatment. (Mori, 1997)

Certain factors such as sex role discrimination and social support may be argued to act as buffers against stress and as a result may partially protect the infertile person from experiencing psychological difficulties. Then, infertile patients sharing their difficulties with the spouse may show less emotional distress. The marital adjustment has an important role in this respect. Leiblum et al.(1987) has argued that infertility may serve to improve a marital relationship by bringing a couple closer together via their shared problem. However, infertility is only likely to have supportive side effects in the case of stable marital relationships.

Link and Darling (1986) found that infertile couples' levels of contentment and of marital and sexual satisfaction were reported to be similar to the levels in normal couples. However there are different views such as the women blamed their sexual dissatisfaction during and after treatment on their infertility, citing a lack of spontaneity, poor sexual self image or a feeling that sex was meaningless without the ability to conceive (Reading&Kerin,1989). Relationship issues seem to have important manner on sexual activity. Since having a baby is seen as a normal accomplishment and expression of one's sexuality, infertile couples may reflect the failure to conceive to their entire sexual identities. While conflict, stress or disappointment can all weaken the conditions necessary for sexual expression, joy and pleasure may have been suppressed

in infertile couples by the loss of sexual competence. Sex becomes like a job with the purpose of making a baby rather than leading to pleasure and satisfaction. Many authors have focused on the impact of infertility treatment on sexual life of the couples. Worries about infertility and the physical and psychological pressure of infertility treatment make couples stay away from going into sexual interactions. Most aspects of life quality, and sexual self-esteem and the frequency of sexual intercourse are found to be decreased by marital conflict and sexual dissatisfaction (Andrews, 1992). New reproductive technologies seem to constitute a further cause of the disintegration and breakdown of the marriage network, even as they serve family interests by allowing desperate couples to have their offspring.

Religious, cultural, social and personal values have placed great value on fertility. In a study that examined the reasons individuals give for wanting children, Payne (1978) found that the having children had always been expected by respondents and children had been seen as a means of identifying and communicating with significant others. Infertility and infertility treatment, which reveals infertility, make couples feel reminded of these cultural, social and personal expectations. Affecting all components of a couple's life, career activities as well as subsequent financial remuneration are often interfered with IVF treatment. Infertility treatment has also impact on job performance, relationships with co-workers, ability to concentrate, decisions to act, acceptance of a promotion and decisions to resign or change jobs (Mahlstedt,1985).

Consequently, major cultural changes aroused by advances in medical science and technology introduced opportunities for progress in achieving human benefits.

Nevertheless, new and difficult challenges, which influence the entire life of ART users, do exist. This concern requires understanding the meaning and the reason of their desire for a child under difficult circumstances as well as accepting the possibility of unsuccessfulness in treatment and their social relationships.

Next chapter, I will go into more detail in the assisted reproduction technology. Different assisted reproduction methods as well as the stages of an infertility treatment will be covered.

CHAPTER 3

ASSISTED REPRODUCTION TECHNIQUES

In vitro fertilization with embryo-transfer is the technique that has been developed and used for certain forms of infertility or subfertility for which other methods of treatment have either failed or are without hope of success. In vitro fertilization has been successfully applied since the birth of Louise Brown in July 1978 for the treatment of infertility caused by tubal disease, unexplained (idiopathic) factors and male factor. However it has also been documented that while classical IVF method was successfully served for patients with normal semen parameters, it was not effective on male infertility (Steirteghem et al.,1997). In the past decade assisted reproduction techniques have been developed to eliminate the factors contributing to male factor infertility preventing sperm penetration into ooplasma, namely the zona pellucida and the ooplasmic membrane. In 1992 by a novel procedure of assisted fertilization; intracytoplasmic sperm injection (ICSI) the first pregnancies and births were obtained (Palermo et al.,1992).

The ART methods, which are most commonly used in infertility clinics and hospitals are shortly described in the following section.

3.1. Types of Assisted Reproduction Techniques

Assisted Reproduction Technology involves different methods that can be applied sequentially or one of the methods is chosen to be applied according to infertility factor and the patient's infertility history.

Intrauterine insemination (IUI) is one of the ART methods specifically recommended as the first option of assisted reproduction techniques since this technique is noninvasive and much more cost effective in comparison to other ART methods like classical IVF and intracytoplasmic sperm injection (ICSI). It is applied especially in cases of male subfertility and persistent idiopathic fertility disorders (Prietl et al. 1997). Semen sample ejaculated by men is prepared in andrology laboratory. Semen processing techniques are used not only for IUI but for all other ART methods as well. A significantly higher percentage of progressively motile and viable sperm cells are produced by these techniques. Furthermore elimination of seminal plasma that prevents capacitation[1] and fertilization of oocyte and removal of detritus and contaminants are aimed by sperm preparation. The prepared semen sample is then injected directly into female uterus with a catheter.

Classical in vitro fertilization (IVF) is another method that involves procedures of collection of oocytes (eggs) from woman and semen sample from men, their preparation in andrology and embryology laboratories and making them contact in

[1] Sperm acquire the capability of penetration to the zona pellucida in the course of a few hours inside the female genital tract through a process called capacitation (Austin, 1952).

culture media in laboratory conditions. The fertilized oocytes (embryos) are then transferred into the female uterus.

Intracytoplasmic Sperm Injection (ICSI) is reported to be the most efficient ART method by which the higher fertilization rate and similar cleavage rate and high implantation rates have been obtained (Palermo et al., 1993). Intracytoplasmic sperm injection is a micromanipulation technique developed to help achieve fertilization for couples with severe male factor infertility or couples who have had failure to fertilize in a previous in vitro fertilization attempt. The procedure overcomes many of the barriers to fertilization and allows couples with little hope of achieving successful pregnancy to obtain fertilized embryos. After collection and preparation of a semen sample and oocytes, a single sperm cell is directly injected into each oocyte with a special micromanipulator. The resulting embryos are then simply placed into the uterus with no surgery, just like in classical IVF technique.

After deciding to enter an IVF cycle, which means the whole treatment process from the beginning to the end, a proper method of IVF is chosen and the hyperstimulation of female ovaries is aimed. While in a normal female cycle one oocyte is produced in each month, in these methods more than one oocyte is aimed to be produced. The first method called insemination is a simple procedure that is preferred when there is no problem about sperm counts and morphology. The failure of insemination technique directs physician and patient to in vitro fertilization techniques. Classical IVF and ICSI methods are said to be in vitro fertilization techniques. In vitro fertilization means that

fertilization takes place outside the body, in a small glass dish. After culturing the fertilized eggs (embryos) in incubators[2], they are placed directly into the uterus.

3.2. Stages of IVF Procedure

In this section a regular IVF cycle usually practiced in an IVF clinic will be presented.

3.2.1. First Check Up, Ovary Stimulation

After deciding to undergo any of the ART procedures, couples generally prepare themselves to the worst they can think of that will take place during the infertility treatment. These events involve all the steps of IVF procedure, all the physical and psychological impacts of each step as well as the social influence to their life, marriage, other relationships and habits. Throughout the cycle they will be worried about the consequences of the process as no one can guarantee a positive result for pregnancy.

The infertility evaluation begins with a complete history and physical examination of both partners. After a comprehensive history has been obtained and physical examinations are completed, a series of testing procedures are initiated. Whatever the cause of infertility is, an IVF cycle starts with the stimulation of ovaries. Woman is given injections and drugs for induction. These super ovulation techniques used in IVF are designed to stimulate the ovaries to produce several eggs rather than the usual single egg as in a natural cycle. Multiple eggs increase the potential availability of multiple embryos for transfer and ultimately the probability of conception. Continuous

[2] Tissue culture requires incubators maintaining a set gas concentration at a constant temperature of 37°C and high humidity.

monitoring of woman's follicles by ultrasound control is made which allows determining when the eggs are ready for the next stage, oocyte retrieval.

It had been noted that woman's life may be more disrupted than her partner's as majority of medical tests and infertility treatments involve the woman's reproductive system, (Abbey *et al*. 1994a).

The first check-up procedures and controls do not give any physical pain to women. Only vaginal controls and ultrasounds may cause discomfort however these processes are performed in routine woman gynecological controls so there is no extraordinary procedure in a pre infertility treatment.

3.2.2. Oocyte Aspiration

When the hyperstimulated follicles are ready to be ovulated that is when they are measured and determined that they have matured enough, an injection called βhCG is done to ovulate the follicles. The contents of the follicles are aspirated by an automatic suction apparatus. Oocyte aspiration should be performed after 36 hours of βhCG injection. Patients are informed about these sequential procedures. As the number of mature follicles is known in ultrasound controls, the number of oocytes collected by aspiration can be predicted. All the physical pain, discomfort and risks involved in an oocyte aspiration might cause psychological pressure and stress. Before oocyte aspiration couples get flurried about the oocyte number that will be collected and whether the aspiration process is painful or not. Surgical procedures for oocyte retrieval might create anxiety for couples. General anesthesia, the number of oocytes that will be

retrieved and the quality of the oocytes, both of which affect the possibility that the oocytes will be fertilized are the main processes making the couple anxious (McGrade and Tolor, 1981).

On the day of oocyte aspiration, man ejaculates semen sample by masturbation. Testis biopsy is performed to collect sperm cells when man has no viable, motile and qualified sperm cells in his ejaculated semen or he is unable to give a sample. Thus, throughout an IVF treatment all the physical processes are primarily implemented on women, thereby limited physical attendance of man is necessary.

Researchers also reported that the oocyte retrieval has generally been associated with more physical distress in women than men (Leiblum et al.,1987; Boivin and Takefman,1996). Women have also been said to be more concerned about their oocytes than men (Seibel and Levine,1987).

3.2.3. Sperm Preparation

After the specimen is produced, the sperm will be prepared in andrology laboratory for insemination of collected oocytes. In sperm preparation, it is aimed to eliminate the immotile and unviable sperm cells, increase motility and the concentration of motile cells. Preparation of semen sample is an important procedure for both ICSI and classical IVF methods as an efficient and adequate sperm sample leads to higher fertilization rates (Biljan et al.,1994). Sperm collection and preparation step in IVF cycle may be stressful for couples having male factor infertility. In cases like

obstructive and non-obstructive azospermia no sperm cell can be collected through ejaculation therefore other methods like surgical testis extraction or aspiration should be applied.

3.2.4. Assisted Fertilization of Oocytes

After the oocytes and semen were prepared, a single sperm cell is injected into each oocyte in ICSI procedure. The microinjection is carried out on the heated stage[3] of an inverted microscope. Injection and holding pipettes that are used for stabilizing the oocyte and aspiration and injection of sperm cell respectively are fixed into a tool holder and are connected to a micrometer-type microinjection. The movement and manipulation of these pipettes are controlled by two coarse and fine positioning manipulators and with two three-dimensional hydraulic remote-control micromanipulators (Steirteghem et al. 1997). In classical in vitro fertilization, gamete cells taken from women and men and prepared are placed in culture media in laboratory conditions. Sperm cells are let to fertilize the oocytes. There is no use of the micromanipulator that is used in ICSI but fertilization depends on the ability of sperm cell to penetrate the oocyte.

[3] In laboratory conditions oocytes and embryos should be kept in 37°C therefore all the manipulations should be proceeded on a heated stage.

3.2.5. Embryo Transfer

The next day after the microinjection of single sperm cells into each oocyte, fertilization control is made for each. On the day of fertilization control, couples are informed about the fertilization rate. As they have already noticed the importance of number and are full of worry about the probability of no oocytes being fertilized, this is a very stressful waiting until they have heard about the number of “baby candidates”. In a study of Hammarberg et al. women undergoing infertility treatment identified that waiting for news about fertilization as one of the stressful time when counseling should be given (Hammarberg et al.,2001).

The embryos are incubated in the laboratory cultures (in vitro) inside incubators until they are transferred into uterus. Embryos are transferred into uterus through a small tube (catheter). This procedure is much like a pap smear and does not require any anesthesia and is usually painless. The number of embryos transferred depends on individual circumstances. The couple, physician and the embryologist make a decision collectively on this issue.

Embryo transfer is the final process in an IVF cycle. Couples may be more comfortable as they think that the IVF journey ends at last after a painless embryo transfer procedure. On the other hand more pressure is added on the shoulders of women as she is leaving the clinic with possible baby candidates in her uterus.

3.3. Waiting for the Result

There is universal agreement among women in all studies that the most stressful time in an IVF treatment cycle is the wait after embryo transfer to find out if the treatment has resulted in a pregnancy (Holmes and Tymstra,1987; Mahlstedt et al., 1978; Baram et al., 1988; Callan and Hennessey, 1988; Kentenich 1989; Newman and Zouves,1991; Connolly et al., 1993; Hammarberg et al.,2001). 13 days after the embryo transfer, a hCG injection is done as a pregnancy test. This is a normal hormonal control, which reveals the status of pregnancy. This is important and vital as it will hopefully end the suffering of the whole treatment. Thus, it should be an important and determinative period to analyze the psychological and emotional status of couples.

3.4. Necessity of Counseling and Support

Throughout an IVF treatment, there often comes a time when feelings such as depression, anger, frustration or fear may arouse and the help of medical staff may be needed. Many stressors can lead to such expressions of emotional pain. But fertility clinics, hospitals as well as the response of physician can have a great impact on addressing the psychosocial and emotional needs of patients as well as their medical needs (Boivin et al.,2001). In fact, the stress associated with infertility may be lowered when the physicians and medical staff give importance to their patients' understanding of procedures by explanatory approaches, making the couple more adapted, involving men more in the infertility treatment and assisting women throughout the treatment. Boivin et al. (2001) also underlined that medical staff should provide patient-centered

care. It should be noted that counseling should only be provided by professionally trained people. The introduction of a psychologist, psychiatrist or social worker into the medical team may help answer the patients' needs. Throughout the treatment the approach of medical staff is of utmost importance in preparing the couple for possible outcomes of the treatment. Also counselors and psychotherapists can play an important role in helping women adjust and cope with the physical, psychological, and social changes they experience during the treatment. Psychological treatment may be offered as a means of enhancing of how to cope with infertility treatment. Psychological counseling and supportive psychotherapy was also found to be effective in reducing anxiety level of couples undergoing different treatment procedures (Tarlatzis et al.,1993). Furthermore, in recent years many studies had been focused on the possible influence of psychosocial stress factors on the outcome of infertility treatment (Demyttenaere et al.,1992; Merari et al., 1992; Thiering et al., 1993; Harlow et al., 1996; Stoleru et al., 1997; Milad et al., 1998; Sanders et al., 1999).

The aim of any counseling seems to be not only providing infertile couples with understanding the implications of treatment procedures but also giving sufficient emotional and psychological support, understanding of how to cope with the consequences of infertility experience and diminishing the psychological barriers effective on the treatment outcome as much as possible. Through counseling, it also seems that health outcomes might be improved, patient satisfaction from treatment might be increased and possible psychological reactions might be reduced.

