

THE "IRANIAN ART REVOLUTION": INFERTILITY, ASSISTED REPRODUCTIVE TECHNOLOGY, AND THIRD-PARTY DONATION IN THE ISLAMIC REPUBLIC OF IRAN

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ABSTRACT

Infertility is a social onus for women in Iran, who are expected to produce children early within marriage. With its estimated 1.5 million infertile couples, Iran is the only Muslim country in which assisted reproductive technologies (ARTs) using donor gametes and embryos have been legitimized by religious authorities and passed into law. This has placed Iran, a Shia-dominant country, in a unique position vis-à-vis the Sunni Islamic world, where all forms of gamete donation are strictly prohibited. In this article, we first examine the "Iranian ART revolution" that has allowed donor technologies to be admitted as a form of assisted reproduction. Then we examine the response of Iranian women to their infertility and the profound social pressures they face. We argue that the experience of infertility and its treatment are mediated by women's socioeconomic position within Iranian society. Many women lack economic access to in vitro fertilization (IVF) technologies and fear the moral consequences of gamete donation. Thus, the benefits of the Iranian ART revolution are mixed: although many Iranian women have been able to overcome

their infertility through ARTs, not all women's lives are improved by these technologies.

The Iranian civil law emphasizes that family is a warm and placid institute founded upon the authority of the husband and the father. Motherhood and doing housework are the woman's responsibility, and outside work is the man's; and the man is the breadwinner. Such policies reinforce the traditional patriarchal relations within the family. (Sarokhani and Raf'atjah 2004)

INTRODUCTION

Infertility, defined as the inability to achieve a viable pregnancy after 12 months of regular unprotected sexual intercourse, affects more than 15 percent of all couples around the world at some point in their reproductive lives (Vayena, Rowe, and Griffin 2002). Factors causing high rates of infertility in parts of the non-Western world, including the Middle East, are varied, but tubal infertility due to reproductive tract infections is widely regarded as the primary form of preventable infertility among women (Sciarra 1994; Inhorn 2003a). Although rarely socially acknowledged, male infertility contributes to at least half of all cases worldwide and is often the most difficult form of infertility to treat (Devroey et al. 1998; Irvine 1998; Kamischke and Nieschlag 1998). Yet, infertility is paradoxically considered to be a "woman's problem" around the world, and thus the role of male infertility is vastly underestimated and even hidden in many societies, including those of the Middle East (Inhorn 2002; 2003a; 2003b; 2003c; 2004; 2006a; 2006b; 2007).

Throughout most of the world, infertility is a grave form of reproductive morbidity with profoundly gendered social consequences (Inhorn and van Balen 2002), consequences that are usually suffered by women more than men, and especially by women living in pronatalist, patriarchal social settings. For example, Inhorn's ethnographic trilogy on infertility, patriarchy, and the "quest for conception"—including resort to in vitro fertilization (IVF)—in Egypt documents the tremendous social suffering experienced by infertile Egyptian women in a pronatalist or "child desiring" society (Inhorn 1994; 1996; 2003b). Other scholars have documented the gendered burden of infertility in many parts of the

Muslim world, especially in sub-Saharan Africa (Boerma and Mgalla 2001; Inhorn and van Balen 2002).

The Islamic Republic of Iran is no exception. Iran has experienced rapid growth over the past 30 years, leading to a total population of about 70 million (Abbasi-Shavazi, McDonald, and Chavoshi 2003). Although an award-winning population control program has brought the population growth rate down from 3.9 percent during the 1976–1986 decade to around 1.5 percent during the 1996–2006 decade (one of the sharpest fertility declines ever recorded), Iran remains socially pronatalist (Inhorn 2006c). Having children remains a fundamental drive for many couples after marriage. Both religious and cultural norms and values reinforce such perceptions, as noted in the introductory quote by Sarokhani and Raf'atjah (2004). Iranian culture generally considers children "divine gifts," and producing such children is the fundamental reason for marriage among many couples. Having children is generally regarded as strengthening the institution of the family and as a sign of commitment to Iranian cultural values.

Given this pronatalism, it is not surprising that infertility clinics are present in most provinces of Iran, attempting to help infertile couples to conceive. Iran currently boasts about 50 IVF clinics, one of the highest numbers of clinics in the Middle East and similar to Egypt in this regard (Inhorn 2003b). Although the majority of Iranian IVF clinics are located in Tehran, which is generally believed to have better medical facilities with more experienced physicians, there are, nevertheless, IVF clinics in such provincial cities as Yazd, which is noted for its conservatism. Given the status of Iran as an Islamic republic, it may come as a surprise that Iran is the only Muslim country in which IVF using donor gametes, embryos,¹ and surrogates has been legitimized by religious authorities and passed into law. This has placed Iran, a Shia-dominant country, in a unique position vis-à-vis the Sunni Islamic world, where all forms of third-party donation are strictly prohibited by religious decrees and codes of medical ethics.

In this article, we first examine what we call the "Iranian ART revolution" that has allowed donor technologies to be admitted as a form of assisted conception. Then we examine the response of Iranian women to their infertility and the profound social pressures they face. We argue that infertility provokes a social crisis for women in Iran and

that, despite the array of modern infertility treatments, including assisted reproductive technologies (ARTs), now available in the country, not all infertile women utilize these options. As we argue, many Iranian women lack economic access to these technologies and fear the moral consequences of ARTs, particularly third-party donation. However, for those women who are able to access ARTs in Iranian IVF clinics, the technologies have helped them to recast infertility as a medically remediable condition, with donor technologies conceived of as just one more medical solution, albeit a secret one, to overcome their suffering.

THE UNIQUE CASE OF IRAN: INFERTILITY, IVF, AND GAMETE DONATION

Despite the large population of infertile Iranians—estimated at 10–15 percent of all married couples, or approximately 1.5 million couples—little is known about how infertility is perceived by Iranian women themselves. A few psychological surveys carried out in Iran have shown that infertile women are affected by worries of losing the support of their husbands and families, and that the fundamental source of this anxiety derives from interference by others (e.g., mothers-in-law) in the life of the childless couple (Mahmoodi 1994; Kormi-Noori 2000; Haji-Kazemi 2001; Goodarzi and Badakhsh 2002).

Given such circumstances, it is not surprising that many infertile Iranian couples may do whatever it takes to save their relationship, even if it means undertaking risky or onerously expensive infertility treatments (cf. Daniluk, Leader, and Taylor 1987; Molock 2000; Inhorn 2003a; 2003b). In this regard, Iranians have a wide array of treatment options available to them, especially compared to the Sunni Muslim countries of the Middle East. To wit, in the Sunni Muslim world, a ban on third-party donation is effectively in place, such that ova, sperm, embryo, and uterus donation (as in surrogacy) are all strictly prohibited (Serour 1996; Meirow and Schenker 1997; Eich 2002; 2005; 2006; Moosa 2003; Inhorn 2003b; 2006a). Diverging from this course, the Supreme Leader of the Islamic Republic of Iran, Ayatollah Ali Hoseyni Khamenei, issued a fatwa in the late 1990s effectively permitting donor technologies, both egg and sperm donation, to be used. Thus, unlike all other Muslim countries (with the exception of Lebanon, which is following

the Iranian lead) (Clarke 2006; Inhorn 2006a), third-party gamete donation is currently available in Iran, having been approved by the Islamic Consultative Assembly in 2002.

