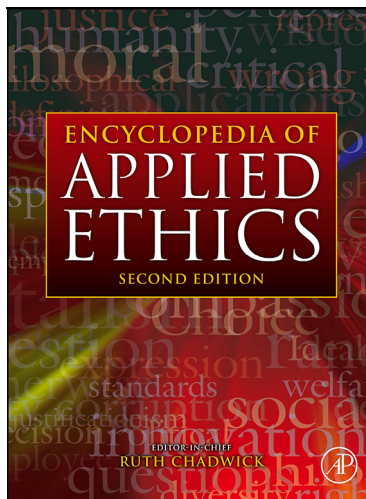


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Infertility

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Glossary

Contract pregnancy A contractual arrangement wherein a woman is commissioned to gestate and deliver a baby whom she agrees to surrender to the commissioning parent(s). This is sometimes referred to as 'surrogacy.'

Eugenics The study of heredity aimed at improving the human species through controlled selective breeding.

Infertility The inability to conceive after 1 year of regular unprotected sexual intercourse.

Unexplained infertility A situation where the cause of infertility is unknown.

Polygyny A marriage practice or family entity that involves having more than one wife at a time.

Polygamy A marriage practice or family entity that involves having more than one spouse at a time (commonly used for polygyny).

Primary infertility The inability to conceive at all (i.e., no previous history of pregnancy).

Reproductive age For women this is the time between first menstrual period (between 9 and 15 years of age, with the average at 12) and menopause (between 42 and 58 years of age, with the average at 51). Age is not a good predictor of male fertility. As men age, the rate of sperm production slows, but elderly men can father children.

Reproductive technologies Medical interventions designed to overcome biological or physical impediments to reproduction.

Secondary infertility The inability to conceive after a previous pregnancy, with or without a live birth.

Somatic cell nuclear transfer (SCNT) A cloning technique where the nucleus of a somatic (i.e., body) cell is transferred to an unfertilized enucleated egg and then stimulated to develop.

Subfecundity Delayed ability to conceive and difficulty in sustaining a pregnancy.

Background Data

Definitions of Infertility

As Ulla Larsen carefully explains, there are different definitions of infertility in clinical practice, epidemiological research, and demographic research. In the clinical setting, where there is an interest in initiating treatment in a timely fashion, the definition is 'inability to conceive after one year of regular unprotected sexual intercourse.' With epidemiological research, where it is important to reduce the number of false positives (where fertile individuals or couples are misclassified as infertile), the preferred definition of infertility is 'inability to conceive after two years of regular unprotected sexual intercourse' (as recommended by the World Health Organization (WHO)). For demographers, the definition of infertility is 'the inability of a non-contracepting sexually active women to have a live birth'; information about couples' infertility is inferred from information about women's birth histories. Recently, the term subfertility has been introduced. This term seems more accurate and less stigmatizing for persons who experience fertility problems.

Prevalence of Infertility

For a number of reasons, it is difficult to estimate the prevalence of infertility among women, men, and couples. Research studies in different countries use different definitions of infertility, as well as different research tools and methods including data from clinical services (physician consultation and diagnosis), from postal surveys (including self-reports), and from census data (looking at reproductive history). Sometimes the findings generated apply to individuals (usually women), while at other times the findings apply to couples. Sometimes the research looks at infertility, while at other times the research only identifies those who are seeking some type of infertility medical care – a subset of the infertile population. Sometimes, in the developing world, studies use childlessness as a proxy for infertility. As well, sometimes the timeframe used for different studies will vary considerably. For example, a study may enquire about infertility over the last 5–10 years or over a lifetime; measuring whether a woman has ever experienced infertility is not the same as measuring whether a woman is currently experiencing infertility.

A 2009 report for WHO by Jane Fisher summarizes a number of estimates from discrete studies on the

prevalence of infertility. In North America, 8–12% of women are unable to conceive spontaneously; in Australia, the number is 15%. In less-developed countries the estimates are generally higher, but there is also wide variation. For example, in sub-Saharan Africa the range is 11–20%; in Namibia it is 14–32%. Linked population census data from 28 African countries suggests that primary infertility in the region is quite low (less than 3%), while secondary infertility ranges from 5% (in Togo) to 23% (in Central African Republic). Of note, demographic studies often do not distinguish between primary and secondary infertility.

The most recent review article of population surveys on the prevalence of infertility, by Jacky Boivin and colleagues, concludes that the 12-month global prevalence of infertility is 9% (3.5% to 16.7% in more developed countries and 6.9% to 9.3% in less-developed countries). Using population figures for 2007, the authors estimate 72.4 million infertile women, 40.5 million of whom would be seeking some type of medical care for their infertility.