In a study by Hammarberg et al. (2001) particularly stressful times when counseling may have an important role to play were identified by the women. Waiting for news about fertilization, waiting to find out whether the treatment was successful, understanding whether the treatment had failed or a miscarriage occurred, were evaluated as the most stressful times throughout an infertility treatment.

3.5. An Outcome of Unsuccessful Result and Deciding Another Trial

Although some people experience early success in the treatment process, with relatively few and non-intrusive interventions being needed, other couples may experience years of treatment with many interventions. The chance of success for the first in vitro fertilization attempt is only about 23% (American Society for Reproductive Medicine,1999).

Treatment that results in repeated failures leads to disappointment and depression. This situation may only result in delaying and prolonging adjustment to childless status (Adler et al., 1991). The emotional distress might be particularly great when waiting for the treatment outcome, in the case of unsuccessful treatment and in the cycles following the first attempt.

> The difficulties that the time necessary for treatment imposes on the lives of infertile couples, such as time off work and travel to attend appointments and the stress created by continually focusing on the infertility treatment and the fear of failure, have also been described (Abbey et al.,1992).

In a study by Reading et al. (1989), couples' reaction to an unsuccessful outcome of treatment and the role of medical staff on this issue were evaluated as the following,

> After an unsuccessful outcome, the mood may change and couples may feel unprepared for the disappointment, given the positive signs and the assurances provided by the nursing and medical staff that everything looks ideal (Reading et al.1989; pp:862).

Time and new trials may be required to have a successful result in IVF. Each new trial means an additional stress and depression, more psychological problems and permanent emotional pressures since treatment costs and the number of tests and treatments received have correlated highly with the stress associated with fertility problems. Unsuccessful infertility treatment and IVF procedure may serve a positive function in facilitating infertile couple's acceptance of childlessness (Golombok, 1992). However after each IVF cycle, couples decide about whether they will continue treatment or not. This decision may be based on a reevaluation of the couple's feelings and consideration of the psychological distress, which may also result following IVF failure (Guerra et al.,1998). A pregnancy may be obtained after 2-3 or maybe more IVF trials. The number of trials may be related with the psychological, physiological and financial status of the couple. Decisions for a new trial may be made about treatment options as well as about how much treatment a couple is willing to undergo.

Reading and Kerin (1989) had an interesting approach for repeating IVF trials that, just as gamblers were convinced that their next bet would be successful, equivalent processes may have been seen for IVF and the accompanying feeling that the next trial in IVF would be successful.

A woman getting pregnant after a long journey of repeated IVF cycles should be in a much different psychological and emotional status with respect to other women getting

pregnant after their first trial of IVF. Thiering *et al.* (1993) had a study revealing a certain correlation between the emotional state during treatment and the final outcome. The depressed women were shown to have a lower pregnancy rate than non-depressed women; moreover, the women repeating the IVF cycle were found to be more depressed than those at their first cycle (Thiering et al., 1993).

The relationship between women having different number of IVF trials may be influenced by experience, tiredness as well as feeling hopeless. Getting used with diagnosis procedures, injections, hormonal controls, physical pains and the waiting for the embryo transfer and pregnancy test, constitute the experience of IVF. The level of desiring a child would balance all the negative impacts and may increase or decrease after each attempt. With serial attempts of IVF, getting pregnant may also reveal different feelings about pregnancy and being a mother. The degree of distress released after a treatment failure also appears to be greater for women than men (Newton et al.,1992).

3.6. Getting Pregnant and Impacts of Infertility on Pregnancy

Infertile couples who decide to undergo infertility treatment for the purpose of having a child seem to venture all the negative impacts of IVF experience without knowing whether treatment will result in success or not. Getting a positive result, which means getting pregnant as a result of laboratory technology is a great reward and delight to couples. After stressful and depressive years of fighting with infertility, it is not

convincing that getting pregnant will recover the impacts of infertility and subsequent treatment.

Pregnancy is a major event in life that affects many important aspects of women's lives. Just like other major life events, pregnancy might be a stressful experience that requires adjustment and exhibiting coping strategies. For women involved in IVF and other assisted reproduction techniques, psychosocial stressors were found to be aroused during the treatment (Hammarberg et al, 2001). All these stressors not only affect the success of treatment (Sanders et al.,1999), but the psychological and emotional status of women seems to continue even after a positive pregnancy result. There are clinical reports indicating that pregnant women having a history of infertility, experience high levels of anxiety during pregnancy. Also, these women were reported to have difficulty seeing themselves as successfully pregnant (Olshansky, 1990). Moreover, there is concern that couples conceived as a result of treatment may experience psychological problems during pregnancy which may also impact negatively on later parenting (Raoul-Duval et al., 1994). McMahon et al (1997) investigated the relationship between the number of treatment cycles and the anxiety level raised in mothers conceived via IVF treatment. Increase in anxiety levels were detected in "IVF" mothers who had experienced two or more treatment cycles.

As the empirical studies have implied the truth of being infertile, undergoing treatment and treatment failures impact not only the outcome of the treatment but also the ongoing pregnancy or the well-being of unborn babies.

In the next chapter, the methodology of the research based on the questionnaire given to two groups of women sample will be examined. Information about the questionnaire including questions that will enable us to make qualitative and quantitative analyses will be figured out as well. Furthermore, the characteristics of research sample consisting of women undergoing infertility treatment and women conceived "naturally" will be presented.

CHAPTER 4

RESEARCH PROCEDURES AND CHARACTERISTICS OF TWO GROUPS OF WOMEN IN THE SAMPLE

4.1. Procedures of the Research

Methodology of the thesis was based on questionnaires given to two groups of women. Having been analyzing the questionnaires, both quantitative and qualitative data were used. 31 women taking infertility treatment and 31 fertile women were the questionnaire participants. Women in IVF (in vitro fertilization) group included women undergoing infertility treatment in the clinic; Gen-Art Woman Health, In Vitro Fertilization and Reproductive Biotechnology Center[4]. Women gave oral consent for participation in the study. All the women filled the questionnaires themselves. Therefore, there were some unanswered questions. The questionnaire included multiple choice and open-end questions. Qualitative analysis was made on the basis of women's answers to open-end questions. Some particular answers were stated as quotations and presented in Chapter 5. Qualitative analysis was enriched by quantitative data, which

[4] Gen-Art Woman Health, In Vitro Fertilization and Reproductive Biotechnology Center is one of the 5 independent IVF clinics present in Ankara. Additionally, there are 5 public and 3 private hospitals having infertility and in vitro fertilization units. In Turkey, there are 52 centers giving IVF service. The number of couples taking IVF service is about 10000-12000 a year. The cost of an IVF treatmenty is about 2000-2500$ in public hospitals and 2500-3000$ in private hospitals and clinics. Additionally, approximately 600-1500 $ is paid for the drugs. (T.C. Saglik Bakanligi, Oral Communication).

included relevant tables and statistical results. All statistical analyses were performed by means of Statistical Package for Social Sciences (SPSS) program.

Beck Anxiety Inventory Test (BAI)[5], which had been designed to discriminate anxiety of two groups of women, was attached to questionnaires. According to women responding to Beck Anxiety Inventory Test, anxiety scores of each woman were calculated. Relationships between these anxiety scores and other qualitative data were examined by means of statistical analyses.

Throughout the quantitative analysis in respect to most of the questions, significant differences between the answers of two groups of women and other relationships between their demographic characteristics was found.

4.2. The Questionnaire

Questionnaires were prepared in order to analyze social, psychological and emotional impacts of infertility treatment on women. The questionnaire consisted of questions about demographic characteristics, reproductive or infertility history, emotional and social dispositions and anxiety states. Two sets of questionnaire were designed. Fertile

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[5] Test's reliability and validity were as follows; the scale obtained high internal consistency and item-total correlations ranging from .30 to .71 (median=. 60). A sub sample of patients (n=83) completed the BAI after 1 week, and the correlation between intake and 1-week BAI scores was .75. The correlations of the BAI with a set of self-report and clinician-rated scales were all significant. The correlation of the BAI with the HARS-R and HRSD-R were .51 and .25, respectively. The correlation of the BAI with the BDI was .48. Convergent and discriminant validity to discriminate homogeneous and heterogeneous diagnostic groups were ascertained from three studies. The results confirmed the presence of these validities. (Beck, 1988)

Turkish version of the Beck Anxiety Inventory had been made in 1996. (Ulusoy M, 1996) Internal consistency was found to be 0,93 and item-total correlations were ranged from 0,45 to 0,72 with a re-testing reliability of r = .57. The correlations of the Turkish version of BAI with a set of self-report and clinician-rated scales were all significant as well. The correlation of the BAI with the HARS-R and HRSD-R were .41 and .34, respectively. The correlation of the BAI with the BDI was reported as .46.

women were given adapted form of questions asked to women undergoing infertility treatment. Most of the questions were open-end questions that were examined qualitatively on the basis of these analyses and some open-end questions were coded by developing response categories.

After demographic features, infertility investigation and open-end questions, a multiple-choice anxiety test was attached at the end of questionnaire which takes approximately 5-10 minutes to answer. Beck Anxiety Inventory Test (BAI) has been designed to depict anxiety from depression in individuals.

Each of the BAI items describes a common symptom of anxiety. The women were asked to rate how much they had been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The items for each woman were summed to obtain a total score that could range from 0 to 63.

4.3. Questions in Questionnaire

The questionnaire started with demographic features of women. There was no difference in demographic investigation sections filled out by two women groups. Same questions were asked including their age, husband's age, year of marriage, educational level, occupation, working condition, city of birth, city of present residence and place of the longest residence were asked. In the subsequent section, an infertility and reproductive investigation was made for two groups of women but with different questions. In this section, the questions asked to women in IVF group were about their infertility reason, how they decided to undergo IVF, methods they had undergone and

number of their previous attempts. Similar to the previous set were asked to women in non-IVF group: Which infertility factors and ART methods they were aware of, reasons and indications of infertility treatment then how they decided to have a child were the relevant questions asked to figure out that how much the women in non-IVF group were informed about infertility and infertility treatment.

Open-end questions constituted the third section of the questionnaire. Open-end questions were asked to women in IVF group to obtain comments on various aspects of their IVF treatment as well as their overall feelings about the treatment. In this part, the emotions and thoughts of women were tried to be elicited. Emotional aspects of trying to have a child by assisted reproduction methods were asked to women in IVF group while emotional thoughts about ability to have a child without undergoing assisted reproduction techniques were asked to women in non-IVF group. After this, their husbands', other family members' and friends' manner of seeing the couple's reproductive lives and their attendance to infertility treatment were asked. The rest of the questions asked to both groups were the same: Thoughts about science and technology as well as its integration to reproduction, the information source of assisted reproduction techniques, thoughts about male infertility and whether there was different views as a denial of male infertility in their social environment and expectations from life and the place of a having child in their expectations were questioned.

Reproduction is a sensitive subject that should be investigated carefully. In the questionnaire, women were asked about integration of science and technology into reproduction, which is a sensitive subject. Recently, in vitro fertilization technique was

a subject taking part in newspapers, journals and television. “When and from where did you first hear about IVF” was the relevant question to reveal the difference between the interest and knowledge of women in IVF and non-IVF groups about in vitro fertilization as well as assisted reproduction technologies.

There seems to be unawareness about infertility; its definition, causes and treatment methods. There might be wrong ideas about infertility causes since male factor infertility seems to be ignored while women are accused of being infertile. There also seems that there are couples applying to IVF clinics without considering the possibility of male factor infertility. Alexandre (1988) has a supporting approach for this subject,

> Although known about since antiquity, responsibility of man in conjugal sterility has only been recognized in the last half century. All the same, even to day, it is not always accepted: although apparently obsolete since women's sexual liberation, this denial often manifests itself in patient’s behavior, as well as in their doctor's (Alexandre et al.,1988; pp:827).

In the questionnaire a question about the awareness of male factor infertility was presented. Education and residence places of women were considered while evaluating women’s answers.

In the last question, expectations about life were asked. The place of having a child was examined in woman’s expectations from life. A woman taking infertility treatment focused on and was busy with her treatment so she might have felt that having a child was the most important thing in her life. Whereas fertile women might have attached importance to other activities of life rather than giving birth.

In the last section of questionnaire, the Beck Anxiety Inventory Test was given to evaluate and make comparisons of anxiety in women in IVF and non-IVF groups.

4.4. Questionnaire Participants

The questions in the questionnaire were adapted for two groups of woman participants; women going for infertility treatment and women conceiving birth “naturally”. The latter group of women was considered as non-IVF group. Questionnaire was introduced to 31 women from each group. Women in non-IVF group included women who had given at least one birth without the need of assisted reproduction techniques, which is implying their fertility. Women in IVF (in vitro fertilization) group included women undergoing infertility treatment in the clinic; Gen-Art Woman Health, In Vitro Fertilization and Reproductive Biotechnology Center. Questionnaire for women in IVF group was given after the embryo transfer, which was the final step of an IVF treatment. Thus the whole psychological and emotional responses were aimed to be analyzed.

4.4.1. Demographic Characteristics of Women in IVF and Non-IVF Groups

In this section, for the demographic analysis; average age, years of marriage, education, occupation as well as working condition and place of residence of the women in IVF and non-IVF were presented.

4.4.1.1. Distribution of Age

The mean age of the total sample was 33. The mean age for women in IVF group was 34 whereas it was 32 for women in non-IVF group. In the case of women in IVF group, the highest age was 43 and the lowest age was 22. On the other hand the highest age was 39 and the lowest age was 25 for women in the non-IVF group.

Table 4.1. Mean Ages of Women in IVF and Non-IVF Groups

Women in IVF and Non-IVF groups	Mean	N	Std. Deviation	Minimum	Maximum	Range
IVF	33,6	31	5,5	22	43	21
Non-IVF	32,2	31	3,8	25	39	14
TOTAL	32,9	62	4,8	22	43	21

When the ages of women was grouped into three as less than 25, between 26 and 35 and greater than 35, most of women attended to questionnaire were between 25 and 35. Women in IVF and non-IVF groups expressed similarity in the age group frequencies.

Table 4.2. Frequencies of Age groups

Age Group	Women in IVF and Non-IVF groups		TOTAL (n)
	IVF (n)	Non-IVF (n)	
≤25	4	1	5
26-35	15	22	37
36-45	12	8	20
TOTAL	31	31	62

4.4.1.2. Educational Status

When the educational status of women in IVF groups were examined, 22.6% of women had primary school degree, 9.7% of women had junior high school degree, 19.4% of women had senior high school degree, 6.5% of women had vocational school level, 32.3% of women had university degree and 9.7% of women had master or PhD degree. Thus, a majority of women in IVF group had graduated from university and primary school graduates constituted the second highest percentage. On the other hand, when the education level of women in non-IVF group had been examined, 11.3% of women had primary school degree, 6.5% of women had junior high school degree, 16.1% of women had senior high school degree, 12.9% of women had vocational school degree, 54.8 % of women had university degree and 9.7% of women had master or PhD degree. Thus, nearly half of the women in non-IVF group had graduated from university. The percentage of university graduates in non-IVF group was higher in comparison to women in IVF group. Senior high school graduates constituted the second highest percentage in women in non-IVF group and the absence of primary school graduates in

women in non-IVF group should have been considered. The two groups of women had a significant relationship with eachother indicated in Table 4.3.