However, the situation for Shia Muslims in Iran (and elsewhere) is actually much more complicated than this. Shia religious authorities give considerable precedence to a form of individual religious reasoning known as *ijtihad*, through the use of *'aql*, or intellectual reasoning. Although there is a strong tradition of *ijtihad* in Sunni Islam, Sunni Muslim clerics tend to favor scriptural sources over individual moral reasoning. Shia, on the other hand, pride themselves on the greater freedom of their religious authorities to exercise *ijtihad* (Clarke 2006; 2007). As many scholars of Shia have noted (Cole 2002; Tremayne 2005; 2006a; 2006b; 2008), the practice of *ijtihad* has allowed a certain flexibility and pragmatism toward new technological developments, including IVF and a number of other new medical technologies (e.g., contraception, organ transplants, transgender surgery). Furthermore, *ijtihad* has ultimately led to great heterogeneity of opinion and practice *within* the Shia community.

Additionally, Shia Islam allows a form of temporary marriage called *mut'a* (also called *sigheh* in Iran), which is not recognized by Sunni religious authorities (Zuhur 1992). In Shia Islam, *mut'a* is a union between an unmarried Muslim woman and a married or unmarried Muslim man, which is contracted for a fixed time period in return for a set amount of money. It is practiced in Iran (Haeri 1989), as well as in other parts of the Shia world. In the past, middle-aged and older women who were divorced or widowed (many following the loss of men during the devastating eight-year Iran-Iraq war) often engaged in *mut'a* marriages for financial support. For Shia men, *mut'a* marriages could be contracted while traveling, or as a means of achieving marital variety and sexual pleasure (Haeri 1989).

Within this context of *ijtihad* and *mut'a*, divergent opinions on gamete donation are beginning to emerge in the Shia Muslim world. Various Shia ulema have come to their own conclusions regarding the acceptability of gamete donation, with or without *mut'a*. Some Shia clerics, siding with the Sunni majority, continue to prohibit gamete donation for their followers, while others have allowed it under certain conditions. Some, but not all, Shia clerics have invoked *mut'a* to make

egg donation legal within the parameters of marriage; they argue that the husband should contract a *mut'a* marriage with the egg donor for the period of time in which the whole procedure (from egg retrieval to embryo transfer) takes place. Because polygyny is legal in Islam, *mut'a* marriage avoids the implications of *zina*, or adultery, which would occur if the husband did not marry the egg donor (Inhorn 2006c).

These disagreements of opinion have played out in interesting ways. As shown in anthropologist Morgan Clarke's recent research on the Shia religious discourses surrounding gamete donation, Ayatollah Khamenei clearly stipulates in his fatwa on gamete donation that *mut'a* marriage is not required, for he believes that *zina* (adultery) requires the physical act of intercourse. Yet, many Shia jurists do not agree with Khamenei's position, nor his permissive fatwa on donor technologies. For example, Shaikh Muhammad Husayn Fadlallah, Lebanon's most prominent Shia religious authority, does not agree with Ayatollah Khamenei's permission of sperm donation, because, according to Shaikh Fadlallah, a married woman should not accept sperm from another man² (Clarke 2006; 2007; 2008). Furthermore, because a married Shia Muslim woman cannot marry another man other than her husband (since polyandry is illegal in Islam), she cannot contract a *mut'a* marriage with a sperm donor to make the donation legal. The child born of a sperm donor would be a *laqit*, or out-of-wedlock child, without a family name and without a father. Thus, in theory, only widowed or otherwise single women should be able to accept donor sperm, in order to avoid the implications of *zina*, or adultery. However, in Muslim countries, single motherhood of a donor child is unlikely to be socially acceptable (Zuhur 1992; Inhorn 1996; 2006c).

Interestingly, in March 2006, a two-day international conference was held in Tehran on "Gamete and Embryo Donation," sponsored by the Avesina Research Institute in association with the Law and Political Science Faculty of the University of Tehran. The conference provided a fascinating example of "*ijtihad* in action" (Inhorn 2006c), or the kind of rigorous debate that is the norm in Shia jurisprudence. Some Iranian clergy and physicians present at the conference advocated for future laws permitting all forms of donation as well as surrogacy. Once passed into law, gamete donation of all kinds would be difficult to stop (Tremayne 2008). However, other Shia clergy at the conference did not agree with this "permissiveness," arguing against both embryo and gamete dona-

tion. For example, a Shia sharia judge from Bahrain took great pains to describe his opposition to all forms of gamete donation. According to him, Iranian clergy, who speak Persian rather than Arabic, are not as familiar with the original Islamic scriptures (in Arabic) that serve to demonstrate the immorality of third-party donation. Thus, in his view, some Iranian clergy are “innovating” in ways that are religiously unacceptable, and which are at odds with the rest of the Muslim world.

It is important to note that Ayatollahs Ali al-Sistani and Muhammad Sa'id al-Tabataba'i al-Hakim, both Shia religious authorities in Iraq, advise caution against third-party donation practices, viewing them as largely unacceptable (Clarke 2006; 2008). Indeed, Ayatollah al-Sistani's son, Muhammad Rida al-Sistani, has devoted an entire volume of richly documented legal analysis to this debate, providing “an invaluable resource for other scholars” (Clarke 2006, 26). According to Clarke, “Sistani's work, while perhaps posing more questions than clear answers, opens up for other scholars a fascinating window into this area of Shi'ite jurisprudential debate, at a time when the Western media are just waking up to the vibrant engagement Shi'ite scholars have had with other such new technologies” (26).

Given these moral controversies, especially surrounding sperm donation, it is important to note that a recent law on embryo donation has been passed in Iran (Tremayne 2008), making it the only Middle Eastern Muslim country to enact such legislation. The law was passed in 2003 in the Iranian Parliament and was approved by the Guardian Council, a religious “watch-dog” body that must endorse a bill before it becomes law. Even though the law is brief (less than one page), it states clearly and succinctly who can and cannot donate and receive gametes and embryos. Egg donation is allowed, as long as the husband marries the egg donor temporarily, thereby ensuring that all three parties are married. Sperm donation, on the other hand, is legally forbidden, because a sperm donor cannot temporarily marry an already married woman whose husband is infertile. However, quite interestingly, embryo donation—which involves both sperm and egg from another couple—is allowed in order to overcome both male and female infertility. Because an embryo comes from a married couple and is given to another married couple, it is considered *hallal*, or religiously permissible.