Consequences and Causes of Infertility

It is not uncommon for women the world over to experience blame, shame, and guilt for failing to reproduce. Generally, this is manifest in terms of negative psychological consequences, social stigma, and community ostracism. In addition, in some instances the risk to women in low-resource settings extends far beyond these harms to include severe economic duress, physical harm, and increased risk of suicide. Willem Ombelet and colleagues detail six levels of risk: (1) fear, guilt, self-blame; (2) marital stress, depression, helplessness; (3) mild marital or social violence, social isolation; (4) severe economic deprivation, moderate to severe violence, total loss of social status; (5) violence-induced suicide; starvation/disease; and (6) lost dignity in death.

Infertility is not a woman's 'problem,' however, though it may be experienced as such in terms of self-blame and blame by others. Contrary to popular beliefs and practices, when a couple has trouble conceiving, 40% of the time this is due to male factor infertility, 40% of the time this is due to female factor infertility, and 20% of the time this is due to combined infertility (infertility resulting from both male and female factors) or unexplained infertility.

The causes of infertility are many and varied. For example, 5% of infertility can be attributed to genetic conditions, anatomical defects, and endocrinological or immunological dysfunction. Exposure to environmental toxins (e.g., heavy metals, biological metabolites, and pesticides) also may account for some cases of infertility.

Chemotherapy, radiation therapy, and surgery for cancer treatment can cause temporary or permanent

infertility. Lifestyle factors including delayed childbearing, smoking, and extremes of weight can also have an adverse effect on fertility. For personal, professional, and financial reasons many Western women are delaying pregnancy until they are of advanced reproductive age (35 years of age or older), at which time their fertility is usually in decline. Smoking has a negative impact on sperm production, motility, and morphology and also negatively affects developing follicles. Obesity and low body weight can cause hormone imbalances and ovulatory dysfunction, which in turn can affect reproductive function.

The most common causes of infertility among men are low sperm count and problems with sperm motility (i.e., percentage of sperm that are moving). The most common causes of infertility among women are obstructed fallopian tubes and ovulation dysfunction. Reproductive tract infections (especially sexually transmitted infections) and unhygienic healthcare practices (especially in obstetrics and midwifery, after childbirth or abortion) may lead to obstructed fallopian tubes. Inappropriate diet and exercise may lead to ovulation dysfunction.

In addition to the above, there are persons who are infertile as a result of forced surgical sterilization (vasectomy for men and tubal ligation for women). In the recent past, numerous countries have legally permitted the surgical sterilization of the 'feeble minded,' the 'disabled,' the 'habitual offender,' and the 'genetically (racially) inferior.' These sterilizations would have been part of a eugenics program designed to prevent certain individuals from reproducing. Involuntary sterilization is ethically problematic because it deprives individuals of the opportunity to make reproductive choices.

Options for Managing Infertility

Adoption

Adoption allows individuals and couples to legally assume parenting responsibilities for a child for whom they are not a biological parent (the child may be a related family member or an unrelated individual). There are two kinds of adoption practices: (i) open adoption, where identifying information is shared between adoptive and biological parents before, during, or after placement of a child, and (ii) closed adoption, where identifying information is not disclosed to adoptive parents, though medical records may be available.

In most Western countries (Australia, Western Europe, and North America), domestic adoption of healthy newborns is a rare occurrence owing to the availability of contraception, the legalization of abortion, and the increasing social acceptability of single parenting. To increase their chances at domestic adoption of a child of the same race or ethnic group, some couples foster parent

children who have been removed from their families of origin because of parental neglect or abuse or because of significant healthcare needs. If parental rights are ever legally terminated, children in foster care can be legally adopted by their foster parents. Other couples prefer international adoption, which often involves placement across racial lines.

Ethical issues with adoption tend to focus on openness, truth-telling, and access to personal and medical information about biological parents. Important ethical questions have also been asked about current screening practices and selection criteria used to identify persons eligible to adopt. For example, in May 2007 China introduced new restrictions on adoption that excluded obese people (i.e., people with a BODY MASS INDEX of 40 or more), homosexuals, persons with various health conditions (including AIDS, mental disability, blindness in either eye, hearing loss in both ears, and severe facial deformation), and people whose net worth was less than \$80,000 US. These are all people who would not be precluded from becoming parents if they were fertile, hence the questions about the 'higher' standards imposed on prospective adoptive parents, who, in some jurisdictions, must successfully complete a parenting course, in addition to satisfying social, medical, and financial criteria.