Table 4.3. Educational Status of Research Sample

Women in IVF and Non-IVF group		Educational Status						TOTAL
		Primary School	Junior High School	Senior High School	Vocational Education	University	Master PhD	
IVF	%	22,6%	9,7%	19,4%	6,5%	32,3%	9,7%	n: 31 100,0%
Non-IVF	%		6,5%	16,1%	12,9%	54,8%	9,7%	n: 31 100,0%
TOTAL	%	11,3%	8,1%	17,7%	9,7%	43,5%	9,7%	n: 62 100,0%

According to the percentages of educational status of sample groups it could be figured out that the non-IVF women's educational status was higher than IVF group's. The years of education should have also been examined and compared for two sample groups.

Table 4.4.Years of Education of Women in IVF and Non-IVF Groups

Women in IVF and Non-IVF group	Mean	n	Std. Deviation	Minimum	Maximum	Range
IVF	11.6	31	4,6	5	19	14
Non-IVF	14.4	31	2.9	8	19	11
TOTAL	12.9	62	4.1	5	19	14

Having seen the difference between the educational statuses of women in two groups, investigating the years of education was important to reveal additional comparison between the women in IVF and non-IVF group. When the mean years of education were compared, it was 11.6 for women in IVF and 14.4 for women in non-IVF group. The minimum value was 5 for women in IVF group and 8 for women in non-IVF group. The maximum year of education was same and 19 for women in IVF and non-IVF groups. According to means as well as minimum and maximum values it could be concluded that the educational status of women in non-IVF group was higher in comparison to women in IVF group.

4.4.1.3.Occupation and Working Conditions of Women in IVF and Non-IVF Groups

When the occupations were examined it was seen that frequency of housewives among women in IVF group and frequency of civil servants, officers and managers in women from non-IVF group were considerably higher. In this manner working conditions differentiated between two groups since most of the women in IVF group had responded that they were housewives while considerable large numbers of women in non-IVF group were salaried employees.

Table 4.5. Occupation of Women in IVF and Non-IVF Groups

Occupation	Women in IVF and Non-IVF group	
	IVF	Non-IVF
	%	%
Housewife/retired/unemployed	51.6%	12.9%
Student		3.2%
Banker/economist	3.2%	3.2%
Teacher	19.4%	6.5%
Self-employed		3.2%
Lawyer	3.2%	
Engineer/architect	3.2%	16.1%
Doctor/dentist/psychologist	3.2%	6.5%
Chemist/biologist/nurse	9.7%	12.9%
Official/manager	9.7%	32.3%
Journalist	3.2%	3.2%
TOTAL	n: 31 100.0%	n: 31 100.0%

Table 4.6. Working Conditions of Women in IVF and Non-IVF Groups

Working Conditions	Women in IVF and Non-IVF group			
	IVF		Non-IVF	
	n	%	n	%
Salaried employee	14	45.2%	24	77.4%
Self-employed			1	3.2%
Housewife	16	51.6%	4	12.9%
Unemployed			1	3.2%
Student			1	3.2%
Retired	1	3.2%		
TOTAL	31	100.0%	31	100.0%

4.4.1.4.The Place of Longest Residence

The answers to the questions indicating place of birth, place of present residence and place of residence type might have reflected the socio-cultural characteristics of women. However, the women in the two groups did not diverge so much in these features. When the place of longest residence for the longest time period was examined in Table 4.7, it had been found that there was a difference between women in two groups. Also it seems that most of women in both groups had lived in city centers.

Table 4.7. The Place of Longest Residence Women in IVF and Non-IVF Groups Lived

The place for the longest time lived	Women in IVF and Non-IVF group	
	IVF	Non-IVF
	%	%
City center	45.2%	77.4%
District Center	32.3%	19.4%
Town	9.7%	3.2%
Village	12.9%	
Total	n: 31 100.0%	n: 31 100.0%

4.4.2. Infertility History of Women in IVF Group

In this section the answers of women in the IVF group to the questions relating their infertility evaluation and treatment experience were examined.

4.4.2.1. Cause of Infertility for Women in IVF group

When the infertility factors are considered, it was found that there were four causes of infertility these are; male factor infertility, female factor infertility, mixed factor infertility and unexplained infertility. According to McElreavey (2000), the cause of infertility arises from 20% male factor, 38% female factor, 27% both female and male factor and 15% unexplained factors. In the questionnaire all of the 31 women in the IVF group reported their infertility factors. 32.3% of these women had a male factor infertility, 32.3% had a female factor infertility, 9.7% had mixed factor infertility and 25.8% had unexplained infertility factor.

Table 4.8. Infertility Factors for Women in IVF Group

Cause of Infertility	Infertility factors according to McElreavey's data	Infertility factors of women in our questionnaire
	%	%
Male factor infertility	20.0	32.3
Female factor infertility	38.0	32.3
Mixed factor infertility	27.0	9.7
Unexplained infertility	15.0	25.8
Total	100.0	100.0

A difference in percentages of infertility factors were detected between McElreavey's and our questionnaire's data. The difference may be aroused because of the small sample size of our research and various sample distributions.

4.4.2.2. Previous Trials of Assisted Reproduction Technologies by Women in IVF Group

In assisted reproduction technologies, more than one trial can be required in order to obtain a successful result. After each unsuccessful treatment cycle, the couple may decide they would give up trying to have a child by ART or keep on taking infertility treatment which includes hormone stimulation and other technological oriented procedures.

The women in the IVF group answered all the relevant questions in the questionnaire. They reported the assisted reproduction techniques they had participated and number of trials they had experienced. The mean number of previous trials can be followed in Table 4.9.

Table 4.9. Mean Number of Previous ART Attempts

# of Previous Trials of ART	Mean	n	Std. Deviation	Minimum	Maximum	Range
	4.0	29	2.7	1	11	10

Table 4.10. Number of Previous ART Attempts

# of ART trials	n	%
1-2	10	34.5
3-5	11	37.9
6 and more	8	27.6
Total	29	100.0

According to Table 4.9. the mean of number of previous ART attempts is 4.0, the minimum number of trial is 1 and maximum number of trial is 11. Also according to Table 4.10, it can be observed that 34.5% of women in IVF group responded that it was their first or second cycle in ART. The rest of women had answered that they had three or more ART trials.

CHAPTER 5

FINDINGS FROM COMPARISON OF TWO GROUPS OF WOMEN

This chapter was based on quantitative and qualitative data of the questionnaire that was given to two different groups; women having infertility treatments and women able to give birth. Having considered women's demographic features, infertility history and knowledge of their infertility treatment, the differences between interpretations of the two groups and emotional reactions about infertility and assisted reproduction technologies will be investigated.

5.1. Deciding to have a child

Reproductive choices are not made easily. In a society, deciding on becoming a mother and father is difficult. While some couples choose to reject these roles altogether and decide to live alone without feeling the need for children, some couples wish and may insist on having a child regardless of how long they have been married, whether their social life and economical conditions are satisfactory or whether they are fertile or not. "The wish to reproduce, to have a child of one's own, is something fundamentally human. Involuntary childlessness has been described as an invisible handicap" (Eckmenning, 1980; Lalos,1985).

After figuring out the biological obstacles for having a child, couples begin to think about alternative routes to parenthood. Obviously, the first idea that comes to mind is IVF treatment, however undergoing treatment is both emotionally and physically demanding.

Many factors should be analyzed on the decision of having a child or undergoing IVF treatment. Having a child might be the common decision of both partners. Most of the time woman and man give this decision together but rarely only one of the partners desires it with insistence. Demographic features of man and woman should play an important role in giving the decision or being of the same opinion about reproduction choices.

In the questionnaire, a multiple-choice question related with this subject is asked to women in the IVF and non-IVF groups. “How did you decide to have a child” was the question for the women from the non-IVF group and, “How did you decide to undergo IVF treatment” was the relevant questions asked to women from the IVF group. The choices for women in IVF were; “It was my decision to undergo IVF treatment”, “It was my husband’s decision to undergo IVF treatment”, “It was my husband’s and my common decision to undergo IVF treatment”, “Other family members persuaded us to undergo IVF treatment” and “Friends persuaded us to undergo IVF treatment. The choices of the women in non-IVF group were; “It was my husband’s decision to have a child”, “It was my decision to have a child”, “It was my husband’s and my common decision to have a child”, “Other family members persuaded us to have a child” and “Friends persuaded us to have a child”. These were the comparative answers given by

the two sample groups. No woman in the two groups answered that other family members and friends persuaded them to have a child or undergo IVF treatment. There was a considerable difference that should have been underlined that was more women in non-IVF group had answered the question, as “it was my decision to have a child”. The comparative results were given in Table 5.1;

Table 5.1. Decision of Having a Child

Who makes decision	Women in IVF and Non-IVF Groups	
	IVF	NON-IVF
	%	%
It was my decision to have a child	3,2%	20,0%
My husband and I decided together to have a child	96,8%	80,0%
Total	n: 31 100.0%	n: 31 100.0%

As it can be seen in Table 5.1, 31 IVF women had answered the question and 30 of them answered as it was a joint decision with their husband to have a child via assisted reproduction techniques however there was only one answer as “It was my own decision to undergo IVF treatment”. This answer belonged to a woman 36 years old. When the demographic information of the woman was examined it was found that, she had been married for 12 years, graduated from senior high school and husband and wife had been living in the city center for a long time. The couple was faced with male factor infertility, which indicates that infertility factor had an effect on the decision for undergoing assisted reproduction techniques. Male factor infertility seems to make men become aware of these methods and prevents them to accept such an assisted reproduction treatment while female factor infertility may have the similar affect on

women. No one enjoys exhibiting the defects of one self. IVF is looked upon like a way of accepting their defects and inability and reconcile with their problem. The same woman's answer for the question of "What was your husband's view about having a child with ART" was as follows;

> My husband was negative about our IVF treatment as he thought that it was nonsense to share our privacy with others. He would have never accepted to undergo such a treatment unless I insisted on trying and expressed my strong wish for having a child.

This was such an extreme response that only one woman answered this way. The majority of answers reflected the agreement of woman and husband to have a child with assisted reproduction techniques. These answers were about man and woman's unity and stability for their decision of trying to have a child even if they needed to have the support of assisted reproduction technologies. A 31 years old woman answered the same question of what her husband feels about ART as,

> When my husband and I felt the absence of a baby we decided having it come through. Certainly, it was disappointing to be unable to give birth to a child, however with my husband's support I felt hopeful about having a baby soon by trying assisted reproduction methods.

A 27 years old IVF woman taking her husband's supports gave an answer as follows;

> Infertility was something we had to come over to fill the emptiness we felt after 7 years of our marriage. We shared everything from the day we got married. We should have also fought against this problem together because no one else but my husband was the one whose support was much more important than any one else.

These answers were similar to all other 29 women in the IVF group who answered that man and woman decided together to have a child.

The same question retaining the roles of each partner for the decision to have a child; "How did you decide to have a child" was asked to women from the non-IVF group and while 24 women have answered as "My husband and I decided to have a child together", six women answered that "It was my decision to have a child".

A 36 years old woman in the non-IVF group married for 6 years was one of the respondents answering that it was her decision to have a child. For the question of "How did your husband feel for having a child" she gave the answer below,

> He thought that having and raising a child took incredible responsibility. According to him we should have waited until we were fully prepared and provided the best conditions for our child.

Another woman in the non-IVF group at the age of 33 answered the same question as;

> Giving birth should be decided by both of the partners. Mothers are the ones who conceive but fathers play a very important role in the upbringing of the child. Furthermore isn't raising the child more difficult than conceiving it?

Raising a child and providing the best conditions for this require responsibility. Financial conditions may be effective on having reproduction choices. However the high financial cost of infertility treatment might have induced women to have a joint decision with her husband.

5.2. Comparative emotions for having a child naturally and with ART techniques

In spite of the inner conflict generated by the prospect of parenthood, infertility should be traumatic for a woman. The trauma is caused by prolonged physical and emotional strain as well as marital tension aroused by a comprehensive and protracted period of

medical investigation and treatment. So the verdict of infertility usually leads to a crisis for the woman, however she may deny emotional reaction aroused (Wischmann, 2001). "Psychological conflicts involving infertility reach into the deepest layers of the individual psyche, invade the interpersonal space of the couple, and radiate into the cultural surround and its definition of family" (Apfel, 2002).

A 34 years old woman married for 8 years who has tried getting pregnant via assisted reproduction techniques for 7 times expressed her feelings like,

> At the beginning of each infertility treatment we would get our hopes up After being unsuccessful, our hopes and good feelings were destroyed. These ups and downs were so exhausting.

There are different feelings aroused for having a child naturally and with ART methods. The questionnaire questions that were given to the women in the IVF and non-IVF groups tried to pinpoint these different feelings. Women in the non-IVF group, answering the question of "What did you feel about having a child without taking infertility treatment", did not hesitate to exhibit their happiness. The question for the women in IVF group was "What did you feel about trying to have a child by undergoing assisted reproduction techniques". Their responses were more mixed. For the statistical analysis in order to compare the answers of the women in both groups, answers were grouped into two as positive emotions and less desirous emotions for having a child. Answers from the women of the non-IVF group were like; "Having a child was such a beautiful feeling that I could not describe", "Having a child made me feel like so lucky", "Having a child made me proud", and "Having a child brought me happiness" were grouped into positive emotions in which women exhibited their happiness, gratefulness and excitement about having a child. Answers like "Having a

child so easily brings me happiness" were grouped into negative emotions because such a thought may have pointed out how they were unaware of the distress of people facing infertility and also their easy or "by accident" way of having a child.

Similar groupings of positive and negative emotions was made for IVF women as well. Answers like; "Having a child by ART was exciting", "Having a child by ART made me hopeful", Having a child by ART was so beautiful and makes me happy" were grouped as positive emotions and other answers like "Having a child by ART aroused a fear of being unsuccessful", "Having a child by ART was exhausting", "Having a child by ART was financially disruptive", "Having a child by ART made me anxious and stressful" and "Having a child by ART was disappointing" were grouped as negative emotions. After regrouping the answers of women as "positive" and "negative", a cross tabulation was made and a considerable difference between two groups was detected as can be seen in Table 5.2.

Table 5.2. Emotions About Having a Child

Emotions about having a child	**Women in IVF and Non-IVF Groups**	
	IVF	**NON-IVF**
	%	**%**
Positive emotions	53,3%	90,3%
Negative emotions	46,7%	9,7%
Total	n: 31 100.0%	n: 31 100.0%

A 26 years old woman from the non-IVF group answered the question of " What did you feel about having a child without taking infertility treatment" as,

> To consider the ones taking infertility treatment for the purpose of being able to have a child while I had easily conceived made me feel lucky and thankful to God. We were not so insistent on having a child but it had happened. I could not think what should I have done if I figured out that it was impossible for us to have a child. Also I could not decide whether I would have accepted to take infertility treatment either.