The social and biological implications of embryo donation are quite

interesting. For Iranian couples unable to produce a child because of male infertility, embryo donation allows them to bypass the problem of the husband's weak (or absent) sperm. However, embryo donation does *not* allow a presumably fertile wife of an infertile husband to contribute her own ova, in effect severing her biological ties to the donor child. Furthermore, and most strikingly, embryos donated from another married couple involve *both* egg and sperm donation. Even though direct sperm donation is bypassed, embryo donation still disrupts male paternity and involves the acceptance by an already married woman of another man's sperm (and woman's eggs). Whether the social ramifications of embryo donation have been carefully thought through by the religious and legal authorities in Iran remains unclear (Tremayne 2008).

Meanwhile, in the absence of effective enforcement of this new law, some IVF physicians in Iran—as well as in Shia-dominant Lebanon, which is closely following the Iranian lead—are capitalizing on the relaxed regulatory environment and the original “permissive” fatwa of Ayatollah Khamenei to practice all forms of gamete donation among their desperate infertile patients. As noted by Clarke (2006, 26), “Doctors keep Khamenei’s fatwa collection on the shelves of their surgeries to demonstrate the permissibility of such procedures to skeptical Muslim patients; and many such patients have profited from it to undertake donor sperm and egg procedures, even surrogacy arrangements, with a clear conscience.” Similarly, as noted by Soraya Tremayne,

In reality the lack of clarity in religious rulings has left a wide gap in the ethical, moral, and legal aspects of the practice of ARTs. The overall protection that such approvals provide, inadvertently has created a confusing situation for medical practitioners, who, in their everyday practices face complex situations which are not covered by religious rules.... But as these gaps emerge, and the medical practitioners, cooperating closely with the “liberal” religious rules, try to close them, the balance of power has gradually shifted in favor of biomedical knowledge as the determining and authoritative source of wisdom as far as ARTs are concerned. (personal communication, July 2004)

As a result of these legal-moral-medical ambiguities, sperm donation is, in fact, practiced in some clinics in Iran, without clear legal consequences for either couples or physicians (Garmaroudi n.d.; Tremayne

2008). To alleviate moral concerns, some women divorce their infertile husbands before undertaking sperm donation, then remarry them after a three-and-a-half month waiting period (i.e., *iddah*, the period required to establish the pregnancy) (Tremayne 2008). With all forms of sperm, egg, and embryo donation, the donor child inherits from the infertile parents.³ Furthermore, the donor couple should be married, legally and religiously, and should undergo medical testing for physical and mental health, IQ tests for normal intelligence, and screening for drug and alcohol addiction. Donors who receive payment for their gametes generally remain anonymous to the recipients. However, as shown by both Tremayne (2005; 2008) and Garmaroudi (n.d.), donation between kin, especially sisters, remains common and is even preferred by many couples in Iran. The same may be true of surrogacy. Garmaroudi (n.d.) found that gestational surrogacy as a solution to infertility is becoming increasingly popular in Iran, and among the majority of Shia legal authorities, it is an acceptable form of assisted reproduction.

Despite the availability and legality of this panoply of assisted reproductive techniques, the question remains: Do most infertile Iranian women actually resort to these morally controversial technologies? Based on research from other developing countries, the most probable answer would be "No." Due to the prohibitive costs, as well as a variety of social, religious, legal, and medical barriers, ARTs of all types remain out of reach for most non-Western women, as well as minority women within Western societies (van Balen and Inhorn 2002). Inhorn (2003b, 16) has called these multiple barriers "arenas of constraint," or the "various structural, social-cultural, ideological, and practical obstacles and apprehensions" that accompany the global spread of ARTs. She has outlined eight such arenas of constraint faced by infertile Egyptians (2003b), as well as by poor Arab Americans living in metropolitan Detroit, Michigan (Inhorn and Fakih 2006). In the remainder of this paper, we ask whether infertile Iranian women face such constraints and, if so, whether their concerns revolve around the moral implications of gamete donation.

ETHNOGRAPHIC SETTING, METHODS, AND STUDY POPULATION

A qualitative ethnographic study was conducted in metropolitan Tehran to assess the experiences of infertile women in the midst of Iran's ART

revolution. As with Inhorn's original study of infertility in Egypt (1994; 1996), the decision was made to focus on women alone, given the gender of the primary interviewer (Razeghi-Nasrabad) and the perceived sensitivity of male infertility and husbands' reactions to the study. The target population was thus defined as all infertile women aged 20 years or older who had been married for more than two years and who had been unable to conceive a child because of a female infertility problem. To gain familiarity with the issues at hand and possible problems of engaging in ethnographic fieldwork on this sensitive subject, twelve infertile women were identified through purposive sampling for a pilot study consisting of in-depth interviews. Of the twelve women contacted in the first stage, we conducted in-depth interviews with only six. One woman changed her mind about participating despite her initial willingness; three agreed to participate only by mobile phone interviews, due to fear of their husbands' reactions; and another two were infertile following previous births of living children. Thus, the need for a clinic-based study, which would cover a broad socioeconomic spectrum of infertile women, became evident.

To that end, we recruited participants through the Avesina Infertility Treatment Clinic, one of the leading private IVF centers in northern Tehran, as well as five government-funded Health and Treatment Centers (HTCs)⁴ catering to the reproductive health needs of poor women in eastern and northern metropolitan Tehran.⁵ If we had restricted our recruitment to the IVF clinic alone, we would have missed many poor infertile women, including those who were unable to pay for IVF treatment, as well as those whose husbands had already remarried. Nonetheless, it is important to note that HTCs generally do not provide adequate diagnostic and treatment services for infertility. Their major goal is to serve married women, aged 15–49, who are eligible for family planning, or mothers with children under the age of two who require maternal and child healthcare. Infertile women rarely visit these centers, and HTCs do not maintain separate records on these women.

Having said that, in the annual audit of these centers, all women aged 15–49 under the coverage of HTCs are asked questions about their households, family planning, and use of contraception. Through these annual audits, we were able to identify possible infertile women and invite them, via health communicators,⁶ to participate in the study.

Through the five HTC's, we invited 52 women who appeared to be infertile to participate. In ten cases, the husband was infertile, not the wife. Twenty-seven other women declined to participate or did not meet all the selection criteria (i.e., women who were married for more than two years, were not using any type of contraception, and were childless at the time of the study). Eventually, 15 women who were themselves infertile and living without children were interviewed from the health centers.

Another 15 women were identified and interviewed as they attended the Avesina IVF clinic, thus bringing the total sample size to 30. It is important to note that the interview schedule used in this study, as well as the research proposal, were both approved in advance by the Medical Ethics Committee of the Avesina Clinic. This clinic is part of a larger research institute where many reproductive health projects are managed (and a journal, *Reproduction and Infertility*, is published). Thus, an Ethics Committee is charged with reviewing and approving all projects before they are undertaken, similar to Institutional Review Boards (IRBs) for research projects in Western countries.

Before interviews were conducted, all women in the study were briefed about the topic of the research, the privacy of their information, and the freedom to withdraw at any time. They were reassured that no personal information would be used, all the records would remain confidential, and only the researchers would have access to the securely stored data. Following women's verbal consent, interviews took an average of 45 minutes to complete.