As well, with transracial and transcultural adoption, there are additional ethical concerns, many of which have to do with identity. On the one hand, there are some who argue that at least one of the adoptive parents should be of the same race or culture as the adopted child so that she or he can develop a strong racial or cultural identity. Others argue that race should not be a factor in placing children. In their view, all that matters is having a loving and nurturing family. Still others question the ethos of international adoption. In their view, children should not be removed from their countries of origins.

Otherparenting and Custom Adoption

The legal category of parent is reserved for biological or adoptive parents, and, at any one time, the law typically only recognizes two legal parents for any one child. This legal practice does not mirror the lived experience of many children, however, who do not live in two-parent heterosexual nuclear families. Indeed, increasingly children are living in single-parent families, unmarried-parent families, stepparent families, same-sex-parent families, and families created through assisted human reproduction (potentially using donated gametes and possibly the services of a surrogate).

These days, children can (and do) develop significant relationships with more than the two adults legally identified as parents. For example, 'othermothering' is common in African American communities and in the West Indies, where women share mothering responsibilities. In Africa,

when a married woman has fertility problems she will be advised to 'adopt' a relative's child, whom she will love and care for so that this child's spirit may attract a natural born child into the family. This is not a Western style adoption, as the child's biological parents are usually close relations and continue to be recognized as the child's parents. In Inuit families, custom adoption – where parenting responsibilities are transferred from biological parents to social parents on the basis of verbal agreements – has been practiced for thousands of years, in part as a way to assist infertile couples (i.e., 'to give unbearing parents a child').

For some, informal (nonlegal) parenting arrangements are ethically questionable, as they potentially place children at risk of harm should verbal agreements not be respected. There is also the risk of conflict between the biological and social parents, if it is unclear who has what rights and what responsibilities. For others, informal parenting and custom adoption are traditional practices that should be respected and preserved, not codified and highly regulated.

Polygyny

When a wife is unable to conceive, some men will take another younger wife (and in some African countries this will be with the approval of the first wife in the hope that the spirit of a child from a second union will 'attract her own natural child to her'). Polygyny is legally practiced (or de facto permitted through failure to enforce legal prohibitions) in different ways depending upon its anthropological and religious origins (e.g., Talmud, Qu'ran, Mormon teachings), as well as current customary, cultural, political, and socioeconomic contexts. While some women defend polygyny and describe the myriad ways in which this practice benefits them, there is growing international consensus to the effect that polygyny is a form of discrimination that infringes on women's right to equality.

From a Western perspective, polygyny is ethically objectionable because it is an oppressive form of patriarchy that entrenches structural inequality in family and social units and perpetuates sex-stereotyping of women into reproductive and service roles. According to Rebecca Cook and Lisa Kelly polygyny harms women and children. The harms they list include the harm of non-exclusivity, harms arising from competitive co-wife relationships, mental health harms, sexual and reproductive health harms, economic harms, harms to the enjoyment of one's citizenship, and harms to children of polygynous unions.

Fertility Treatments

Conventional fertility treatments include surgical treatment for tubal disease or for minimal to mild endometriosis, clomiphene citrate (CC), intrauterine

insemination (IUI), and CC with IUI. As well, there is controlled ovarian hyperstimulation (COH) for ovulation induction (for amenorrhea) or for ovarian stimulation with IUI (for unexplained infertility or persistent infertility due to other causes). Beyond this, there are a number of technological interventions typically clustered under the banner of 'new reproductive technologies,' 'assisted reproductive technologies,' or 'assisted human reproduction.'

Available reproductive technologies include artificial insemination (with or without donor sperm), *in vitro* fertilization (IVF) (with or without donor gametes, *in vitro* maturation of eggs, egg freezing, or embryo freezing), contractual pregnancy, and intra-cytoplasmic-sperm injection. Artificial insemination (where sperm is placed in the female reproductive tract) has been practiced for some time, in both farm animals and humans. Arguably, it is the earliest form of assisted human reproduction. It was only in the 1970s, however, that artificial insemination became a commercialized activity. The most dramatic assisted reproductive technology is IVF, where egg and sperm meet outside the body and the resulting embryo is then transferred to the uterus in the hope of establishing a pregnancy. The landmark year for IVF was 1978 with the famed birth of Louise Brown.

The use of assisted reproductive technologies raises a host of ethical issues, some of which are briefly touched upon below.