Trying to have a child by assisted reproduction techniques yields different emotions. Undergoing assisted reproduction technique may make women feel stressful but also hopeful. Answers of most women in the IVF group to the question about what they felt about trying to have a child by assisted reproduction techniques were similar. A 37 years old woman answered this question as,

> Assisted reproduction techniques were exciting and inhibited delightful developments for desperate couples like us. Any way that brought hope for our unborn child. This made us try and try.

Assisted reproduction technique (ART) might have brought out hopefulness, excitement and happiness but beside these optimistic answers there were also pessimistic answers like ART made them anxious and stressful and it was financially disruptive. Moreover it brought disappointment and annoyance. Another 37 years old woman, experienced more than one assisted reproduction methods evaluated her condition as,

> The presence of such assisted reproduction techniques in order to reach our goal gave hope however the moral pressure and physical pain on woman was too much. Besides taking infertility treatment was not only fatiguing but also a very expensive way for trying to have a child.

When the possible psychological and physical impacts of IVF were considered, due to their decision, women may have been under pressure and heavy stress. Biological, social, and psychological impacts seems to be effective on the answers given by women

to these questions investigating their emotions for giving birth "naturally" or in an assisted way.

Thoughts about taking assisted reproduction treatment might have been affected by some demographic features of woman like age, year of marriage, cause of infertility and the number of previous IVF attempts. However the unsuccessful IVF treatment history seems to be more effective and constituted as an undeniable important factor that might have affected undergoing assisted reproduction technique. To the question of "what did you feel about trying to have a child by ART" women gave answers like; giving hope, exciting, beautiful/making happy which we recorded as positive feelings and they gave answers like; leading to fear about being unsuccessful, disruptive, financially disruptive, leading to anxiety and stress and disappointing were recorded as negative feelings. A cross tabulation was made for total number of previous IVF treatment attempts and the emotions of women for having a child via these treatments and data collected in Table 5.3.

Table 5.3. Feelings About Trying to Have a Child by ART

Feelings about trying to have a child by ART	**Number of IVF Trials**	
	1-2	**3-11**
	%	**%**
Positive feelings	80%	37%
Negative feelings	20%	63%
Total	n: 10 100.0%	n: 19 100.0%

As it could be seen in Table 5.3. above, as the number of total IVF attempts increased, the density of negative feelings about the treatment increased as well. While 20% of

"IVF women" who had experienced less than 3 IVF trials reported negative feelings about ART, 80% of them reported positive feelings. On the other hand 19 "IVF women" who had experienced 3-11 IVF trials also reported their feelings about ART and majority of them (63%) responded negative feelings.

5.3. Assisted Reproduction Techniques and Fertile Women

Women able to conceive and have a child had different emotions and points of view. It seems that they had incomplete knowledge about infertility; its reasons and assisted reproduction methods. Also they might have been unaware of the difficulty of assisted reproduction, psychological and physical impacts and the financial costs. Some responded that "Giving

birth was an ordinary body reaction after sexual intercourse", "Giving birth was a favor of nature". There were people deprived of this feeling and fertile people may not understand to feel deficient about such a subject. Also a fertile woman may not know details about fertilization, implantation and development of an embryo while an "IVF woman" should know these as she has experienced an IVF cycle including "oocyte induction", "oocyte pick up", "semen pick up", "assisted fertilization", "embryo transfer" as well as its "implantation" to her uterus. Most women in non-IVF group gave inadequate answers to the questions for infertility reasons and assisted reproduction techniques. They were not expected to give explanatory answers about infertility reasons and ART methods but when they were compared with women in IVF group they were less informed about these subjects.

"What were the infertility reasons" and "What were the assisted reproduction treatment methods" were two questions asked to the fertile women in the non-IVF group to examine how much knowledge or information they had on these issues. Frequencies of the answers they had given are in Table 5.4 and Table 5.5 and it can be seen that most of the non-IVF women were aware of ART and have an idea for infertility reasons and ART methods.

Table 5.4. Infertility Reasons Known by "Non-IVF women"

Infertility reasons known by non-IVF women	**n**	**%**
Genetic factors	4	12.9
Psychological factors	2	6.5
Physical disorders in female reproductive tract	8	25.8
Hormonal disorders	7	22.6
Numerical and morphological defects in sperm cells	2	6.5
Diseases in the past	2	6.5
Menstrual disorders	3	9.7
I don't know anything about infertility reasons	2	6.5
Missing	1	3.2
TOTAL	31	100.0

Table 5.5. Assisted Reproduction Techniques Known by "Non-IVF women"

Assited Reproduction Techniques Known by Non-IVF Women	n	%
In vitro fertilization/microinjection	23	74.2
Inseminations	3	9.7
Drug treatment	2	6.5
I don't know anything about ART	3	9.7
TOTAL	31	100.0

Being informed about infertility, reasons and treatment methods were also related with the educational level of women as well as the cultural environment she belonged. There has been an increase in the TV programs, newspaper and magazine articles prepared to inform people about this social problem. In large residence places like city centers, people have more of a chance to reach these facilities and make use of them. Women's education levels might have also had an important effect. Woman with a university degree may have been expected to know much more about infertility and ART in comparison to a woman having a primary school degree. Since a majority of the women who answered the questionnaire had graduated from senior high school and university, there was not a considerable difference in the levels of education and no significant difference was found in the responses.

Most of the non-IVF women had answered that they were aware of at least one method of in vitro fertilization. Only one woman answered that, she did not know about any of the in vitro fertilization methods. When demographic information of that woman was examined it was found that, she was a primary school graduate, she lived in a village and she was a housewife. Although these features could not exhibit any obvious criteria for judgment, it could only give an idea for the interaction of urban-rural and

educational status and approach to infertility of women. As women in IVF group had experienced many of these methods they knew much more about details of each method after discovering their fecundity history and treatment of their infertility.

5.4. Family and Friend's Approach to Assisted Reproduction Techniques

While deciding to have a child, the family, relatives and friends might have had an important role. As it could be seen in some answers in the questionnaires they had a supportive impact for conceiving a child. A 37 years old woman living in a small village explained the supportive role of her family on having a child. Her answer was the following,

> They became happy when they learned that I was pregnant. Now they put pressure on me to conceive a second child.

In fact family and friends might have plucked up their courage and looked forward to be interested in and caressed the new member of the family. This kind of relationship is mostly observed in villages and small residence places. Fecundity and breeding have always been supported and a possibility of inability to have a child has been considered as a tragic problem for the family to deal with.

Kagitcibasi (1980) believes that for the physical well being and the social approval of parents, children have a value and role in enlarging or intensifying social interactions between parents. Infertility may threaten relationships and lead to profound depression and a sense of worthlessness. Women faced with an infertility problem may feel excluded from longstanding relationships when her friends become preoccupied with

their babies. She might also feel that she is a freak and failure in her family when sisters and sisters-in-law produce children for the proud grandparents. According to such a thought, parents have children in order to stabilize their relationship and reduce the risk of uncertainty about the future maintenance of that relationship. Kagitcibasi. evaluated the value of child in Turkey as;

> In the case of Turkey the 'Value of Children' can be reduced to three basic dimensions:
> - The *economic* value of children (monetary contribution to the family income by means of child labor or old-age security provided by children)
> - The *psychological* value of children (stronger emotional ties to social groups and the partner, expressive stimulation by contact to children)
> - The *social* value of children (gain in social status, competence in parental roles, fulfillment of normative expectations, e.g. continuation of the family name) (Kagitcibasi, C, 1980).

Besides, as a general feature of Turkish families, every one is interested in and wonders when the couple wants a child whether the woman is pregnant or not in fact they may try to affect the couple to decide giving birth. According to Kohlmann (2002) in rural areas social networks are small in number, multiplex and dense which are common between family members and relatives whereas in cities these networks are weak and go far beyond the circle of relatives. This considerable interference of other family members and friends not only reflects the couple's relationship with them but also their interaction with the social environment.

> Concerning the emotional instrumentality of children to their parents, children can produce positive affects directly (by means of interactions between parents and children and interactions between siblings) as well as indirectly via the creation and enforcement of emotional relations between the spouses and between the family and relatives. Children compete with other targets of emotional care (spouse, relatives) but are not equivalent to them. Therefore, the effectiveness of children as producers of positive affect depends on the quality of the marriage, and whether alternative sources for emotional care besides the partner (close relatives and friends) exist or not (Kohlmann,2002; p:9).

As a result of high social approval, friends and family take a supportive role in the decision of a couple having a child.

In the questionnaire the questions regarding their family and friend's thoughts about having a child or having ART treatment for having a child yielded controversial answers. Women in the non-IVF group reported that there was a great support from other family members and friends also there were some answers that friends were uninterested in this subject. These answers were harmonious with the general thoughts about family and friend relationships described above. A 28 years old woman from the non-IVF group answered the question as;

> I have been married for 2 years. From the day we have got married, our family and friends had always told us that we should have had a baby. Now we had a wonderful child and they seem to be happier than us.

A 33 years old woman in non-IVF group married for 3 years answered the same question as follows;

> Our family not only supported us to have a baby, when I gave a birth they were very helpful in looking after and raising up the baby as well. Some of our friends having babies gave support and encouraged us to have a second child but a majority of our friends who have no children were uninterested in this subject.

Nevertheless this condition was different in answers of women in IVF group. The question "How did your family and friend react to your infertility treatment for the purpose of having a child" had variable answers that should have been paid attention to.

A 22 years old woman from a district center reported that they had not told about their infertility treatment to their family. She reported the following,

> Our family was not informed about infertility and the new assisted reproduction techniques, so it would have been difficult to tell them about our treatment. Also even we could not understand why this had happened to us, how could we expect them to understand.

Another answer for the same question was given by a 34 years old teacher;

> There are things that should be kept in secret and reproductive issues are among them. Our infertility was a private issue and we did not need to share it and expose it to criticism and gossip.

Women in the IVF group had answers such as "We did not tell about our ART treatment to our friends" and "Our friends thought negatively for our ART treatment". A 34 years old woman explained the reactions of her friends,

> Our friends followed our treatment with curiosity. There were times they spent offensive words to us. We quickly understood that it was important to whom and how much information we gave.

Telling the family and friends about the ART treatment they underwent, meant sharing their infertility with them. In some communities being infertile may not be approved and in order not to be blamed and excluded they may have had to keep their infertility and attendance to ART in secret and to themselves. This was also related with their relationship with their family and friends. In the case of the presence of trust in friendships and relationships between family, problems and secrets can be more likely shared. Also for people to be moderate about such a treatment requires being informed about the subject. A 32 years old housewife answered the same question as follows,

> Earlier, our friends did not support us and thought negatively about infertility treatment, as they were unaware of infertility and assisted reproduction technology. As a result of an increase in the spreading of information about these subjects via television, newspapers, Internet and etc. they were more moderate about our treatment.

According to the answers above, being more conscious and informed about infertility with its causes and treatments affected and changed people's thoughts about assisted reproduction technology. The following section explored technology, which had been generated for assisted reproduction and revealed the views of women in IVF and non-IVF groups about its integration into a private subject that is reproduction.

5.5. Thoughts and Feelings about Integration of Science and Technology into Reproduction

Until recently, all human reproduction resulted from sexual intercourse, and couples had to be prepared for the luck of the natural lottery that is called 'pregnancy'. Now powerful new technologies are changing the reproductive landscape and challenging basic notions about procreation, parenthood, family, and children. Over the last few years, remarkable development has been made in the medical technological interventions for couples with fertility problems. The increasing use of technology has advanced the medicalization of pregnancy and birth, and it has changed women's experience of these processes (Eugster, 1999). As a result of scientific and technological developments, people have confidence in using technology in many aspects of life even in medical health as well as reproduction.

Women in the IVF and non-IVF groups gave varied answers in the questionnaire to the question regarding science and technology. The question, "What did you think about the application of science and technology to a sensitive and private subject such as reproduction" was asked to two groups of women. Most women gave positive and supportive answers. They had expressed their hope and satisfaction in science and

technology. A 34 years old woman taking infertility treatment gave the following answer, which is full of gratefulness,

> We would have lost our hope without these developments in science and technology. Also, I did not think that privacy was important in our condition at this stage. There could have been happiness at the end, couldn't there?

A 41 years old woman from the IVF group married for 16 years evaluated the integration of science and technology into her reproductive life in the following sentences,

> We had been trying to have a baby for years before we accepted to undergo assisted reproduction techniques. Assisted way of reproduction was our last chance and made us hopeful again.

Most people now regard in vitro fertilization as a common and acceptable practice. Earlier, there were some concerns of people regarding what moral status the assisted reproduction would have and how they would be treated. Once the procedure developed and became more common, people realized that it made no difference how one conceived, these concerns, for the most part, have melted away. However, the practice of in vitro fertilization is usually not simple. To accept taking infertility treatment is just as difficult as giving the decision of having a child. When the physical and psychological difficulties and the possible negative reactions coming from social environment are considered, thoughts of especially IVF group women about assisted reproduction technology may have some variations.

A 39 years old IVF woman, who had a senior high school degree, gave the following answer. These are her thoughts about reproduction, technology and their privacy;

> According to our religious beliefs and traditions exposure of a woman to procedures of technology aroused hatred as woman's privacy represented the honor of the family. Nevertheless we had to put up with this condition as we were facing a big infertility problem.

It seems that she had let science and technology be integrated into her life only because she had no other choice. This woman answered that her family and friends were unaware of their infertility diagnosis. She and her husband may have chosen to keep their IVF treatment in secret, as their social environment may not have reacted positively to their situation. She may have felt ashamed because of their inability to conceive and their attendance to technology for this purpose. Possible negative reactions of family and friends may affect the woman to express her misfortune and conservative approach to science and technology.

5.6. Different Thoughts about Male Infertility

For most adults, deciding to have a child brings out excitement and satisfaction however learning that they are unable to have a child is a great misfortune, disappointment and demolition. In a society where child is seen as the indicator of marriage's continuity, devotion and integrity, being infertile may be a reason for exclusion.

The questionnaire includes a question that "When did you learn that not only female but also male could be the source of infertility? What did you think about that subject? Were there different thoughts in your social environment about this subject?". Women gave answers like "My social environment and I were already informed about male

infertility", "In the past I did not know about male infertility but I learned about this issue later", "I had already been informed but there were people in my social environment who had different thoughts about it" The existence of women giving the second answer implied that there were still places where the bigoted views about the source of infertility are prevailed which directed us to think about that in Turkey there were communities where there was inequality between man and woman. Men had been undertaking a dominant role and have more rights in comparison with women. The dependent, inferior status of uneducated women is crucial and it is apparent in widespread male decision-making and low levels of communication and role sharing between spouses (Kagitcibasi,1982). While infertility is a big and serious problem for the society to accept, this inability may have been loaded to woman at first and she was chosen to be infertile no matter whether or not she was actually the one with the infertility factor. Not man but woman may have been excluded from society and blamed for the inability in baring a child.