Women at the HTC's ranged in age from 26 to 48. Their educational status ranged from illiterate to a bachelor's degree (approximately one-third with either no or minimal primary schooling, one-third with a high school diploma, and one-third with some university education). Most spoke Persian, but two spoke Turkish only. Two of the 15 women were employed; the rest described themselves as housewives.

Women at the IVF clinic ranged in age from 23 to 49, and, interestingly, their educational backgrounds were almost identical to the HTC women in the study. However, one-third of these women were employed. Since the women who attended the IVF clinic came from different provinces, some of them also spoke other languages and dialects: two spoke Turkish, three spoke Gilaki dialect (used in northern Iran near

the Caspian Sea), and two spoke Kurdish. Most respondents in both groups had been married for over ten years.

ON BEING INFERTILE IN IRAN

Studies from around the world show that women's welfare and social status are usually dependent upon having children, and that infertile women often live in dire fear of divorce, loss of family support, and community stigmatization (Inhorn 1996; Okonofua et al. 1997; Boerma and Mgalla 2001; van Balen and Gerrits 2001; Dyer et al. 2002; Inhorn and van Balen 2002; Inhorn and Birenbaum-Carmeli 2008). Given this reality, it is not surprising that most women in this study burst into tears when talking about the impacts of infertility on their lives. A few who tried to show calm resolve still described the negative effects of infertility on their marriages and social well-being. Women routinely described feelings of depression, anger, anxiety, shame, and isolation as a result of their infertile status.

In Iran, children are viewed as important sources of social, psychological, and economic support for their parents. As discovered in this study, having children leads to perceived emotional succor, higher social status and prestige, marital security, socioeconomic support, care in old age, and fulfillment of the religious duty to be fruitful and multiply. In interviews, women were open about the perceived "value" of children in their lives as a great source of emotional, social, and economic support over the life course. Every woman in the study was explicit about her fears of growing old without children in a society that offers little in the way of a social safety net for women.

For all of the women in this study, the motherhood role was perceived as the very foundation of their social status and identity, and children were considered a source of pride and power vis-à-vis the family and society at large. In response to the question "Who would you want to be?," most said that their "biggest wish is to become a mother," some stressing that "[they] would give [their] fortune in exchange for being able to experience motherhood." Women in the study explained that motherhood is "the most important duty" for a woman and "the ideal wife is one who brings children for her husband." They wanted to have children not only to fulfill their personal desires, but also because

society expects it of them. Without children, they could never achieve community acceptance. Indeed, most women believed that not being the mother of a child had stigmatized them in their communities.

Yet, many women in the study considered infertility to be beyond their control—i.e., their “fate” and “the will of God” (cf. Inhorn 1994). They argued that if they were not able to “bring children” into the world, this was God’s wish, and they referred to Qur’anic verses to support their contention. Accordingly, if God does not will a woman to be fertile, no treatment will ever be able to help her. Nonetheless, God also expects women to seek solutions to their suffering; thus, searching for infertility treatment is meritorious and is conceived of as part of God’s test of an infertile woman’s patience and endurance.

Self-blame was also a recurrent theme in women’s interviews (cf. Inhorn 1994; 2003b). For example, women who had used family planning at the beginning of marriage believed that the contraceptives had made them infertile (cf. Inhorn 1994; Okonofua et al. 1997; van Balen and Gerrits 2001). According to them, hormonal contraceptives had weakened their reproductive potential, and they wished that they had followed the advice of relatives who had urged them to abstain from contraception in the first years of marriage. Some women regarded the infertility as a metaphysical punishment for inappropriate deeds, their own or their husband’s. Some of these respondents considered God’s will not to give them children as a good sign that their sins were being forgiven.

Women not only blame themselves, but are blamed by others for the infertility. Iran is one of the many societies where infertility is considered “a female problem,” and where infertile women, therefore, face considerably more familial and social problems than their male partners (Mason 1993; Dudgeon and Inhorn 2004; Inhorn 2004). Ale-Ahmad, an infertile male Iranian author, writes in his autobiography that despite many doctors’ diagnoses that the infertility was not caused by his wife, he was influenced by his family and considered it “her fault.” Consequently, under familial and social pressure, she underwent unnecessary invasive measures, such as operations on her ovaries and fallopian tubes (Ale-Ahmad 1981).

In our study, most women stated that before they went to the doctor, all of their family members and they themselves had thought that

the infertility was probably "their fault." A 30-year-old woman from Gilan Province, who had been married for ten years, stated:

It's clear; everybody thinks it's the woman's fault. Even myself, as soon as I realized I didn't become pregnant, I was so scared, and before saying anything to my husband I went to a doctor with my mother. But the doctor suggested that my husband had to be treated too, and while my husband didn't care much about having a kid, he became angry, and we had fights over this for a long time.

Women attending the government HTC's were more likely to express these kinds of concerns about the social consequences of being blamed for the infertility. For example, another participant, whose husband had remarried immediately after being informed of her infertility, stated that her husband believed from the very beginning that it was her fault, and he never agreed to see a doctor. In situations where both partners were diagnosed with infertility problems, husbands rarely accepted this fact. For example, two women invited into the study at HTC clinics initially introduced themselves as infertile. But in the course of explaining the study and its confidentiality terms, they soon disclosed that their husbands were the infertile ones; both had been threatened with divorce if they disclosed the male infertility or refused to shoulder the blame.

This was especially true of the mostly poor women attending HTC's. These women from the lower socioeconomic rungs of Iranian society had usually undergone numerous difficulties in their marriages as a consequence of infertility and felt very insecure about their futures. Because they did not work, they greatly valued children as a form of eventual socioeconomic and emotional support and a major factor in the survival of their marriages. Indeed, most of them believed that having children would be the definitive factor in saving their marriages. Although they contended that physicians would be able to diagnose the cause of their infertility and prescribe the appropriate treatment method for them, all of these women had stopped seeking treatment at the time of the interview, either because of poverty, lack of treatment success, or pressure from others, including husbands and husbands' families.

"Pressure" from husbands' families was a recurrent theme of the interviews, particularly with women attending HTC's, but also at the

IVF clinic. Clearly, infertility negatively affects relations with the husband's family in Iran. While all women considered their own families supportive, only two women in the study evaluated their relationships with in-laws positively. The rest described their in-laws as "cold" and "unfriendly." In a few cases, women's in-laws had convinced their husbands to divorce or remarry polygynously. In general, women believed that being able to have children is a source of power and strength in a marriage; thus, infertility is a serious threat to the marital relationship.

There were exceptions to this rule, both at the HTC and the IVF clinic. A few women reported very supportive relationships with their husbands, including during the "longue durée" of infertility treatment. These couples tended to be more educated and of higher socioeconomic status. In a few cases, both partners were infertile or the infertility diagnosis was unknown, and the husband's family accepted this fact. These couples described their relationships positively and stated that families were generally supportive. This helped them to cope with the pressure and to keep their lives in order (cf. Inhorn 1996).