Cloning

Somatic cell nuclear transfer (commonly referred to as cloning) involves asexual reproduction. There is no genetic recombination through the union of egg and sperm. Instead, there is deliberate replication of the genetic makeup of an existing individual to create another genetically virtually identical individual. Cloning has been suggested as a reproductive option for individuals who would like to have a genetic link to a child, but have no gametes. It has also been suggested as an option for replacing a dead or dying child, or other loved one.

Cloning to produce children is ethically controversial, especially for those who view this as a form of manufacturing that inappropriately reifies the gene, and could contribute to a resurgence of eugenic imperatives. As identified by the U.S. President's Commission on Bioethics, cloning also raises concerns about identity and individuality (the 'right to an open future'), concerns about the relationship between generations, and concerns about possible negative effects on the family and on children born of this technology. Finally, cloning raises concerns about the relationship between science and society – 'whether society can or should exercise ethical and prudential control over biomedical technology and the conduct of biomedical research.' Others discount such

concerns and point to natural born twins as persons who live healthy lives without experiencing any threat to their identity and individuality. Proponents of cloning to produce children further insist that instead of worrying about the reification of the gene, we should worry about the reification of the status quo.

Childfree Living

While some infertile individuals and couples will pursue (more or less aggressively) one or more options for parenting children, others will accept (and some may even embrace) childfree living. This does not mean that these adults have no relationships with children; it simply means that they do not have social or financial responsibility for raising children. They may yet invest considerable time and love in children, in their role as aunt or uncle, family friend, big sister or big brother.

Childfree living might be perceived as problematic in countries with severe pronatalist attitudes and policies, where women are valued primarily as reproducers. From a Western perspective, however, women's social role should not be limited to childbearing and mothering. On this view, it is important to be wary of technologies that could entrench traditional sex-role stereotypes.

Ethical Issues

Infertile individuals and couples face numerous physical, emotional, financial, and ethical challenges as they navigate their way through the infertility maze. In the realm of ethics, there are profound questions about the nature of infertility and whether there is a right to have a child. There are also questions about equitable access to fertility treatment and whether the state has a legitimate role to play in assisting infertile persons to have children. If so, does the state's role extend beyond limited attention to legal matters aimed at promoting the well-being of children?

The Many Faces of Infertility

Infertile individuals are often subject to an array of conflicting and potentially stigmatizing (mis)representations. According to Margarete Sandelowski and Sheryl de Lacey, infertile persons are variously described as patients, emotionally distressed, socially handicapped, consumers, cultural dupes and foils, and heroic sufferers of a disease.

While it is common practice to refer to infertile persons as patients, Boivin and colleagues' recent review article shows that only slightly more than half (on average 56.1%) of infertile couples seek medical care. The representation of infertile persons as patients presumes

that infertility is a disease, is the cause of a disease, or is the consequence of a disease for which medical diagnosis and treatment are needed. Others insist that infertility is not a disease entity, but an unfilled desire for a child. Debate about whether infertility is a disease is important in relation to the social meaning of infertility. Is infertility a health condition that requires medical treatment? Or is infertility an unfortunate life circumstance to which individuals must adjust and adapt? Debate about whether infertility is a medical or a social problem is also important insofar as this has implications for issues of access and payment. For example, should medical expenses for fertility treatments be reimbursed through private health insurance schemes and/or publically-funded healthcare programs? Or should fertility treatments be paid for privately? Are some fertility treatments more acceptable for state funding than others?

Others view infertility as a psychological problem and look upon infertile persons (more often women than men) as persons in need of counseling (or other psychological interventions) to help them deal with their behavioral and emotional responses to infertility, and possibly their recurring treatment failures. Others, including infertile individuals and couples, contest this representation. They insist that the behavioral and emotional responses of infertile individuals are within the range of normal functioning.

Still others view infertility as neither a medical nor an emotional problem, but rather as a social problem. When infertility is perceived as a social disability (and infertile persons are perceived as socially handicapped individuals), the emphasis shifts from medical or psychological interventions to social supports for adoption or childfree living. This shift is easier in some cultures than others. In some cultures, there are a variety of ways in which couples/families can legitimately share children. In other cultures, when couples (especially married persons) fail to conceive there is considerable social pressure (subtle coercion) to do 'everything' possible 'at all costs' to get pregnant; adoption is a measure of last resort.