When answers of the IVF and non-IVF group were examined it was observed that there were considerable amount of answers explaining women had different thoughts about male infertility in the past. A 35 years old woman taking infertility treatment was one of these women. She had the following answer to the question,

> I was unaware of male infertility as my family and social environment informed me in that way. I had learned the truth from my biology teacher in senior high school. Still there were people who ignored male factor infertility but I did not consider them.

When we focused on her demographic features it showed that she had been born in a village and spent most of her life there. She was a housewife and graduated from senior

high school. She also explained that her family and friends were not aware of their treatment, as they were not informed about assisted reproduction technology.

Indeed, demographic features especially place of birth and the place where the longest time they lived as these affected the socio-cultural mentality of people in their social environment played an important role in the answers. A cross tabulation was made in order to detect the relationship between the place where the longest time they lived and thoughts about male infertility. Following results in Table 5.6 were obtained,

Table 5.6. Thoughts about Male Infertility

When Did You Learn That Not Only Female but also Male can be the Source of Infertility? (Informed About Male Infertility/Uninformed or Informed Later About Male Infertility)	Place Where the Longest Time the Woman Have Lived	
	City center	District center Town Village
	%	%
Informed	85.3%	45.8%
Uninformed or informed later	14.7%	54.2%
Total	n: 34 100.0%	n: 24 100.0%

5.7. Knowledge Spillovers for Infertility: Cause, Treatment and ART

Although infertility cannot be named as a disease, it brings out the requirement of diagnosis. The increase in the infertility cases lead to the increase in the awareness of this problem. In this aspect spreading of knowledge spillovers about the cause, treatment and assisted reproduction technology helped people comprehend the importance of this subject. It was certain that media constituted the main spillover.

Since reproduction and fertility issues were found to be attractive and interesting, not only television and radio, but also newspapers and magazine articles were featuring articles concerning these issues. Also an increase in infertility proportion leads to a high incidence of meeting infertile people in social environment. These people themselves became information sources.

Furthermore couples encountering infertility problems may have only understood and named their problem as infertility after their appointment with the doctor. Also there seems to be people who had never heard of, never watched and never encountered a case of infertility. The questionnaire had relevant questions about this subject, which interrogated women that when and where they had first been given information on infertility. When the answers from both groups were compared, a difference was detected. Table 5.8 shows the comparative frequencies and percentages of information sources reported by both groups of women.

Table 5.7. Source of Information About In Vitro Fertilization

The First Information Source About In Vitro Fertilization	Women in IVF and Non-IVF Groups	
	IVF	Non-IVF
	%	%
Newspapers, magazines & internet	13.3%	45.2%
Television & radio	43.3%	41.9%
Relatives, friends & doctor	40.0%	3.2%
Do not remember/never heard of IVF	3.3%	9.7%
Total	n: 30 100.0%	n: 31 100.0%

To have a basic knowledge about infertility and ART, prepared people to be conscious if faced with infertility. Wrong and unconscious information and diagnosis methods were harmful and a waste of time for infertile couples. In this aspect, people closer and having more possibility to reach information sources were lucky. Differentiation between women's answers should be aroused because of the demographic features of the two groups of women. In small villages, only a small number of people read newspaper and magazine articles and watching television seem to be at a lower rate with respect to people living in big cities. Educational level is also important since education is a good means for the diffusion of information about reproduction as well as the failure of it. According to their educational level and the place they lived, the women's answers about the source of infertility information differentiated.

Women in the IVF group remembered the information source more clearly since they may have thought with sensibility. Furthermore, women in the IVF group should have gotten that initial information from their doctors as they had applied to them with a problem. There should have been an answer such as "I haven't heard of infertility and ART methods yet" given by some of the women in the non-IVF group who were considered as the "uninterested" group.

For statistical analysis cross tabulations was made in order to analyze relationships between the source of information and education, and the source of information and the place where the longest time lived. The results were collected in Table 5.8 and Table 5.9;

Table 5.8. Relationship Between Education and the Source of Information About In Vitro Fertilization

The First Information Source About In Vitro Fertilization	Education		
	Primary School-Junior High School	Senior High School-Vocational School	University-Master/ Phd
	%	%	%
Newspaper., Magazines & Internet	10.0%	16.7%	42.4%
Television& Radio	50.0%	27.8%	48.5%
Relatives, Friends & Doctor	30.0%	38.9%	9.1%
Do not remember/Haven't Heard of IVF	10.0%	16.7%	
Total	n: 10 100.0%	n: 18 100.0%	n: 33 100.0%

Table 5.9. Relationship Between the Place Where the Longest Time Lived and the Source of Information About In Vitro Fertilization

The First Information Source About In Vitro Fertilization	Place Where the Longest Time the Woman Have Lived	
	City Center	District center Town Village
	%	%
Newspap., Magazines&Internet	31.4%	26.9%
Television& Radio	54.3%	26.9%
Relatives,friends&doctor	8.6%	38.5%
Do not remember/haven't heard of IVF	5.7%	7.7%
Total	n: 35 100.0%	n: 26 100.0%

According to data in Table 5.8 and Table 5.9, there was a statistical relationship between education and source of information. A large proportion of women having vocational school level reported that the first time they had come across information about from written and/or visualized information sources. Naturally these sources may

have been reached not very easily when the social and cultural conditions were reversed. A statistical relationship had also been detected between the place where the longest time lived and the source of information. Women living in city centers came across more written and visualized information sources with respect to women living in small places such as villages.

5.8. Importance of Having a Child in Expectations from Life

While for some people a child is a must in their life, for others necessity of having a child is not of utmost importance. When people set their life expectations, different results come to light. Having a good career, earning a lot of money or becoming a famous actress may be more important than being a mother. This is just related with one's precedents.

When asked to women about their life expectations and things they wanted most in their life, they gave different answers. In the questionnaire women in the IVF and non-IVF group gave different answers to the relevant question. The question was "Did you think that giving birth was one of the most important expectations in your life?" Woman in the IVF group answered more intensively and generally gave an answer underlining the wish for a child. A 30 years old woman taking infertility treatment answered the question as follows,

> Having a child was more important than anything in my life. This was my fourth time in an IVF treatment. I did not think of giving up until I succeeded. I believed that my marital and life satisfaction would have been better when I gave birth.

It seems that women in the IVF group might have been more focused on their fertility and IVF treatment. While they were under financial and psychological pressure they should have had answers saying that a child was the most important thing in their life when compared to the other goals they had once dreamed of. Nevertheless there were different answers given by some women in IVF group. A 34 years old woman evaluated her marital satisfaction and life expectations in another point of view,

> My husband and I have been together since the university years. We got married with love. We are still in love with each other. We had never dreamed of a child. After putting our marriage in order we decided to have a child but we were not lucky. We were doing absolutely everything we could for this purpose but this could not affect us because we didn't get married just to have a child.

For women in the non-IVF group having a child was something they had reached without a need of treatment. It was certain that a child might have constituted an important part of their life but the absence of a child in the family and deficiency to have a child triggered the desire to have a child and this feeling replaced all other goals. Consequently, when compared with women in non-IVF group, more women in IVF group answered as giving birth was the most important thing in their life when their life expectations were considered. When a statistical analysis was made the following data in Table 5.10 were obtained,

Table 5.10. Expectations from Life and Giving a Birth

Do you think that giving a birth is one of the most important expectations in your life?	Women in IVF and Non-IVF Groups	
	IVF	Non-IVF
	%	%
Yes / it was my biggest goal in my life	64.5%	35.5%
No / there were more important other expectations	35.5%	64.5%
Total	n: 31 100.0%	n: 31 100.0%

According to data in Table 5.10, a statistical relationship was observed between questionnaire groups (women in IVF and the Non-IVF groups) and whether having a child constituted their major expectation from life. This relationship supported the idea that for most of infertile women giving birth was amongt the most important thing in their life and women of the non-IVF group pointed out that there were more important things when expectations from life were considered.

A 27 years old women in the non-IVF group gave the following answer for the same question,

> Having a child was important for a marriage and a wonderful feeling. However if my husband and I had an infertility problem, I was not sure to take an infertility treatment for this reason as I thought that child was not the most important and vital thing for our happiness.

5.9. Anxiety Test Results for Women in IVF and Non-IVF Groups

Psychological stresses of the IVF process include the stress of the medical procedures, invasiveness of treatment, stresses to relationships and future emotional reactions. Procedures involving high levels of medical technology, including assisted reproductive technologies, can be both physically and psychologically demanding therefore there are physical, psychological, and social risks involved in participating in IVF. It was found to be that infertile women are more vulnerable to anxiety, introversion, sense of guilt and high tension than non-infertile women (O'Moore et al, 1983). Anxiety is one of the psychological risks caused by infertility treatment. Other emotional reactions such as sadness, depression, anger, disappointment, bitterness or indignation should also be common in women undergoing IVF treatment. The ones with a higher anxiety level tend to take on a more positive attitude toward treatment, have a more pessimistic outlook on the possibility of successful pregnancy and to feel agitation about treatment at a higher rate. (Mori et al.,1997) There is something profoundly frightening about technological non-IVF over the beginning of human life. Anxiety over these techniques abounds, even as a growing number of persons seek them out.

The questionnaire included Beck Anxiety Inventory, which aimed to analyze the anxiety of women in IVF and non-IVF groups. The anxiety scores of women could have provided information not only about the comparison of anxiety of women in IVF and non-IVF groups but also determined the anxiety of "IVF women" by taking into consideration all the other parameters such age, husband's age, years of marriage, years of education and support of social environment. Anxiety scores of two groups of

women were evaluated by factor analysis and three factors for each group were identified and analyzed separately. For the IVF group, the first factor composed of "Numbness or tingling", "Feeling hot", "Wobbliness in legs" and "Heart pounding/racing" which reflected somatic anxiety. Second factor composed of "Fear of worst happening", "Dizzyness or lightheadedness" and "Terrified or being afraid" and "Fear of dying" which reflected mostly fearful anxiety. Third factor composed of "Hands trembling", "Fear of losing control" and "Hot/cold sweats" which reflected mostly subjective anxiety. For the non-IVF group, the first factor composed of "Terrified or being afraid", "Nervousness", "Fear of losing control", "Fear of dying", "Fainting / lightheadedness" and "Hot/cold sweats" reflecting nervousness-control related anxiety. The second factor labeled as fearful-worried anxiety composed of "Numbness or tingling", "Wobbliness in legs", "Fear of worst happening", "Dizzyness or lightheadedness" and "Difficulty in breathing". The last factor for the non-IVF group was labeled as somatic anxiety and it composed of "Feeling hot" and "Heart pounding/racing". The rest of the questionnaire items were eliminated according to rotated component matrix[3] for the factor analyses made for two groups of women. The rotated component matrixes based factors obtained for two groups of women are presented in the following Tables 5.11and 5.12 ;

[3] Rotated component matrix was the table reporting the factor loadings for each variable on the components or factors after rotation. Each number in the rotated component matrix represents the partial correlation between the item and the rotated factor. The correlation coefficient smaller than .5 were eliminated from the analysis (indicated as italic in the table).

Table 5.11. Factor Analysis for IVF group

Questionnaire items	FACTORS		
	Somatic anxiety	**Fearful anxiety**	**Subjective anxiety**
Numbness or tingling	.517	-	-
Feeling hot	.822	-	-
Wobbliness in legs	.785	-	-
Fear of worst happening	-	.793	-
Dizzy or lightheaded	-	.733	-
Heart pounding/racing	.608	-	-
Terrified or afraid	-	.791	-
Nervous	-	-	-
Hands trembling	-	-	.665
Fear of losing control	-	-	.760
Difficulty in breathing	-	-	-
Fear of dying	-	.734	-
Faint / lightheaded	-	-	-
Hot/cold sweats	-	-	.724

Table 5.12. Factor Analysis for Non-IVF group

Questionnaire items	FACTORS		
	Nervousness-control related anxiety	**Fearful-worried anxiety**	**Somatic anxiety**
Numbness or tingling	-	.529	-
Feeling hot	-	-	.863
Wobbliness in legs	-	.825	-
Fear of worst happening	-	.552	-
Dizzy or lightheaded	-	.555	-
Heart pounding/racing	-	-	.761
Terrified or afraid	.581	-	-
Nervous	.600	-	-
Hands trembling	-	-	-
Fear of losing control	.773	-	-
Difficulty in breathing	-	.865	-
Fear of dying	.683	-	-
Faint / lightheaded	.770	-	-
Hot/cold sweats	.725	-	-

When calculations of the factors were found and a common thread among the variables that have large loadings for the particular factor was obtained, scores for each woman were summed belonging to each of the three factors. Regression analyses were carried out for the estimation of the linear relationship between each of three components and other independent variables such as age, husband's age, years of marriage, years of education and support of social environment for both groups. Some significant relationships were obtained between these independent variables and anxiety factors for IVF group. Nevertheless, no significant relationships were obtained between any of independent variables and factors for non-IVF group. According to regression analysis made for women in IVF group, the following β coefficients, R's, R2's and F's in Table 5.13 were obtained;

Table 5.13. Predictors of the Independent Variables Related to Anxiety Factors

Variables	Somatic Anxiety	Fearful Anxiety	Subjective Anxiety
Age	.70[1]	.75*	.61
Husband's age	-.21	.16	.08
Years of marriage	-.25	-.87*	-.97**
Years of education	-.16	-.26	-.28
Social support	-.12	.37*	.04
F	1.04	3.00*	2.27
R	.41	.61	.56
R^2	.17	.38	.31

[1]Beta, standardized coefficients are given
*p<.05, **p<.01

It was seen from the Table 5.13 above that for "IVF women" there was a relationship between age, years of marriage and presence of social support with fearful anxiety. While age of women in IVF group increased, the fearful anxiety scores increased as well. Also the absence of social environment's support and an increase in years of marriage led to decrease in the fearful anxiety scores.

Furthermore, there was also a relationship found between years of marriage with subjective anxiety scores. An increase in years of marriage led to a decrease in subjective anxiety scores.

No relationship was found with independent variables and the anxiety components of non-IVF group. This might have been caused because of the small sample size in this group. The women in IVF group might have been distributed more heterogeneously in comparison to women in non-IVF group. When we take the average anxiety scores of women in IVF and non-IVF groups, it was observed that the average anxiety score of women in IVF group was greater than that of women in non-IVF group[6].