Conversely, women whose relationships with husbands and in-laws had soured reported many negative changes in their social lives. Because they did not like being asked about children, they avoided social settings where these questions would arise. Most women stressed that they had become less and less social over time—avoiding new social situations and staying away from others, including in-laws, to the extent possible. Only women who had been married for relatively short periods of time were able to "keep their secret" from other people. Generally, women in this study who had been infertile for many years described their lives as socially isolated and lonely (cf. Inhorn 1996).

It is important to stress that educated, middle-class women in this study appeared to be somewhat buffered from these effects, compared to lesser-educated, lower-income women. Women whose husbands were educated also experienced fewer difficulties and were better equipped to cope with people's "inquisitive" and sometimes "insensitive" comments. Not surprisingly, education and the ability to work, if need be, made educated infertile women feel more secure than women who were entirely reliant on their husbands for support.

All of the women in the study realized that unless they had children, they would be faced with four difficult options (Inhorn 2003b):

to continue to live together without children; to adopt a child; to divorce; or to accept a polygynous marriage. Most of the women in this study could not contemplate a life without children, nor could they contemplate living life as a divorcée, which would thrust them into an extremely vulnerable position. Yet, two women in the study admitted that they could not bear the lives they were living, and they knew that their marriages would end soon if their treatment was unsuccessful. Other women argued that, if only their husbands' families and relatives did not interfere with their lives, they could see continuing to live with their husbands without children. Yet, they also feared that over time their husbands would be pressured to remarry.

The question of adoption is an interesting one. Legal adoption does not exist in Islam, although the Islamic scriptures emphasize the kind guardianship of orphans and children without parents who can care for them (Sonbol 1995; Inhorn 1996; 2006b). Yet, Iran is again unique in this regard: in 1975, an adoption law was ratified, giving Iranian couples the right to legally adopt orphaned children, including the transfer of surname, birth certificate, and inheritance rights (Inhorn 2006b). The law has not been modified since that time; thus, infertile Iranian couples have the option to adopt as a way of overcoming their childlessness. Having said this, the vast majority of women in the study absolutely opposed the idea of adoption as a solution to their infertility. They described "fear of people's words," concerns about the child "being illegitimate," and problems that might arise if "the child's parents turn up and want the child back" (cf. Inhorn 1996 for Egypt; Inhorn 2006b for Lebanon). In the end, only two women, one from the IVF clinic and one from an HTC clinic, had decided to adopt a child and had submitted their applications to government welfare organizations.

In the absence of adoption, how do infertile women cope with the severe pressures and uncertainties they face? Many women in this study found solace in religion, accepting infertility as a "divine test" and attempting to convince their husbands of God's will in the matter. Infertile women often described becoming more religious, and attending religious ceremonies more frequently. Many felt that their spiritual bond with God had become stronger—that the experience of withstanding infertility had brought them "closer to God." The majority of women also believed that God wanted them to strive for a solution to their in-

fertility and to be patient; if they did so, God would reward them.

THE QUEST FOR CONCEPTION IN IRAN

Islam is a religion that can be said to encourage science, biotechnology, and therapeutic agency in the face of illness and adversity. Thus, Muslims are expected to seek solutions to their suffering, for God is believed to have created science and medicine for this purpose (Inhorn 1994; 2003b). The Islamic approach to biomedicine rewards perseverance and suggests that pursuing one's goals will ultimately lead to positive medical outcomes (Molock 2000; Inhorn 2003b).

Yet, modern forms of biomedicine are not readily available around the world, particularly "high-tech" solutions such IVF for infertility. Numerous studies have shown that infertile couples are prominent users of health services worldwide (van Balen and Gerrits 2001; Sundby 2002). Yet, modern infertility technologies are not readily available in most countries, and when available, they tend to cater to elites who can afford these services. Because of the numerous constraints on access to IVF (Inhorn 2003b), it is not surprising that many infertile couples around the world resort to so-called "traditional" methods, often mixing biomedical and traditional approaches simultaneously. This is true even in the West; it is estimated that more than 10 percent of infertile Western couples use traditional methods, including herbal medicines, spells, and pilgrimages to holy sites (van Balen and Inhorn 2002).

Iranian women are no different in this regard. In this study, women expressed their belief that God wanted them to seek a solution to their infertility problems. By doing so, they would fulfill their divine duty. Yet, the quest for conception did not always take a purely biomedical form. Many women pursued the traditional forms of therapy available in Iran, including herbal medicine, therapeutic prayer, fortune-telling, visits to holy places, and saint veneration (cf. Inhorn 1994). More specifically, infertile women in the study reported taking herbal "drugs"; undergoing an herbal sauna to induce perspiration and "disinfect" the uterus; using herbal douching agents to cleanse the reproductive tract; holding religious ceremonies and distributing food for poor children; wearing Qur'anic verses and other prayers written on paper or cloth; undertaking various measures to "strengthen the back" and prevent

miscarriage; and going on *ziyarat*, or pilgrimages to holy places often associated with saints.

Fully 60 percent of women in this study who were attending HTC's had undertaken such traditional methods in combination with modern infertility treatments. (Twenty percent had used only modern methods, and 20 percent had used neither.) Interestingly, all but one woman at the IVF clinic had used both traditional and modern techniques, even if they doubted the efficacy of traditional methods.

Why were traditional therapies so popular among Iranian women in this study? For one, some poor women in the study were unaware of the wide range of biomedical treatment options now available for infertility in Iran, or of how to access them. Thus, they resorted to traditional remedies, which are generally readily available in poor communities. But the main reason for the popularity of traditional infertility medicine in this study was a purely economic one. Namely, traditional remedies are generally inexpensive, even free to poor women, while an average IVF cycle in Iran ranges in cost from \$800 to \$4,000, depending upon the clinic, the complexity of the infertility case, and the medications needed to overcome it. Many women attending the HTC's in this study explained that they resorted to traditional methods simply because modern infertility treatments such as IVF were well beyond their financial means. Such economic constraints were borne out in the IVF clinic sample; namely, half of the women there reported facing severe financial problems. In order to pay for their IVF cycles, many had sold property and other assets, and some had resorted to taking out a loan to be able to pay for the IVF procedure.

Yet, economic obstacles were not the only arena of constraint. Although gamete donation has become widely available in urban Iranian IVF centers as noted earlier, moral concerns still appear to weigh heavily on the minds of potential users. Fully three-quarters of the mostly poor infertile women in the HTC clinics knew about gamete donation, but one-quarter of them disagreed with this method for religious reasons, considering it *haram* (prohibited in Islam). They believed that the donation of gametes and embryos was against sharia and were not aware, when questioned further, that many religious leaders in Iran, including Ayatollah Khamenei, had authorized these methods. Of the one-quarter of HTC respondents who clearly favored gamete donation, they argued that it represented a

positive medical intervention that could save many families and marriages (i.e., similar to the justification for the procedure in the initial fatwa of Ayatollah Khamenei). One of the women who had undergone an unsuccessful form of IVF two years before the interview explained:

Some religious leaders disagree with these methods; but if they understand the condition of us, the infertile, they would certainly agree. We don't do this for sexual pleasure. We too wouldn't like to use someone else's egg or fetus [sic] if we didn't have to. But when we realize that the life that we have founded with lots of hopes and aspirations is being destroyed simply by not being able to have a child, we accept to do whatever it takes.