As the options for assisted human reproduction have continued to expand, and now include the possibility of avoiding unwanted genetic traits and selecting desired genetic traits, infertile individuals have come to be viewed as consumers of fertility services. On this view, children are prestige commodities, which explains popular media references to designer babies. Particularly controversial in this regard are technologies for sex selection (for reasons other than avoiding sex-linked disorders) as well as the use of pre-implantation genetic diagnosis to eliminate 'disabled' embryos. This burgeoning practice raises difficult questions about what counts as a 'healthy' embryo and the harmful societal consequences of allowing the category of 'disabled' embryo to expand exponentially. It is anticipated that in the future there

will also be options for genetic enhancement. Some argue against this prospect, while others argue against the status quo and invite us to embrace volitional evolution, where humans take charge of the evolutionary story.

Among those who worry about the reproductive marketplace are those who worry about pronatalism and patriarchy. From this perspective, the challenge is not so much infertility, but the availability of reproductive technologies and the introduction of pronatalist state policies that reinforce social constructs and stereotypes that harm women (as they are indoctrinated toward motherhood). On this view, either infertile women are cultural dupes who have been made to desperately want children, or they are cultural foils who have been made to appear to desperately want children.

The last of the roles assigned to infertile persons is that of heroic sufferers. This representation is reserved for individuals whose lives (biographies) have been disrupted (if not ruptured) by unexpected infertility and who nonetheless exhibit courage in the face of this major obstacle as they revise their lives in ways that do not include parenting.

The Right to Have Children

It is not uncommon for those who experience involuntary childlessness to insist that they have a right to have children. In support of this claim some will cite Article 16 of the *United Nations Declaration on Human Rights*: "Men and women of full age, without any limitation due to race, nationality or religion, have the right to marry and found a family."

What follows unequivocally from this statement about procreative liberty is that couples, including couples of mixed race, nationality, or religion, should not be prevented from procreating. What is much less clear is whether this statement can legitimately be interpreted to mean that there is a positive right to medical assistance to treat infertility when one is unable to conceive spontaneously. Casting about for other authoritative documents that might establish a right to have children, some in the United States argue that the right 'to bear and beget children' has been enshrined by the Supreme Court in Fourteenth Amendment jurisprudence.

For many, the right to reproduce is at most a negative right against interference, not a positive right to services needed to make reproduction possible. Others disagree. John Harris, for example, and John Robertson independently insist that there is an almost unlimited right to reproduce, and this includes a right to access any and all means needed to reproduce (provided all parties involved consent and provided there is no harm to others). Israel's National Health Insurance Law of 1994 creates a positive right to 'infertility diagnosis and therapy' and 'artificial fertilization.' Health funding is required for an unlimited

number of IVF cycles, unless restrictions are warranted for medical reasons. No other country in the world provides such extensive public funding of reproductive technologies.

From another perspective, there are commentators such as Mary Warnock who prefer to set aside all talk of rights and to focus instead on the moral and professional duty of physicians to alleviate suffering. Warnock recognizes that for some people infertility is a source of significant suffering.

Feminists defend women's right to control their bodies, but for many feminists this does not translate into unfettered support for procreative autonomy, especially when this is reduced to a right to procreate. Instead, many feminists seek to balance procreative autonomy with other social practices that aim to foster autonomy and equality, for example, providing fertility treatment (including reproductive technologies) in tandem with other family planning measures. More generally, many feminists are concerned about the language of rights in terms of a right to have children, as this implies exclusive access to property where the child is reduced to a means of fulfilling another's parenting experience. There is also a keen awareness that what may be good for individuals may not be good for women as a group, or for the larger community.

The Desire for Genetic Offspring/Biological Parenthood

With the introduction of assisted human reproduction, we have witnessed a renewed emphasis on the importance of biological (especially) genetic ties. As a result, infertile persons not only experience pressure to become parents, but also experience pressure to become biological parents. Michael Bayles, among others, has argued that it is irrational to desire and value a genetic tie to the children one is raising. He insists that biological parents and adoptive parents can have equally rewarding experiences raising children. Others, such as Carson Strong, insist that there are good reasons to desire genetic relatedness, as this can be a unique source of valuable experiences. He identifies six reasons for valuing procreation: participation in the creation of a person, affirmation of mutual love, contribution to sexual intimacy, link to future persons, experience of pregnancy and childbirth, and experience of childrearing. In these ways procreation can make an important contribution to self-identify and self-fulfillment.