When having a child becomes the most important expectation for women, experiencing anxiety is unavoidable. The most important fact on this reaction may have constituted the fear of being unsuccessful. Women having repeated unsuccessful IVF treatments seem to experience this fear many times so they are much more sensitive towards this issue. A 34 years old university graduate woman answered the question of "what did

[6] Total anxiety scores found for women in IVF group and women in non-IVG group were found to be 10.77 and 6.94 respectively.

you feel about trying to have a child by assisted reproduction technology" as the following,

> I have been married for 8 years and this is our 7th trial of IVF. I felt both disappointment and hope but I could not describe the feeling at times when I learned that I was not pregnant after each of six IVF cycles. I felt anger as payments for treatment went for nothing; I felt depressive as my hopes were destroyed and I felt so worried as I thought that I would have never have a child.

Despite many of similar answers given by women having more than one IVF experience, it could not be supported by quantitative analyses that women having repeated unsuccessful interventions had higher anxiety results. This condition might have been caused by our small sample size.

CHAPTER 6

CONCLUSION

6.1. Summary of the Findings

Main interest of this thesis was the comparison of two groups of women including women, first group of women undergoing infertility treatment and second group: non-IVF group of women having children "naturally". The comparison was on the basis of social, emotional and psychological responses. Another interest of this study of these groups of women was the consequences of emergent assisted reproduction technology (ART).

As it has been explained in previous chapters a multi item questionnaire consisting of several sections was given to both groups of women undergoing infertility treatment and having children "naturally". The latter group was considered as the "non-IVF" group. Women's responses were aimed to be elicited and then compared with each other. The analysis was based on both quantitative and qualitative data. Data collected through questionnaires led us to discuss about the consequences of assisted reproduction technology and its impact on social, emotional and psychological aspects of life. In this section the demographic features of two groups of women and their

reproductive and infertility history will be summarized and their responses to questions will be summarized briefly. In the next section; “discussion and conclusion”, qualitative and quantitative analyses reported in the fifth chapter will be discussed and the emotional, social and psychological characteristics of fertile and “IVF” women will be underlined. Also the findings of this thesis will be compared and enriched with other studies in literature.

Women in IVF and non-IVF groups were not different in terms of age group frequencies. Most of women attending the questionnaire were between 25 and 35. The mean age of total sample was 33. The mean age for women in IVF group was 34 whereas it was 32 for women in non-IVF group.

When the educational status of women in IVF and non-IVF groups were examined and the mean years of education were compared, it was 11.6 for women in IVF and 14.4 for women in non-IVF group. In the case of total sample, it was noted that a majority of women in IVF and non-IVF groups had graduated from university and the percentage of university graduates in non-IVF group was higher in comparison to women in IVF group (the percentage of graduates of university and above was 42% for IVF group and 64.5% for the non-IVF group).

Among women respondents the occupations and working conditions have been examined. It was found that while the frequency of housewives among women in the IVF group was highest, civil servants, officers and managers were prevalent among women from non-IVF group. Also working conditions were found to be differentiated

between two groups since most of the women in IVF group had reported that they were housewives (51.6%) while a considerable large proportion of women in non-IVF group were salaried employees (71.0%).

It has been discussed that there are notable differences between the place of longest residence. 45.2% of women in IVF group had lived in city centers, 54.8% of them had lived in small residences (32.3% in district center; 9.7% in town; 12.9% in village). On the other hand 77.4% of women in non-IVF group had lived in city centers, 22.6% of them had lived in small residences (19.4% in district center; 3.2% in town).

The infertility history of women in IVF group was analyzed in the thesis with relevant questions in the questionnaire. The infertility factors were asked to women undergoing infertility treatment and it was found that there were four causes of infertility, male factor infertility (32.3%), female factor infertility (32.3%), mixed factor infertility (9.7%) and unexplained infertility (25.8%). It has been discussed that in assisted reproduction methods, more than one trial can be required in order to obtain successful results. Number of previous IVF trials was asked to "IVF" women and the mean number was found to be 4.0. The proportion of "IVF women" reporting that it was their first or second cycle in ART was 34.5%. The rest of women had answered that they had three or more ART trials.

Women able to conceive and have a child constituting the non-IVF group were found to have different emotions and points of view about having a child via assisted reproduction technologies. Their awareness about ART methods and infertility factors

were investigated and they were asked whether they had remembered the first time they heard about ART.

When the infertility factors of the women in non-IVF group knew about were asked 90,3% of them responded at least one infertility factor. Furthermore the same proportion (90.3%) of "non-IVF women" reported knowledge of at least one of the ART methods.

In the fifth chapter the decision of having a child or undergoing IVF treatment was analyzed. It should be noted that having a child might be the common decision of both partners. Most of the time woman and man give this decision together but rarely only one of the partner's desires it with insistence. "How did you decide to have a child" was the question for the women from the non-IVF group and, "How did you decide to undergo IVF treatment" was asked to women in IVF group. When the answers were compared with each other, significant difference was obtained. The proportion of "IVF women" answering, "it was my decision to have a child" was 3.2% and it was 20.0% for "non-IVF" women. The proportion of "IVF women" answered that "It was my husband's and my common decision to have a child" was 96.8% and it was 80.0% for "non-IVF" women. It can be concluded from these proportions that the decision of having a child is less of an individualistic decision and more of a decision made by the couple together.

There are different feelings aroused for having a child naturally and with ART methods. Women in IVF and non-IVF groups answered the relevant question about their feelings about having a child. In particular, women in the non-IVF group answered the question

of “What did you feel about having a child without taking infertility treatment” expressing their happiness. The question for the women in IVF group was “What did you feel about trying to have a child by undergoing assisted reproduction techniques”. They reported more distressful and disappointed feelings about having a child. In Chapter 5 women’s responses about having a child were grouped into two as; positive and less negative feelings. A significant difference was obtained between two groups of women’s feelings about having a child. The women in the non-IVF group reported more positive responses about having a child when compared with women in IVF group. The relationship between the emotions about having a child and the number of ART trials were also investigated for women in IVF group. It can be said that the more ART trials experienced, the more negative emotions reported.

Being infertile may lead to exclusion since a child is considered as the indicator of a marriage’s continuity, devotion and integrity. In some societies men may undertake a dominant role in reproductive issues as well as in other aspects of life and have more rights in comparison with women. In societies that inhibit male-bias with patriarchal dominance, not man but woman may have been blamed for the inability to give birth and hence women might be under the threat of being excluded from society. In the questionnaire there were relevant questions underlining the awareness of male infertility. The following questions were asked to two groups of women: “When did you learn that not only female but also the male could be the source of infertility? What did you think about that subject? Were there different thoughts in your social environment about this subject?”. The answers were grouped into two. The first group was informed about male infertility and the second group was uninformed or informed

later about male infertility. A relationship between these answers and women's longest place of residence was tried to obtain. A high proportion of women (85.3%) living in city center reported that they were informed about male infertility and this proportion declined to 45.8% for women living in district centers, towns and villages.

An increase in spreading knowledge about infertility and assisted reproduction technology led to an increase in the number of people being informed about these issues. Television, radio, newspaper and magazine articles constituted an important part of these information sources. In the questionnaire, women answered the question about when and where they had first taken the information about infertility. A difference was found between two groups of women in this aspect. Most of the "non-IVF women" (45.2%) reported that newspapers and magazines were their first source of information. A second major group reported that television and radio (41.9%) as the first source of information. On the other hand a major group of "IVF women" (43.3%) reported that television and radio were their first information source. The proportion of women answering that they had first heard of IVF from relatives, friends and doctor was higher in IVF group (40.0%). Significant relationship between first information source with education and place of longest residence were detected. As the educational status increases, a higher proportion of women received the first information about IVF from newspapers, magazines, television and radio. It should be noted that these written and visualized information sources may have been reached not very easily when the social and cultural conditions were reversed. There was no university or master/PhD graduate but 10.0% of primary and junior high school graduates and 16.7% of senior high school and vocational school graduates reported that they did not remember or had never heard

of IVF. The same relationship was found between first information received and place of longest residence. Women lived in city centers for the longest time reported that newspapers, magazines, television and radio constituted the first information source. It should be considered that women living in city centers came across more frequently written and visualized information sources with respect to women living in small places such as villages.

For some people having a child might be the most important goal in their life. On the contrary for others having a child might be considered as normal and routine. Such a difference in the feelings for having a child might be apparent for women from IVF and non-IVF groups. In the questionnaire when expectations from life and things they want most in their life were asked, in fact women gave different answers and a significant relationship was obtained. Most women in IVF group (64.6%) reported that having a child constituted their major expectation from life. A smaller proportion of women from the non-IVF group (35.5%) gave the same answer for this question.

There are many studies stating that infertile women are more vulnerable to anxiety than fertile women (O'Moore et al, 1983; Mahlstedt, 1985; Oddens et al., 1999; Ardenti et al., 1999; Dhillon et al., 2000; Fassino, 2002). In the questionnaire Beck Anxiety Inventory was given to the women in order to determine and compare the anxiety levels of both groups. Also it was aimed to figure out whether anxiety is a psychological risk caused by the infertility treatment. When factor analyses were carried out for the anxiety items, three factors for women in IVF group were found and named as; somatic anxiety, fearful anxiety and subjective anxiety. For the women from non-IVF group

three factors were obtained and they are labeled as nervousness-control related anxiety, fearful-worried anxiety and somatic anxiety. When regression analysis was made for both groups, some significant relationships were obtained for women in IVF group. It was found that as the age of women in IVF group increased, the fearful anxiety scores increased as well. Also the presence of social environment's support and decrease in years of marriage led to increase in the fearful anxiety scores. Moreover, a relationship was also found between years of marriage with subjective anxiety scores. An increase in years of marriage led to a decrease in subjective anxiety scores.

6.2. Conclusion and Discussion

After summarizing the findings in the previous section, in this final section main findings will be discussed in details in relation to other findings in literature. In this thesis, it has been stated that there are social, psychological and social impacts of assisted reproduction technologies. These impacts were examined by making comparison between the answers of two groups of women to the questions in questionnaire. Furthermore, thoughts about integration of science and technology into reproduction and male infertility were the other interests of this thesis.

While investigating the emotional and psychological impacts of ART, the most important criterion that should be asked to women was what the "IVF women" were feeling about trying to have a child via assisted reproduction methods and what the "non-IVF women" were feeling about having a child without requiring assisted reproduction methods. This question will not only reveal the value of a child but also lead us to compare various emotions of "IVF" and "non-IVF women". As a matter of

fact it was revealed that assisted reproduction causes changes in the feelings about having a child.

There are many studies about infertile people's reaction to infertility and the psychological condition they are in. Involuntary childlessness was viewed as a major life crisis and psychologically stressful. When the responses of couples for infertility were examined, feelings like surprise, denial, anger, isolation, guilt, grief and resolution were found (Menning,1980; Leiblum and Greenfield, 1997). The negative feelings aroused after confronting infertility should have an impact on the thoughts about having a child. According to women's answers to the relevant questions, this predicted difference was detected. The significant relationship shown in Table 5.2 underlined that positive feelings about having a child such as happiness, hope, satisfaction, excitement was replaced with negative feelings such as fear, stress, financial disruption, anxiety and disappointment. Nevertheless there is one dominant feeling for "IVF women"; that is the strong desire for a child. Despite all the negative impacts of infertility and assisted reproduction treatment, the desire to have a child triggers them to try on ART. A very dominating feeling were everything has to be tried to have a child was illustrated as a driving force behind the decision of trying IVF treatment (Tymstra, 1989). At this point we might examine their concept of value of child. Value of children had been reduced to three basic dimensions by Kagitcibasi (1980). When these there factors were considered, the economic factor included the value of child to help the family economically, to help parents in old age and help them around the house, the social factor included value of child to continue the family name and to contribute to society and the psychological factor included value of child to bring couples together,

to get pleasure while raising up the child, to bring love and joy to marriage (Kagitcibasi 1980). According to qualitative analysis of responses of infertile women to the open-end questions in our questionnaire, the psychological and social factors emerged as dominant. A 39 years old woman married for 14 years had a relevant answer on this aspect;

> We have been taking infertility treatment for a long time and we had many unsuccessful attempts. There are times that we get tired of all these medical processes, but when we think the importance of a child for our marriage, family as well as social environment we give up ending the treatment.

It should be noted that the same woman had reported that family and friends were unaware of their infertility treatment. There are considerable number of examples in which infertile couples insist on participating in ART for the psychological well-being and the social approval of parents. In a study of Lalos et al. the social side of having a child had been evaluated as the following;

> To the socio-cultural motives could be referred the wish to become pregnant because it is a highly valued social function. It satisfies the society's needs for new citizens. In most cultures, producing children is a way of achieving social position for both men and women (Lalos et al.,1985, pp:480).

In fact the contribution of family, relatives and friends to fertility issues have various impacts on a couple's reproductive life. While fecundity and breeding have been supported, inability to conceive has been resulted in different reactions. Relationships with friends, mothers were found to be intensive, although not easy (Oddens et al.,1999).

When the answers of women from non-IVF group were considered, it was found to be that most of the women answered that there were support taken from family and friends and they shared their reproductive life experiences with them. There were considerable numbers of "IVF women" answering that their social environment was unaware of their infertility treatment. They had explained this condition as their family and friends not being informed about ART, and hence possibility of reacting negatively to their treatment. Also some of them had expressed that they did not want to share their privacy or had the fear of coming across bad reactions about their infertility and treatment. Hammarberg et al. had reported similar findings;

> Although most women agreed that their family and friends and indeed society as a whole are accepting of IVF, many found infertility difficult to talk about and did not reveal that they were having IVF treatment. Secrecy and having to come up with excuses for absenteeism at work adds to the stress of having treatment and contributes to a sense of isolation (Hammarberg et al.,2001, pp:381).

Although it had been found that fertility problems affected the interpartner relationship negatively (Mahlstedt, 1994), there were also results indicating that such relationship was closer in infertile couples in comparison to fertile couples. However the relationship between spouses was less satisfactory. Moreover the frequency of sexual intercourse including spontaneity and satisfaction were lower among "IVF women" when compared with fertile couples (Oddens et al.,1999).

In the regression analysis made for the anxiety scores of women revealed a relationship between fearful-subjective anxiety factor and support from social environment (Table 5.13). The presence of social environment's support led to a decrease in the fearful-subjective anxiety level. Women's experiences in relationship with social environment

may be effective in promoting their psychological well-being. This finding was consistent with other findings of earlier research on the positive effects of family and friend's support on psychological and emotional health. Gibson et al. (2002) examined the relationships among social coping resources, growth-fostering relationships, and infertility stress in women undergoing infertility treatment. It had been concluded that both social coping resources and growth-fostering relationships contributed significantly to the variance in infertility stress. As the infertility stress decreased, social coping resources increased. It had been further found that family support can be considered as a coping resource and important for women coping with infertility stress.

The use of technology for the purpose of pregnancy and birth changed women's experience of these processes. Reproductive technologies develop so fast that people need to get used to this new form of conception. It was certain that these developments in reproductive science were approved by medical professions (Fasouliotis et al, 1999) and infertile patients looking for a solution to have a child. Pointing out that human reproductive behavior has striking effects on the growth of populations, changes in usual reproductive behavior may lead to controversy. Possible concerns do exist regarding the moral status of assisted reproduction.