Not surprisingly, all of the women attending the IVF clinic were familiar with gamete donation, and they were all in favor of this method, even if it was not the appropriate solution for their own infertility problems. Among these women, gamete donation was seen as just another medical option, no different from any other medical treatment. However, this was a post hoc assessment. Many of these women explained that before attending the IVF center, they had considered gamete donation to be *haram*, disallowed by their religion. Their acceptance of gamete donation only came after discovering that gamete donation was carried out in the clinic under religious guidelines. Most interestingly, some of the women in the study had actually switched their religious allegiances from "oppositional" to "permissive" clerics, once they learned about the possibility of gamete donation and its potential use in their own cases. Others continued to believe that gamete donation was a sin, but they decided to try it because of the relational difficulties they had already faced and the potential positive impacts on their lives of bearing a donor child.

In general, there was clearly a growing awareness and acceptance of gamete donation as a religiously permissible medical option, especially among women attending the IVF clinic in this study. Having said this, women in this study who were using gamete donation were doing so in secrecy. According to each of these women, nobody—other than their doctors and their husbands—was aware of their acceptance of gamete donation, and they were constantly worried that somebody else might find out. They believed that Iranian society in general does not condone

gamete donation, even if most of the religious authorities do. Thus, they were concerned that disclosure of this information would severely jeopardize the future of their donor children. In their view, such children would be labeled by others as "illegitimate," creating many social, educational, career, and marital problems in the future. This "technological stigma" was most pronounced with the donor technologies; however, even "lesser" forms of assisted reproduction, such as IVF without donor gametes, were similarly stigmatized (cf. Inhorn 2003b for Egypt). A "cult of silence" surrounded these procedures in general, but particularly the controversial methods of gamete and embryo donation.⁷

Although some IVF centers in Iran allow the use of known donors (Garmaroudi n.d.; Tremayne 2008), the clinic in this study restricts its program to anonymous donors. The center employs a medical social worker to match donors and recipients in terms of personal, phenotypical, and socioeconomic characteristics. Yet, the two parties remain completely unknown to each other, with no rights to future communication. This decision, although medically and ethically justifiable, leads to additional challenges and anxieties for Iranian women whose only solution to their infertility is to accept a "mystery gamete." For their future donor children, establishing links to biological parents also remains an impossibility.

In general, women in this study who were using gamete donation were unhappy that gamete donation in the clinic was strictly anonymous. They were most concerned that the child might look so different from its parents that this would lead to future speculation and stigmatization. In such cases, the child might live a life of ostracism and ridicule. Most women were also concerned that the donor might not be a person of "good social status," nor a "good Muslim" (or might not be a Muslim at all). It was believed that if a donor is a person of "questionable" character, then these negative personal and moral traits might be passed on to the donor child, making the child, in effect, an evil being. In addition, many women worried about future disclosure to the child. Namely, if a child were to learn of his or her donor conception, this could cause severe psychological problems, especially if the child began searching for an unknown biological parent.

CONCLUSION: AN IRANIAN ART REVOLUTION?

To our knowledge, this study is the first of its kind to explore Iranian

women's experiences of infertility, including the major social impacts of infertility on their lives and the dilemmas posed by their use of assisted reproductive technologies, especially donor technologies. As argued by Inhorn (1996) for Egypt, the infertility experience is a form of "lived patriarchy," in which women are vulnerable to social oppression at the multiple levels of marriage, family, and the community. As shown in this study, the same holds true in Iran. In-depth interviews with 30 infertile women demonstrated a wide variety of negative impacts, the extent of which depended significantly on the cause of the infertility, the duration of the infertile marriage, and a woman's socioeconomic and educational status.

In Iran, children are clearly seen as the bond between a woman and her husband. It is generally expected for a newly married couple to have their first child immediately after marriage or at least within the early years. Couples who fail to do so become the target of speculation and indirect commentary about the possibility of infertility—usually of the woman. At this point, infertile couples face considerable social pressure from relatives and friends to "solve the problem." Indeed, the pressure to have children is so intense that even those couples who decide to voluntarily postpone pregnancy or to control birth intervals may need to reconsider their decision (Abbasi-Shavazi, Asgari-Khanghah, and Razeghi-Nasrabad 2005). Suggestions are usually offered by concerned relatives and friends about both traditional and modern infertility treatments. If couples refuse to seek treatment or fail to have children despite therapeutic intervention, the pressure to conceive may lead some couples, even those who love each other, to consider divorce or remarriage by the husband. Such eventualities are, in fact, sanctioned by Iranian law. According to Article 9 of the Iranian Family Protection Law, the spouse of an infertile person can file for divorce on the grounds of the infertility.

Indeed, such circumstances have been dramatically depicted in the film *Leila* by Iranian director Dariush Mehrjui, which follows the demise of an infertile couple's otherwise happy marriage. But it is important to note that *Leila* was filmed in the pre-IVF, pre-gamete donation era in Iran. Would the outcome have been different for Leila if her story had been told during the midst of Iran's "ART revolution"? Perhaps, given that she was a middle-class woman who could possibly

have afforded IVF and accompanying gamete donation (in her case, egg donation). Since the arrival of ARTs, thousands of Iranian women have benefited from these technologies, including older women in need of donor eggs. Indeed, Iran is now the Middle Eastern hub of so-called reproductive tourism, as Muslim women from other countries, including Iraq and the Arab Gulf states, travel to Tehran in search of donor gametes (Shirin Garmaroudi, personal communication, August 2007; Inhorn 2006c).

However, for many Iranian women, including the infertile poor, the new forms of assisted reproduction now available in Iran do not provide easy answers to their infertility. In spite of the veritable revolution in ART modalities in Iran—placing the country on the “cutting edge” of assisted reproduction in the Muslim world—the benefits of this revolution are not so clear. As we have shown, significant arenas of constraint, both moral and material, continue to deter Iranian women from visiting IVF clinics and utilizing the panoply of ARTs offered there. The main constraint continues to be a class-based, economic one; namely, IVF and its variants are prohibitively expensive for many Iranians, just as they are for most poor infertile couples around the world (Inhorn 2003b). Furthermore, ARTs, especially with third-party donation, do not rest neatly within the “local moral worlds” (Kleinman 1992) of all Iranians, including infertile ones. Even though many Shia religious authorities have sanctioned donor technologies and a law has been passed in Iran to support embryo donation, not all infertile couples are willing to utilize donor technologies. Gamete and embryo donation, which are still relatively new, are considered sinful by many Iranians, including some infertile women who are unfamiliar with the permissive legislation. Furthermore, all of the ARTs, including even the most basic form of IVF, are accompanied by a “technological” stigma and fears for the future of the ART-conceived and especially donor child (Inhorn 2003b). Thus, women who undertake ARTs often do so in secrecy, maintaining a “cult of silence” that operates outside the walls of the clinic (Inhorn 2003b).