Access to Reproductive Technologies

In very general terms, assisted reproductive technologies are expensive and the success rates are low. While some countries with government-funded healthcare systems will pay for an unlimited number of IVF cycles

(e.g., Israel), most countries will only pay for one or two cycles (e.g., Britain), and some jurisdictions will only pay for IVF for specific indications (e.g., blocked fallopian tubes in Ontario, Canada).

For those who are required to pay out of pocket for fertility treatment, the cost can be quite high but the treatment may nonetheless be 'accessible,' especially for socioeconomically advantaged individuals and couples. Somewhat controversially, less advantaged individuals and couples can also access fertility treatments by using their credit card (which, for some, has resulted in significant debt). Others, who are unable or unwilling to finance their fertility treatment in this way, have recently had the option of selling eggs or trading eggs (for treatment or for research) for discounted IVF cycles. Those who defend these practices insist that they benefit women who would not otherwise have access to IVF. Those who are critical of egg selling and trading, such as Françoise Baylis and Carolyn McLeod, worry about undue inducement, exploitation and the further commodification of women's reproductive labor and tissues.

In poor countries where salaries and living standards are low, the financial burden for infertile couples accessing fertility treatment is especially high. A recent initiative aimed at making IVF affordable in developing countries involves the establishment of IVF clinics where the material costs are kept to a minimum and the treatment is provided by local clinicians and scientists. The Low Cost IVF Foundation was established in 2007 with a mandate "to reduce the burden of childlessness among couples in resource constrained countries." This charitable initiative is controversial, however. While the burden of infertility is undeniably high in developing countries, and so there is good reason to improve access to fertility treatment, there are worries about entrenching patriarchal attitudes and practices, contributing to overpopulation, and misusing limited healthcare resources that should be directed at more pressing health needs.

Issues of access extend beyond financing to encompass eligibility criteria. In the recent past there has been considerable debate about whether fertility treatment should be limited to married couples, couples in a long-term stable relationship, single persons without partners, same-sex couples, menopausal women, or HIV-positive women or couples. Different clinics have different policies and practices, some of which are clearly discriminatory.

Exposing Women to Harm

From the beginning, feminists have raised concerns about the harms associated with ovarian hyperstimulation and egg retrieval for women fertility patients and women egg providers. Most significant are the health risks associated with hormonal stimulation. In the short term there is the

risk of ovarian hyperstimulation syndrome (OHSS), which involves nausea, vomiting, diarrhea, and abdominal distension. Less common but more serious are the risks of rapid weight gain and respiratory difficulty. OHSS can also produce life-threatening complications including hemorrhage from ovarian rupture and thromboembolism. The long-term health risks of OHSS are uncertain, but a few studies suggest a link between ovarian stimulation and ovarian cancer. Some feminists cite these harms in arguments against the use of (some) reproductive technologies. Other feminists call for well-designed research to generate better data that could be available to women considering the use of reproductive technologies that involve ovarian hyperstimulation and egg retrieval.

Another harm to women associated with assisted human reproduction is the risk of multiple gestation and birth. There is the risk of preeclampsia (which can be life threatening), premature labor requiring prolonged bed rest or hospitalization, premature delivery, and caesarean section. The incidence of multiple births has increased dramatically with the use of assisted human reproduction. For example, in the United States and Europe twin births following assisted reproduction are between 20 and 30%, whereas the natural occurrence of twins following spontaneous conception is 1%.

The Transformation of Kinship and Traditional Family Relations

Assisted human reproduction is perceived by many as both a threat to the traditional understanding of parenthood and a threat to the traditional nuclear family.

At one time the dominant belief was that genetic, gestational, and social parenting roles should be shared between two (preferably married) persons in a heterosexual relationship. The woman provided the egg and gestated the embryo/fetus and the man provided the sperm; together the two would care for the child they had conceived. Now, a child of IVF might have as many as five parents – a sperm provider, an egg provider, a surrogate woman to provide gestational services, and two other people who intend to raise the child. The sperm and egg providers may be deceased at the time their offspring are created (and they may or may not have consented to the posthumous use of their gametes). Further complicating matters is the possibility of collecting eggs from fetuses.

Beyond this, assisted human reproduction makes possible a number of nontraditional family arrangements. Consider, for example, artificial insemination for single (heterosexual or lesbian) women, and contract pregnancy for couples where pregnancy is not an option for the woman, or for gay men. For example, a lesbian couple could use a sperm donor to satisfy their desire for an offspring with whom at least one partner would have a genetic link. The genetic parent could also be the

gestational parent, or this parenting role could be assigned to the partner. Similarly, a gay couple could buy eggs and the services of a surrogate to satisfy their desire for a family with one partner having a genetic link to the offspring. In the (perhaps distant) future, if scientists succeed in creating artificial gametes from stem cells, it might even be possible for same-sex partners to each have a genetic link to the offspring. For example, sperm could be obtained from one male partner and eggs could be created from the other male partner's DNA. A reverse option might even be available to lesbian couples. Science fiction? Perhaps.