The women participating in our questionnaire had a supportive reaction about the integration of science and technology into a very private subject, reproduction. Most women undergoing treatment reported their gratefulness for ART and they evaluated ART as bringing hope and happiness. Only one controversial answer was given by a women undergoing IVF treatment who had defended that "exposure of a woman to

procedures of technology aroused hatred as woman's privacy represented the honor of the family". Socio-cultural characteristics and the impact of social environment should be effective for the expression of misfortune and conservative approach to science and technology. Nevertheless once the reproductive technology developed and became more common, people got more conscious and informed about infertility and the usefulness of ART. Hopefully after a while it will not have any importance how one conceives.

Another important point that has to be discussed is male-biased thoughts about gender roles and male infertility. Gender was referred to as social relationships and roles that men and women undertake in society (Hardy E, Makuch M Y, 2001). In spite of the development of reproductive technology which has the potential to disrupt conventional gender roles and family structure, social norms related to gender roles have not yet changed. Women and men facing infertility seem to feel socially inadequate in a predominantly fertile society. Society requires women to be mothers and to give birth to their husbands, grandchildren to the couples' parents and continuity to a family (Cussins, 2000; Shapiro,1988). Such an important and sacred role that is fitted for women might yield different results in broader context. In a study, Rowland has reported that in the case of infertile couples who are unable to give a birth, there were still some societies tending to blame the woman and even accused her of having been promiscuous, having had too many abortions or of having a sexually transmitted disease (Rowland, 1992). Men hesitate and feel forced to take consultancy. It has been found that the woman is the first to go to a doctor for a solution or treatment. In some societies, regardless of no matter men being infertile, women who are unable to give

birth are said to be easily divorced or abandoned (Hardy E, Makuch M Y, 2001). In Turkey, some societies seem to have similar problems resulting from regional differences in socio-economic conditions. These problems should influence the overall standard of living, the effects of which are experienced much more by women than men. In this thesis, the presence of such problems was investigated and women were asked about their thoughts about male infertility and whether there were different views in their social environment. There were women who answered that they were already informed about male infertility and no different thoughts existed in their social environment. Nevertheless some women answered that in the past they had not been informed but had learned later and some answered that they had been informed about male infertility but there had been uninformed people in their environment. When these answers were evaluated, a significant relationship was found between awareness of male infertility and place of longest residence. It has been reported in Table 5.6 that while 85.3% of women living in city center reported that they were informed about male infertility, only 45.8% of women living in district center, town or village reported that they were informed. It should be noted that the majority of women (54.2%) living in district center, town or village reported that they were not informed, informed later or in their social environment there were different and male-biased about male infertility. It has been reported that primal psycho-social forces are effective in determining human fertility behaviors (Christie, 1998).

Feelings about having a child reflect and determine the expectations from life. The place of having a child when the expectations from life are considered should reveal the wish and importance a woman feels about giving birth. In fact priority of each person

changes depending on people's different life standards, conditions people are living in and goals they want to achieve. In a study of Christie (1998) it had been reported that social forces were effective on acceptance of childlessness. These social changes were determined as increasing opportunity for people to separate the pleasure of sexual relationship from its reproductive function and increasing acceptance of woman's right to choose not to have a child. The increasing availability of career opportunities and the increase of their success in their careers were paid special attention. While women became more prone to seek higher education and careers, place of giving birth in their expectations from life was negatively influenced. Thus it had been concluded that such changes might affect the priority of the couples and lead couples to make a "sensitive" and "responsible" decision not to have a child (Christie, 1998). Moreover it had been suggested that the family fertility levels were lower in European cities and towns in comparison to those in rural areas (Andorca, 1978). The type of residence, type of neighborhood and distance from the central city were found to be effective on the level of fertility, which in turn influenced the priority of humans in relation to their expectations from life.

When the women's expectations from life were asked in our research and an analysis was made, a significant difference was observed between women in IVF and non-IVF groups. The proportions were given in Table 5.10. A higher percentage of (64.5%) "IVF women" in comparison to 35.5% of "non-IVF women" reported that giving birth was their primary expectation from life. An apparent difference was existed between expectations of the two groups. Women undergoing infertility treatment regardless of having the psychological, emotional and physical difficulties of treatment procedures

implied a higher proportion of evaluating giving birth as the most important life goal. Meanwhile, it should be noted at this point that couples faced with infertility and who decide to undergo infertility treatment had already passed through the stage of evaluating the place of giving birth and whether it was worthwhile undertaking a forceful and disrupting treatment.

This thesis has also been aimed to reveal the rise in anxiety levels of women undergoing infertility treatment due to physical examinations, medical procedures and stressful waiting. From the beginning, facing infertility, looking for a diagnosis and deciding to undergo IVF treatment lead to anxiety for both women and men. Several authors had examined emotional distress and anxiety aroused as a result of infertility and ART (Wright et al., 1989; Greil,1997). However it had also been demonstrated that attempts to explore the psychological impacts of infertility yielded mixed results (Fassino, 2002). Several methodological problems existed in such a complex field of investigation (Greil,1997). Moreover contradictory results were revealed as some investigators demonstrated the relationship between psychopathology and infertility (Fassino et al., 2002b), anxiety and dissatisfaction (O'Moore et al., 1983; Demyttenaere et al., 1989) and depression (Kemeter, 1988). However some authors did not find significant differences (Downey et al., 1989; Downey and McKinney, 1992). In some studies the relevance of psychological consequences such as anxiety (Dhillon et al., 2000; Oddens et al., 1999), depressed mood (Berg and Wilson, 1990), and lower self-esteem (Newton et al., 1999; Oddens et al., 1999) were reported. Nevertheless the evidence about the depressive symptoms in infertile couples contradicts the results in the literature (Greil, 1997).

In particular many studies had investigated the assisted reproduction technologies as a source of anxiety, stress and other psychopathological symptoms. Sadness, depression, anxiety (Slade et al., 1997), hopelessness, and anger (Ardenti et al., 1999) were found to be common in infertile couples undergoing IVF treatment. It had been observed that the emotional distress is high when waiting for the treatment outcome (Boivin et al., 1998), after an unsuccessful treatment (Newton et al., 1990; Slade et al., 1997) and in the following attempts (Boivin et al., 1995). Moreover, some authors indicate that the outcome of these treatments were also influenced by anxiety and depression (Thiering et al., 1993; Smeenk et al., 2001).

In the light of these studies and the quantitative data results obtained from Beck Anxiety Inventory in our research helped us figure out the impact of infertility and IVF on the anxiety levels of "IVF women". Meanwhile for our analysis, some of the sample characteristics were considered. Women's age, their husbands' age, years of education, years of marriage and support of social environment were included in the quantitative analysis. Thus, the anxiety scores of women not only provided information about the comparison of anxiety of women in IVF and non-IVF groups but also determined the anxiety of "IVF women" by taking into consideration of all these parameters. In Table 5.11 and Table 5.12 anxiety scores were evaluated by factor analysis and three factors for each group of women were identified. When the factors were analyzed separately; they were labeled as well. Furthermore, the regression analyses were made for the estimation of the linear relationship between each of three factors and other independent variables. When regression analysis was made for both groups, some significant relationships were obtained only for women in IVF group. According to the

analysis in Table 5.13, the following findings were obtained. It was found that as the age of women in IVF group increased, the fearful anxiety scores increased as well. The support of social environment has an effect on women's fearful anxiety. The presence of social environment's support led to increase in the fearful anxiety scores. Moreover, a relationship was also found between years of marriage with fearful and subjective anxiety scores. An increase in years of marriage led to a decrease in both fearful and subjective anxiety scores. Meanwhile, when the average anxiety scores were calculated for the each gorup of women. It was seen that the average anxiety score of "IVF women" is greater than that of "non-IVF" women.

There are many studies invesitgating the impact of infertility history and previous unsuccessful interventions. In a study of Oddens (1999), women having unsuccessful IVF history were reported not to yield higher frequencies of negative emotions before treatment than the other patients but they were observed to be more depressed. Mcmahon et al. (1997) reported that even after conception women having unsuccessful treatment experience still had higher anxiety levels in comparison to women who had given a birth after their first trial. In a study of Apfel et al (2002) it had been suggested that years of infertility and organizing life around technological processes for the purpose of reproduction had an erosive effect. It was also demonstrated that as duration of infertility and time spent in IVF programmes increased, coping ability deteriorated over time. Other studies also analyzed the negative impact of repeated unsuccessful interventions on women's emotions and anxiety as well as on marital relationships (Leiblum et al., 1987; Baram et al., 1988; Greil, 1997; Newton et al., 1990; Hynes et al., 1992; Slade et al., 1997).

In this thesis the impact of previous IVF attempts and the number of unsuccessful outcomes on the anxiety levels were also analyzed for women from IVF group however no significant results were obtained. Nevertheless considerable numbers of "IVF women" having repeated IVF cycles tended to display high anxiety scores. While these were supported by statistical tests, answers to open-end questions and the subsequent qualitative analysis revealed many examples indicating the negative impact of unsuccessful IVF trials on anxiety.

The findings from this thesis contributed to our understanding of how infertility treatment with the use of technology influenced women participants in social, emotional and psychological aspects. This knowledge might not only provide necessary and valuable insights about ART but also will give guidance to physicians and medical staff in optimizing the information, organizing the support and counseling facilities in IVF programmes.

6.3. Limitations of the Study and Policy Implications

6.3.1. Limitations and Suggestions

Finally, it should be noted that there are significant methodological and conceptual limitations to this research. First of all, small sample size (31 women from IVF group and 31 women from non-IVF group) raised concerns about the representativeness of the infertile and fertile women. Small sample size might not only affect the reliability of statistical analyses but also lead to the possibility of non-randomization. It should be noted that although our two sample groups showed similarity in terms of age

frequencies, a significant difference was obtained between their education status, occupation, working condition and the longest place of residence. Secondly, 62 cases investigated by questionnaires could have been separately examined together with physicians who had previously known the reproductive and infertility history about these patients in our sample. Having connection with physicians while analyzing the answers women gave to the questionnaire could have provided complete information about women. Unfortunately, the data collected in the present research could not include physician reports. Thirdly, as the IVF procedures are primarily applied on women and the women are at the center of the treatment, there is more recognition of women in literature. There should be some data and interest on anxiety, depression and other psychological symptoms aroused in men and also men's role throughout the infertility treatment. This was also beyond the scope of present study.

6.3.2. Policy Implications

Assisted Reproductive Technology (ART) is an important discovery and development and by all accounts it is expected to get more important in coming years. A question comes to our minds that how far scientists can go. As the use of these technologies increase and more techniques and applications become available, additional ethical and policy issues become main concerns. Egg and sperm donation, gamete freezing and same sex parenting are among these controversial issues. These applications let more people benefit from these technologies and have a chance to be parents. However, each country has its own legal regulations that allow or prohibit these applications. Sperm and egg donation raises serious ethical and medical questions about protection of

children from the stigma of illegitimacy, preventing a relationship between the birth parents and offspring and protection of the adoptive parents from future disruption. This is a serious complication and patients need to be informed of the risk of its occurrence, whether they are undergoing IVF with their own eggs or sperms or are receiving gametes from another man or woman. Physical and mental health effects of donors should be more closely examined and appropriate legislation be passed to protect donors and recipients.

After new reproductive technologies as a means of creating a family have emerged and become widely available, the resulting family structures have challenged the traditional meaning of family. Same sex marriage and parenting is another controversial topic raised after the use of ART including gamete donation that should be legally regulated.

These controversial issues and their applications are legally allowed in some countries. In Turkey, gamete donation and same sex marriage and parenting seem not to be allowed and become an issue in near future. However pros and cons of these additional applications of ART should be studied, the legal and political struggles over control should be elicited and implications for the definitions of family should be discussed in details.

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APPENDICES

APPENDIX A

THE QUESTIONNAIRES

QUESTIONNAIRE FOR WOMEN UNDERGOING INFERTILITY TREATMENT

Protocol number: Name:

1. Date of Birth (year): .....
2. Husband's date of Birth (year): .....
3. Year of marriage: .....
4. Educational status:

Primary School	☐	Vocational School	☐
Junior High School	☐	University	☐
Senior High School	☐	Master/PhD	☐

5. a. Place of birth (name of city): .....……..

   b. Type of birth place:
   - 1. City center ☐
   - 2. District center ☐
   - 3. Village ☐
   - 4. Town ☐

6. a. Place of residence (name of city): .....

   b. Type of residence:
   - 1. City center ☐
   - 2. District center ☐
   - 3. Village ☐
   - 4. Town ☐

7. Place of residence for the longest time period. (Please sign only one item)

City center ☐ District center ☐ Village ☐ Town ☐

8. a. Occupation .....

b. Working condition

- Salaried employee ☐
- Self-employed ☐
- Housewife ☐
- Unemployed ☐
- Student ☐
- Retired ☐

9. How did you decide to undergo IVF treatment?

- It was my decision to undergo IVF treatment ☐
- It was my husband's decision to undergo IVF treatment ☐
- It was my husband's and my common decision to undergo IVF treatment ☐
- Other family members persuaded us to undergo IVF treatment ☐
- Friends persuaded us to undergo IVF treatment ☐

10. Cause of infertility

- Male factor infertility ☐
- Female factor infertility ☐
- Mixed factor infertility ☐
- Unexplained infertility ☐

11. Previous trials of assisted reproduction techniques and number of trials.

- Intrauterin insemination (IUI) ☐ Number of trial _____
- Classical In vitro fertilization (IVF) ☐ Number of trial _____
- Microinjection ☐ Number of trial _____
  (ICSI- intra cytoplasmic sperm injection)

12. a. What did you feel about trying to have a child by undergoing assisted reproduction techniques?

b. What was your husband's view about having a child with ART?

c. How did your family react to your infertility treatment for the purpose of having a child?

d. How did your friends react to your infertility treatment for the purpose of having a child?

13. What did you think about the application of science and technology to a sensitive and private subject such as reproduction?

14. When and where did you first hear about in vitro fertilization?

15. What are your feelings about your doctor (gynecologist)?

16. When did you learn that not only female but also male could be the source of infertility? What did you think about that subject? Were there different thoughts in your social environment about this subject?