These findings suggest the need for increasing public awareness of infertility as a common reproductive health condition in Iran, one that affects up to 15 percent of all married couples there. In addition, public education campaigns to increase awareness of ARTs as religiously and

legally legitimate solutions to infertility are advisable. Through health education, aggressive media campaigns, and the advocacy work of the Iranian reproductive health community, negative public attitudes and stereotypes about the infertile and the ARTs might be mitigated over time. However, until this happens, infertility will remain a grave social onus for Iranian women—one that no amount of assisted reproduction or third-party donation can serve to overcome.

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NOTES

1. Gametes are eggs (ova) and sperm. Embryos are the fertilized product of eggs and sperm.
2. Fadlallah agrees with Khamenei's permission of egg donation and, like Khamenei, does not condone the use of *mut'a* marriages to solve the *zina* issue (Clarke 2006; 2008).
3. According to Islamic law, a child only inherits from his/her own biological parents. In sperm, gamete, and embryo donation, biological parenthood is not considered sufficient to establish a parental relationship or inheritance duties in Iran. In such circumstances, it is recommended that the receivers of the gametes make a legal commitment to take custody of the child and to specify in their wills that the child be given the same proportion of the assets as a natural child would inherit (Gheble'i-Kholi 2006). Thus, infertile parents are akin to adoptive parents.
4. Health and Treatment Centers are an integral part of a government health network system in Iran, developed to provide medical services and preventive measures to communities in less fortunate and remote areas of the country. Local health officers are trained and supplied with basic material and support services, including for maternal and child health.
5. Women were identified from five HTC's, including Torab, Namjoo, Saheb Zaman, Dogma-Chee, and Leilato-l-ghadr.

6. Health communicators are women with good social relations and reputations in their communities who volunteer to receive special training about public health promotion and preventive measures. They cooperate with local health centers to implement relevant health policies.

7. Maintaining absolute secrecy is often impossible, as shown in the work of Soraya Tremayne (2008). Secrecy depends on many factors, including education and social class. Families, and especially men's families, are often deeply involved in the infertility problems of the couple and take an active role in their treatment. In addition, keeping treatment secret may only be possible if the couple lives far apart from the rest of the family or travels to other cities for treatment. Finally, when couples use relatives as donors, absolute secrecy is impossible.

REFERENCES

- Abbasi-Shavazi, M. J., P. McDonald, and M. Hosseini Chavoshi
2003 Changes in Family, Fertility Behavior and Attitudes in Iran. Working Paper in Demography No. 88. Canberra: Australian Demographic and Social Research Institute, Australian National University.
- Abbasi-Shavazi, M. J., A. Aşgari-Khanghah, and H. B. Razeghi-Nasrabad
2005 Women and the Infertility Experience: A Case Study in Tehran (in Persian). *Pajohesh zanan* (Journal of women's studies), 3 (3): 91–113.
- Ale-Ahmad, J.
1981 *Sangi bar goori* (A stone on a grave). Tehran: Ravagh.
- Boerma, J., and Z. Mgalla, eds.
2001 *Women and Infertility in Sub-Saharan Africa: A Multi-Disciplinary Perspective*. Amsterdam: Royal Tropical Institute, KIT Publishers.
- Cole, Juan
2002 *Sacred Space and Holy War: The Politics, Culture and History of Shi'ite Islam*. London: I. B. Tauris.
- Clarke, Morgan
2006 Shiite Perspectives on Kinship and New Reproductive Technologies. *ISIM Review* 17:26–7.
- 2007 Children of the Revolution: Ali Khamene'i's "Liberal" Views on In Vitro Fertilization. *British Journal of Middle Eastern Studies* 34:287–303.
- 2008 *Islam and New Kinship: Reproductive Technology, Anthropology, and the Shari'ah in Lebanon*. New York: Berghahn Books, in press.
- Daniluk, J. C., A. Leader, and P. L. Taylor
1987 Psychological and Relationship Changes for Counseling. *British Journal of Guidance and Counseling* 15:29–36.
- Devroey, P., M. Vandervorst, P. Nagy, and A. Van Steirteghem
1998 Do We Treat the Male or His Gamete? *Human Reproduction* 13 (Suppl. 1): 175–85.
- Dudgeon, Matthew R., and Marcia C. Inhorn
2004 Men's Influences on Women's Reproductive Health: Medical Anthropol-

- logical Perspectives. *Social Science & Medicine* 59:1379-95.
- Dyer, S., N. Abrahams, N. Mokoema, and Z. Spuy
2002 "Men Leave Me As I Cannot Have Children": Experience of Women with Infertility. *Human Reproduction* 17:1663-8.
- Eich, Thomas
2002 Muslim Voices on Cloning. *ISIM Review* 12:38-9.
2005 *Islam und Bioethik: Eine kritische Analyse der modernen Diskussion im islamischen Recht*. Heidelberg: Reichert.
2006 Changing Concepts of Kinship in the Islamic World. Paper presented at the Society for Applied Anthropology/Society for Medical Anthropology Meeting, Vancouver, British Columbia, April 1.
- Garmaroudi, Shirin
N.d. Kinship Intimacy in the Age of Assisted Conception: An Ethnographic Account of the Assisted Reproduction Technologies in Iran. Master's thesis, Institute of Social Anthropology, University of Berne, Switzerland.
- Gheble'i-Kholi, K.
2006 Legal Status of Gamete Donation Children in Terms of Inheritance. In *Proceedings of the Conference on Gamete and Embryo Donation for Infertility Treatment from Medical, Religious, Legal, Ethical, Psychological, and Sociological Perspectives* (in Persian). Tehran: Avesina Research Institute and Human Sciences Research and Promotion Center.
- Goodarzi, M., and M. Badakhsh
2002 Determining and Comparing Perceived Causes of Anxiety of Infertile Men and Women Attending Tehran's Infertility Treatment Clinics. *Secrets of Living Better* 22: 2-6 (in Persian).
- Haeri, Shahla
1989 *Law of Desire: Temporary Marriage in Shi'i Iran*. Syracuse, NY: Syracuse University Press.
- Haji-Kazemi, E.
[2001] A Comparative Analysis of Anxiety Factors among Infertile Men and Women. In *Abstracts of 9th National Congress on Fertility and Infertility in Iran* (in Persian). Yazd, Iran: Sh. Sadooghi Infertility Treatment and Research Center, Yazd University of Medical Sciences and Health Services.
- Inhorn, Marcia C.
1994 *Quest for Conception: Gender, Infertility, and Egyptian Medical Traditions*. Philadelphia: University of Pennsylvania Press.
1996 *Infertility and Patriarchy: The Cultural Politics of Gender and Family Life in Egypt*. Philadelphia: University of Pennsylvania Press.
2002 Sexuality, Masculinity, and Infertility in Egypt: Potent Troubles in the Marital and Medical Encounters. *Journal of Men's Studies* 10:343-59.
2003a Global Infertility and the Globalization of New Reproductive Technologies: Illustrations from Egypt. *Social Science & Medicine* 56 (9): 1837-51.
2003b *Local Babies, Global Science: Gender, Religion and In Vitro Fertilization in Egypt*. New York: Routledge.