Many object to nontraditional family arrangements on the grounds that such arrangements are harmful to children. For example, it has been suggested that children of single lesbian women may experience disadvantages associated with stigma and psychological trauma as compared with children born into two-parent heterosexual families. Others point to the harms to women (both individually and as a group) associated with the medicalization and commodification of reproduction. As well, there are the purported harms to society with the breakdown of the traditional family. According to others, these views are at best confused and mistaken. Children can flourish in nontraditional families. Women, individually and as a group, need not be harmed by assisted human reproduction. Society benefits from increased tolerance and diversity.

Another significant demographic change resulting from the increased availability and social acceptability of assisted human reproduction is the increasing number of elderly parents. With the option of egg donation from younger women (and the prospect of stem cell treatment to regenerate ovaries), a woman's age is no longer a barrier to reproduction. Indeed, postmenopausal pregnancy for healthy women in their 50s is now touted as a reasonable option for women who delay pregnancy for personal or professional reasons. The oldest woman on record to become a mother using anonymous egg and sperm donation was a single woman aged 66 at the time she gave birth to twin boys. This case, along with other cases involving elderly mothers, has drawn attention to the question of whether there should be an upper age limit for women and men accessing reproductive technologies.

Free and Informed Choice

There are some who worry that women may be coerced by their partners into seeking fertility treatment. Others are concerned about the ways in which social forces (including societal expectations and opinions of family members and friends) have an impact on women's choosing. There are similar concerns for men, but they are

more acute for women because of traditional social roles of childbearing and mothering.

Beyond the issue of voluntariness, others worry about the quality of information disclosed to infertile individuals concerning available options, including the options of adoption or childfree living. Many insist on the need for nondirective counseling, but others argue that there is no such thing and that there is a clear societal bias in favor of fertility treatment.

For those individuals who are considering fertility treatment, it is important to have good information about the potential physical and psychological harms associated with recommended treatments (e.g., the harms of ovarian hyperstimulation, multiple gestation and birth, selective fetal reduction, severe emotional distress including high levels of depression and anxiety, marital stress), the potential harms to offspring (e.g., premature births, disabilities, psychological distress from not knowing their biological parent(s)), and the economic costs involved. Accurate information about success rates and, ideally, accurate comparative information are also important for informed decision making. For example, the average success rate for IVF for women under 35 years of age is approximately 30%. In choosing a clinic, an individual or couple would benefit from knowing whether the clinic's success rate is above or below the average. Infertile persons often do not have access to good comparative information showing the different success rates for different clinics.

The Disposition of Reproductive Materials

Infertile women undergoing IVF are a new target audience for researchers. Eggs and embryos are needed for research on fertility treatments, abortifacients, and the derivation of embryonic stem cells. These tissues are in short supply, and when they are available for purchase on the open market, the cost is prohibitive relative to the average research budget. To overcome the shortage, researchers in Britain have developed an egg-sharing program where women receive half-price IVF in exchange for giving away half their eggs.

Some argue that it is better to source eggs from women undergoing fertility treatment as they are already undergoing ovarian hyperstimulation and egg retrieval in pursuit of their reproductive project and so no additional physical harms are imposed on these women. While this is accurate, it is also true that this target group is at greater risk of psychological harm, as these women need and want their eggs for reproductive purposes.

Infertile women and couples are also consumers of eggs and sperm. For example, success with IVF declines as the age of the woman increases. One way to correct this is to use eggs from younger women. These eggs may be donated or purchased. Particularly worrisome from an

ethics perspective is the risk that poor women will be exploited. In the United States eggs sell for tens of thousands of dollars when these are provided for reproductive purposes by attractive women with proven academic and athletic ability (a fact that raises troubling questions about the ethics of positive eugenics). In poorer countries, the price of eggs can be as low as \$500, but this may nonetheless be a coercive offer.

Reproductive Travel

International reproductive travel involves the voluntary cross-border movement of persons seeking reproductive health care. 'Reproductive tourism' is one kind of reproductive travel where medical services are packaged with vacations, sightseeing, spa services, and so on. Typically, reproductive travel is motivated by a desire to reduce costs, to avoid waiting lists, or to access specific interventions and bodily resources that are unavailable in one's home country.