17. Did you think that giving birth was one of the most important expectations in your life?

18. Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

0. Not At All
1. Mildly but it didn't bother me much.
2. Moderately - it wasn't pleasant at times
3. Severely – it bothered me a lot

	How much you have been bothered?
1. Numbness or tingling	0 ☐ 1 ☐ 2 ☐ 3 ☐
2. Feeling hot	0 ☐ 1 ☐ 2 ☐ 3 ☐
3. Wobbliness in legs	0 ☐ 1 ☐ 2 ☐ 3 ☐
4. Fear of worst happening	0 ☐ 1 ☐ 2 ☐ 3 ☐
5. Dizzy or lightheaded	0 ☐ 1 ☐ 2 ☐ 3 ☐
6. Heart pounding/racing	0 ☐ 1 ☐ 2 ☐ 3 ☐
7. Terrified or afraid	0 ☐ 1 ☐ 2 ☐ 3 ☐
8. Nervous	0 ☐ 1 ☐ 2 ☐ 3 ☐
9. Hands trembling	0 ☐ 1 ☐ 2 ☐ 3 ☐
10. Fear of losing control	0 ☐ 1 ☐ 2 ☐ 3 ☐
11. Difficulty in breathing	0 ☐ 1 ☐ 2 ☐ 3 ☐
12. Fear of dying	0 ☐ 1 ☐ 2 ☐ 3 ☐
13. Faint / lightheaded	0 ☐ 1 ☐ 2 ☐ 3 ☐
14. Hot/cold sweats	0 ☐ 1 ☐ 2 ☐ 3 ☐

QUESTIONNAIRE FOR WOMEN CONCEIVED "NATURALLY"

Protocol number: Name:

1. Date of Birth (year): .....
2. Husband's date of Birth (year): .....
3. Year of marriage: .....
4. Educational status:

Primary School	☐	Vocational School	☐
Junior High School	☐	University	☐
Senior High School	☐	Master/PhD	☐

5. a. Place of birth (name of city): .....……..

   b. Type of birth place:
   - 1. City center ☐
   - 2. District center ☐
   - 3. Village ☐
   - 4. Town ☐

6. a. Place of residence (name of city): .....

   b. Type of residence:
   - 1. City center ☐
   - 2. District center ☐
   - 3. Village ☐
   - 4. Town ☐

7. Place of residence for the longest time period. (Please sign only one item)

   City center ☐ District center ☐ Village ☐ Town ☐

8. a. Occupation .....

b. Working condition

- Salaried employee ☐
- Self-employed ☐
- Housewife ☐
- Unemployed ☐
- Student ☐
- Retired ☐

9. Which infertility factors do you know about?

10. Which assisted reproduction techniques do you know about?

11. How did you decide to have a child?

- It was my decision to have a child ☐
- It was my husband's decision to have a child ☐
- It was my husband's and my common decision to have a child ☐
- Other family members persuaded us to have a child ☐
- Friends persuaded us to have a child ☐

12. a. What did you feel about having a child without taking infertility treatment?

b. What was your husband's view about having a child?

c. What were your family's thoughts about having a child?

d. What were your family's thoughts about having a child?

13. What did you think about the application of science and technology to a sensitive and private subject such as reproduction?

14. When and where did you first hear about in vitro fertilization?

15. What are your feelings about your doctor (gynecologist)?

16. When did you learn that not only female but also male could be the source of infertility? What did you think about that subject? Were there different thoughts in your social environment about this subject?

17. Did you think that giving birth was one of the most important expectations in your life?

18. Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

0. Not At All

1.Mildly but it didn't bother me much.

2. Moderately - it wasn't pleasant at times

3. Severely – it bothered me a lot

	How much have you been bothered?
1. Numbness or tingling	0 ☐ 1 ☐ 2 ☐ 3 ☐
2. Feeling hot	0 ☐ 1 ☐ 2 ☐ 3 ☐
3. Wobbliness in legs	0 ☐ 1 ☐ 2 ☐ 3 ☐
4. Fear of worst happening	0 ☐ 1 ☐ 2 ☐ 3 ☐
5. Dizzy or lightheaded	0 ☐ 1 ☐ 2 ☐ 3 ☐
6. Heart pounding/racing	0 ☐ 1 ☐ 2 ☐ 3 ☐
7. Terrified or afraid	0 ☐ 1 ☐ 2 ☐ 3 ☐
8. Nervous	0 ☐ 1 ☐ 2 ☐ 3 ☐
9. Hands trembling	0 ☐ 1 ☐ 2 ☐ 3 ☐
10. Fear of losing control	0 ☐ 1 ☐ 2 ☐ 3 ☐
11. Difficulty in breathing	0 ☐ 1 ☐ 2 ☐ 3 ☐
12. Fear of dying	0 ☐ 1 ☐ 2 ☐ 3 ☐
13. Faint / lightheaded	0 ☐ 1 ☐ 2 ☐ 3 ☐
14. Hot/cold sweats	0 ☐ 1 ☐ 2 ☐ 3 ☐

APPENDIX B

ANKETLER

INFERTİLİTE TEDAVİSİ GÖREN KADINLAR İÇİN ANKET SORULARI

Protokol numarası: İsim:

1. Doğum tarihiniz (Yıl olarak) : .....
2. Eşinizin doğum tarihi (Yıl olarak) : .....
3. Kaç yıllık evlisiniz?.....
4. Son bitirdiğiniz okul:

İlkokul	☐	Yüksekokul	☐
Ortaokul	☐	Üniversite	☐
Lise	☐	Yüksek lisans/doktora	☐

5. a. Doğum yeriniz? (il adı belirtilecek) .....

   b. Bu ilin neresinde?
   - 1. İl merkezi ☐
   - 2. İlçe merkezi ☐
   - 3. Kasaba ☐
   - 4. Köy ☐

6. a. İkamet ettiğiniz il : .....

   b. Bu ilin neresinde?
   - 1. İl merkezi ☐
   - 2. İlçe merkezi ☐
   - 3. Kasaba ☐
   - 4. Köy ☐

7. Yaşamınız boyunca en uzun süreli olarak hangi tür yerleşim biriminde yaşadınız? (Lütfen tek seçenek işaretleyiniz)

   Şehir ☐ İlçe ☐ Kasaba ☐ Köy ☐

8. a. Mesleğiniz nedir?.....

b. Şu andaki çalışma konumunuz aşağıdakilerden hangisine uyuyor?

- Ücretli-maaşlı çalışıyorum ☐
- Kendi hesabıma (serbest) çalışyorum ☐
- Ev hanımıyım ☐
- İşsizim ☐
- Öğrenciyim ☐
- Emekliyim, çalışmıyorum ☐

9. İnfertilite tedavisi görmeye nasıl karar verdiniz?

- Kendi isteğimle ☐
- Eşimin isteğiyle ☐
- Eşim ve ben birlikte karar verdik ☐
- Aile ısrarıyla ☐
- Arkadaşların ısrarıyla ☐

10. İnfertilite sebebi nedir?

- Erkek kaynaklı ☐
- Kadın kaynaklı ☐
- Hem erkek hem kadın kaynaklı ☐
- Açıklanamayan infertilite ☐

11. Size uygulanan yardımcı üreme teknikleri ve sayısı

- Aşılama (İnseminasyon) ☐ Deneme sayısı _____
- Klasik tüp bebek yöntemi ☐ Deneme sayısı _____
- Mikroenjeksiyon ☐ Deneme sayısı _____
  (ICSI- intra sitoplazmik sperm enjeksiyonu)

12. a. Yardımcı üreme teknikleri ile çocuk sahibi olmaya çalışmak nasıl bir duygu?

    b. Eşinizin yardımcı üreme tekniklerine bakış açısı nedir?

    c. Yakın aile üyelerinin yardımcı üreme tekniklerine bakış açısı nedir?

    d. Komşu ve arkadaşlarınızın yardımcı üreme tekniklerine bakış açısı nedir?

13. Üreme gibi son derece mahrem ve hassas bir konunun, bilim ve teknoloji ile de uygulanıyor olmasını nasıl karşılıyorsunuz?

14. Tüp Bebek yöntemini ilk kez nereden ve ne zaman duydunuz?

15. Kadın-Doğum uzmanınız hakkındaki görüşleriniz nelerdir?

16. Kısırlığın sadece kadın değil erkek kaynaklı da olabileceğini ne zaman öğrendiniz? Bu konuda ne düşünüyorsunuz? Çevrenizde farklı fikirler var mı?

17. Cocuk sahibi olmak hayattaki en önemli beklentilerinizden birisi midir? Cocuk sahibi olunca hayattaki amaciniza ulasmis olacak misiniz?

18. Aşağıdaki insanların kaygılı ya da endişeli oldukları zamanlarda yaşadıkları bazı belirtiler verilmiştir. Lütfen her maddeyi dikkatle okuyunuz. Daha sonra her maddedeki belirtinin bugün dahil son bir haftadır sizi ne kadar rahatsız ettiğini aşağıdaki ölçekten yararlanarak maddelerin yanındaki uygun yere (X) işareti koyarak belirtiniz.

0. Hiç *2. Orta derecede*

1. Hafif derecede *3. Ciddi derecede*

	Sizi ne kadar rahatsız etti?
1. Bedeninizin herhangi bir yerinde uyuşma ve karıncalanma var mı?	0 ☐ 1 ☐ 2 ☐ 3 ☐
2. Sıcak /ateş basmaları	0 ☐ 1 ☐ 2 ☐ 3 ☐
3. Bacaklarda halsizlik, titreme	0 ☐ 1 ☐ 2 ☐ 3 ☐
4. Çok kötü şeyler olacak korkusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
5. Baş dönmesi ve sersemlik	0 ☐ 1 ☐ 2 ☐ 3 ☐
6. Kalp çarpıntısı	0 ☐ 1 ☐ 2 ☐ 3 ☐
7. Dehşete kapılma	0 ☐ 1 ☐ 2 ☐ 3 ☐
8. Sinirlilik	0 ☐ 1 ☐ 2 ☐ 3 ☐
9. Ellerde titreme	0 ☐ 1 ☐ 2 ☐ 3 ☐
10. Kontrolü kaybetme duygusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
11. Nefes almada güçlük	0 ☐ 1 ☐ 2 ☐ 3 ☐
12. Ölüm korkusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
13. Baygınlık	0 ☐ 1 ☐ 2 ☐ 3 ☐
14. Sıcağa bağlı olmayan terleme	0 ☐ 1 ☐ 2 ☐ 3 ☐

INFERTİLİTE TEDAVİSİ GÖRMEYEN KADINLAR İÇİN ANKET SORULARI

Protokol numarası: İsim:

1. Doğum tarihiniz (Yıl olarak) : .....
2. Eşinizin doğum tarihi (Yıl olarak) : .....
3. Kaç yıllık evlisiniz?.....
4. Son bitirdiğiniz okul:

İlkokul	☐	Yüksekokul	☐
Ortaokul	☐	Üniversite	☐
Lise	☐	Yüksek lisans/doktora	☐

5. a. Doğum yeriniz? (il adı belirtilecek) .....

   b. Bu ilin neresinde? 1. İl merkezi ☐
   2. İlçe merkezi ☐
   3. Kasaba ☐
   4. Köy ☐

6. a. İkamet ettiğiniz il : .....

   b. Bu ilin neresinde? 1. İl merkezi ☐
   2. İlçe merkezi ☐
   3. Kasaba ☐
   4. Köy ☐

7. Yaşamınız boyunca en uzun süreli olarak hangi tür yerleşim biriminde yaşadınız? (Lütfen tek seçenek işaretleyiniz)

   Şehir ☐ İlçe ☐ Kasaba ☐ Köy ☐

8. a. Mesleğiniz nedir?.....

   b. Şu andaki çalışma konumunuz aşağıdakilerden hangisine uyuyor?

   - Ücretli-maaşlı çalışıyorum ☐
   - Kendi hesabıma (serbest) çalışyorum ☐
   - Ev hanımıyım ☐
   - İşsizim ☐
   - Öğrenciyim ☐
   - Emekliyim, çalışmıyorum ☐

9. Çocuk sahibi olmaya nasıl karar verdiniz?

   - Kendi isteğimle ☐
   - Eşimin isteğiyle ☐
   - Eşim ve ben birlikte karar verdik ☐
   - Aile ısrarıyla ☐
   - Arkadaşların ısrarıyla ☐

10. Sizce infertilite sebepleri neler olabilir?

11. Bildiğiniz yardımcı üreme teknikleri nelerdir?

12. a. İnfertilite tedavisi görmeden normal yollardan çocuk sahibi olmak nasıl bir duygu?

    b.Eşinizin çocuk sahibi olmaya bakış açısı nedir?

    c. Yakın aile üyelerinin çocuk sahibi olmanıza bakış açısı nedir?

    d. Komşu ve arkadaşlarınızın çocuk sahibi olmanıza bakış açısı nedir?

13. Üreme gibi son derece mahrem ve hassas bir konunun, bilim ve teknoloji ile de uygulanıyor olmasını nasıl karşılıyorsunuz?

14. Tüp Bebek yöntemini ilk kez nereden ve ne zaman duydunuz?

15. Kadın-Doğum uzmanınız hakkındaki görüşleriniz nelerdir?

16. Kısırlığın sadece kadın değil erkek kaynaklı da olabileceğini ne zaman öğrendiniz? Bu konuda ne düşünüyorsunuz? Çevrenizde farklı fikirler var mı?

17. Cocuk sahibi olmak hayattaki en onemli beklentilerinizden birisi midir? Cocuk sahibi olunca hayattaki amaciniza ulasmis olacak misiniz?

18. Aşağıdaki insanların kaygılı ya da endişeli oldukları zamanlarda yaşadıkları bazı belirtiler verilmiştir. Lütfen her maddeyi dikkatle okuyunuz. Daha sonrai her maddedeki belirtinin bugün dahil son bir haftadır sizi ne kadar rahatsız ettiğini aşağıdaki ölçekten yararlanarak maddelerin yanındaki uygun yere (X) işareti koyarak belirtiniz.

0. Hiç *2. Orta derecede*

1. Hafif derecede *3. Ciddi derecede*

	Sizi ne kadar rahatsız etti?
1. Bedeninizin herhangi bir yerinde uyuşma ve karıncalanma var mı?	0 ☐ 1 ☐ 2 ☐ 3 ☐
2. Sıcak /ateş basmaları	0 ☐ 1 ☐ 2 ☐ 3 ☐
3. Bacaklarda halsizlik, titreme	0 ☐ 1 ☐ 2 ☐ 3 ☐
4. Çok kötü şeyler olacak korkusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
5. Baş dönmesi ve sersemlik	0 ☐ 1 ☐ 2 ☐ 3 ☐
6. Kalp çarpıntısı	0 ☐ 1 ☐ 2 ☐ 3 ☐
7. Dehşete kapılma	0 ☐ 1 ☐ 2 ☐ 3 ☐
8. Sinirlilik	0 ☐ 1 ☐ 2 ☐ 3 ☐
9. Ellerde titreme	0 ☐ 1 ☐ 2 ☐ 3 ☐
10. Kontrolü kaybetme duygusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
11. Nefes almada güçlük	0 ☐ 1 ☐ 2 ☐ 3 ☐
12. Ölüm korkusu	0 ☐ 1 ☐ 2 ☐ 3 ☐
13. Baygınlık	0 ☐ 1 ☐ 2 ☐ 3 ☐
14. Sıcağa bağlı olmayan terleme	0 ☐ 1 ☐ 2 ☐ 3 ☐