- 2003c "The Worms are Weak": Male Infertility and Patriarchal Paradoxes in Egypt. *Men and Masculinities* 5 (3): 236-58.
 - 2004 Middle Eastern Masculinities in the Age of New Reproductive Technologies: Male Infertility and Stigma in Egypt and Lebanon. *Medical Anthropology Quarterly* 18 (2): 162-82.
 - 2006a "He Won't Be My Son": Middle Eastern Muslim Men's Discourses of Adoption and Gamete Donation. *Medical Anthropology Quarterly* 20 (1): 94-120.
 - 2006b Making Muslim Babies: IVF and Gamete Donation in Sunni versus Shi'a Islam. *Culture, Medicine and Psychiatry* 30 (4): 427-50.
 - 2006c A More Open Mind Toward Iran. *Chronicle of Higher Education*, June 23, B12.
 - 2007 Loving Your Infertile Muslim Spouse: Notes on the Globalization of IVF and Its Romantic Commitments in Sunni Egypt and Shi'ite Lebanon. In *Love and Globalization: Transformations of Intimacy in the Contemporary World*, ed. Mark B. Padilla, Jennifer S. Hirsch, Miguel Munoz-Laboy, Robert Sember, and Richard G. Parker. Nashville, TN: Vanderbilt University Press.
- Inhorn, Marcia C., and Daphna Birenbaum-Carmeli
- 2008 Assisted Reproductive Technologies and Culture Change. *Annual Review of Anthropology* 37, in press.
- Inhorn, Marcia C., and Michael Hassan Fakih
- 2006 Arab Americans, African Americans, and Infertility: Barriers to Reproduction and Medical Care. *Fertility and Sterility* 85 (4): 844-52.
- Inhorn, Marcia C., and Frank van Balen, eds.
- 2002 *Infertility around the Globe: New Thinking on Childlessness, Gender, and Reproductive Technologies*. Berkeley: University of California Press.
- Irvine, D. S.
- 1998 Epidemiology and Aetiology of Male Infertility. *Human Reproduction* 13 (Suppl. 1): 33-44.
- Kamischke, A., and E. Nieschlag
- 1998 Conventional Treatments of Male Infertility in the Age of Evidence-Based Andrology. *Human Reproduction* 13 (Suppl. 1): 62-75.
- Kleinman, Arthur
- 1992 Local Worlds of Suffering: An Interpersonal Focus for Ethnographies of Illness Experience. *Qualitative Health Research* 2 (2): 127-34.
- Kormi-Noori, R.
- 2000 Social-Psychological Dimensions of Infertility. *Bulletin of Reproduction and Infertility* 25:3-4 (in Persian).
- Mahmoodi, A.
- 1994 A Sample Survey of Causes of Anxiety among Infertile People. *Population Quarterly* 7:22-38 (in Persian).
- Mason, M. C.
- 1993 *Male Infertility: Men Talking*. London: Routledge.
- Meirow, D., and J. G. Schenker
- 1997 The Current Status of Sperm Donation in Assisted Reproduction Technology: Ethical and Legal Considerations. *Journal of Assisted Reproduc-*

- tion and Genetics* 14 (3): 133-8.
- Molock, S. D.
2000 Racial, Cultural, and Religious Issues in Infertility Counseling. In *Infertility Counseling*, ed. L. Burns and S. Covington. New York: Parthenon Publishing Group.
- Moosa, Ebrahim
2003 Human Cloning in Muslim Ethics. *Voices Across Boundaries* (Fall): 23-6.
- Okonofua, F., D. Harris, A. Odebiyi, T. Kane, and R. Snow
1997 The Social Meaning of Infertility in Southwest Nigeria. *Health Transition Review* 7 (2): 205-20.
- Sarokhani, B., and M. Raf'atjah
2004 Sociological Determinants of Redefining Women's Social Identity. *Women's Research Quarterly* 1:71-93 (in Persian).
- Sciarra, J.
1994 Infertility: An International Health Problem. *International Journal of Gynecology & Obstetrics* 46 (2): 155-63.
- Serour, Gamal I.
1996 Bioethics in Reproductive Health: A Muslim's Perspective. *Middle East Fertility Society Journal* 1:30-5.
- Sonbol, Amira al-Azhary
1995 Adoption in Islamic Society: A Historical Survey. In *Children in the Muslim Middle East*, ed. Elizabeth Warnock Fernea. Austin: University of Texas Press.
- Sundby, Johanne
2002 Infertility and Health Care in Countries with Less Resources: Case Studies from Sub-Saharan Africa. In Inhorn and van Balen.
- Tremayne, Soraya
2005 The Moral, Ethical, and Legal Implications of Egg, Sperm, and Embryo Donation in Iran. Paper presented at the International Conference on Reproductive Disruptions: Childlessness, Adoption, and Other Reproductive Complexities, University of Michigan, Ann Arbor, May 19.
2006a Whither Kinship? New Procreative Practices, Authoritative Knowledge, and Relatedness: Case Studies from Iran. Paper presented at the Conference on Gamete and Embryo Donation for Infertility Treatment, Avesina Research Institute and University of Tehran, Iran, March 2.
2006b Not All Muslims Are Luddites. *Anthropology Today* 22 (3): 1-2.
2008 Law, Ethics, and Donor Technologies in Shia Iran. In *Assisting Reproduction, Testing Genes: Global Encounters with New Biotechnologies*, ed. Daphna Birenbaum-Carmeli and Marcia C. Inhorn. New York: Bergahn Books, in press.
- Van Balen, Frank, and Trudie Gerrits
2001 Quality of Infertility Care in Poor-Resource Areas and the Introduction of New Reproductive Technologies. *Human Reproduction* 16 (2): 215-19.
- Van Balen, Frank, and Marcia C. Inhorn
2002 Introduction: Interpreting Infertility: A View from the Social Sciences.

In Inhorn and van Balen.

Vayena, E., P. J. Rowe, and P. D. Griffin, eds.

2002 Current Practices and Controversies in Assisted Reproduction: Report of a Meeting on "Medical, Ethical and Social Aspects of Assisted Reproduction" Held at WHO Headquarters in Geneva, Switzerland, 17-21 September 2001. Geneva: World Health Organization.

Zuhur, Sherifa

1992 Of Milk-Mothers and Sacred Bonds: Islam, Patriarchy, and New Reproductive Technologies. *Creighton Law Review* 25:1725-38.