This burgeoning industry – where the destination country is often a low- or middle-income country – raises significant ethical challenges for prospective patients, physicians, and policymakers, especially when the travel is motivated by a desire to access goods and services that are legally prohibited in the home country and unregulated in the destination country. Some argue that reproductive travel should be encouraged because it is essential for personal liberty, and moreover is required as a matter of justice. Others argue that reproductive travel should be discouraged when this involves exporting public oppression at home for private oppression abroad, as when people travel to access goods and services that are domestically prohibited because they are deemed to be exploitative (e.g., payment for eggs or the services of a surrogate). Still others argue that countries should design and enforce regulations that restrict the inclination of their citizens to travel abroad for reproductive medical goods and services.

Conclusion

Infertility is a difficult reality for individuals and couples who would like to have a family that includes children and, for some, preferably children with whom they have a genetic link. There can be significant physical, psychological, social, legal, economic, and ethical challenges.

It is important that infertile individuals and couples be well informed of available options for managing their infertility, which typically include adoption, fertility treatment, and childfree living. It is equally important that individual and social responses to infertility not perpetuate the stereotyping of women into reproductive and service roles or contribute to the exploitation of those who provide bodily resources for certain reproductive technologies.

See also: Adoption; Cloning; Genetic Engineering of Human Beings; Reproductive Technologies, Overview; Women's Rights.

Further Reading

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Relevant Websites

- <http://www.ahrc-pac.gc.ca/index.php?lang=eng> – Assisted Human Reproduction Canada (AHRC). Federal regulatory agency responsible for protecting and promoting the health, safety, dignity and rights of Canadians who use or are born of assisted human reproduction technologies.
- <http://www.eshre.com/> – European Society of Human Reproduction and Embryology (ESHRE). A professional organization that aims to stimulate research in the field of reproductive medicine and science.

- <http://www.finrrage.org/> – Feminist International Network of Resistance to Reproductive and Genetic Engineering (FINRRAGE). An international network of feminists concerned with the development of reproductive and genetic technologies and their effects on women.
- http://www.hcch.net/index_en.php?act=conventions.text&cid=69 – Hague Convention on Protection of Children and Co-operation in Respect of Intercountry Adoption. Done at the Hague, on the 29th of May 1993.
- <http://www.handsoffourovaries.com/> – Hands off our ovaries. A grass roots organization that seeks a moratorium on egg extraction for research purposes until such time as global discourse and scientific research yields information sufficient to establish adequate informed consent.
- <http://www.hfea.gov.uk/> – Human Fertilisation and Embryology Authority (HFEA). The United Kingdom's independent regulator overseeing the use of gametes and embryos in fertility treatment and research.
- <http://adoption.state.gov/> – Intercountry Adoption: Office of Children's Issues, United States Department of State. A useful website with lots of practical information on international adoption.
- <http://www.lowcost-ivf.org/> – Low Cost IVF Foundation. A charitable organization that promotes the provision of simplified clinical IVF services for a minimal cost to improve access to IVF treatment infertile couples.
- <http://www.resolve.org/site/PageServer> – RESOLVE. A national infertility association in the United States that provides women and men with information and support "during their family building journey."

Biographical Sketch

Françoise Baylis is Professor and Canada Research Chair in Bioethics and Philosophy at Dalhousie University, Halifax, Canada. Her primary appointment is in the Department of Bioethics and she holds cross-appointments in the Department of Philosophy and the Department of Obstetrics and Gynaecology. Her internationally recognized work probes ethical issues in health care with particular attention to women's reproductive health, research involving humans (including embryo research, stem cell research and cloning research), and novel technologies.

In addition to her academic research, Baylis contributes to national policy-making on assisted human reproduction via government research contracts, national committee work, and public education. In 1991, Baylis was a consultant to the Canadian Royal Commission on New Reproductive Technologies. From 1994 to 1997 she was a member of the Ethics Committee of the Society of Obstetricians and Gynaecologists of Canada. From 1999 to 2001 she was a member of the Canadian Biotechnology Advisory Committee and from 2001 to 2004 she was a member of the Canadian Institutes of Health Research Governing Council and Co-Chair of its Standing Committee on Ethics. From 2006 to 2010, she was a member of the Board of Directors of Assisted Human Reproduction Canada.

Baylis is an elected Fellow of the Royal Society of Canada and an elected Fellow of the Canadian Academy of Health Sciences.