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Medicalization of Reproduction: New Reproductive Technologies, Images of the Child and the Family Among a Group of Women from the City of Rio de Janeiro, Brazil

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ABSTRACT The present study is in continuity with a previous one that discusses the new forms of medical intervention in human reproduction, known as new reproductive technologies or assisted reproduction. They are viewed as the last stage in a continuous and historically constructed process of medicalization of sexuality and reproduction, responsible for the emergence of notions which took on the role of social normalization in regard to the body, sexuality, man, woman, pregnancy, delivery, lactation, childhood, in short, the whole reproductive sequence. Having already become more "technological" as a result of modern forms of birth control, the process now brings the possibility of producing babies on demand. In Brazil, paradoxal aspects of assisted reproduction were obscured by the strong investment of the media on these medical phenomena, with the consequence of overshadowing their dubious efects and the limited evaluation of the new reproductive technologies in the scientific field itself. Moreover, the introduction and diffusion of these technologies reproduces, with its specificities, the same logic of exclusion that characterizes the overall scenario of health care in Brazil, and reproductive health care, in particular. In this context, the present study discusses images of motherhood, fatherhood, children, and family through the analysis of in-depth interviews with a group of women who have had pregnancy impairments.

INTRODUCTION

In this article, we intend to discuss the problem of living without children – or not – in a particular context: that of contemporary medicalized societies where, in the last twenty years, techniques have emerged for producing babies on demand. Here we are referring to what are known as the new reproductive technologies (NRTs) or assisted reproduction. Both terms describe the same heterogeneous set of medical techniques directed to the common goal of providing palliative treatment for temporary or permanent, well or poorly defined conditions of infertility.[1]

Another way of looking at these procreative techniques is to describe them as a set of practices and techniques that replace the sexual relationship as a means of generating children that will come to constitute families. Seen in this light, the medical techniques come to bear on the central issue of human reproduction: that is, how it overlaps with social reproduction. Among other things, the biological reproduction of human beings necessarily entails constituting families, forming and regulating kinship relations, and transmitting names, and symbolic and cultural heritage, since birth assigns to all a socially determined position. Also, in a correlation that goes far beyond the generative aspect (biological conception), human reproduction includes prolonged stages that extend through time, from providing the necessary care for the new born through to education and complete socialization.

The present study interviewed fifteen women between 29 and 44 years of age living in Rio de Janeiro (Brazil), who share or shared the same problem – difficulty in becoming pregnant during a marriage or union with cohabitation. This difficulty led them to seek medical help, before any other solution – for instance, adopting a child or simply accepting the difficulty and seeking other ways of bringing children into their everyday lives. All the unions were between individuals of different sexes; united, heterosexual couples belonging to the upper, middle and lower strata of the population, with varying levels of academic achievement.

Nine of the fifteen cases studied had undertaken at least the beginning of a protocol of one of the NRTs. Six others had undertaken a thorough diagnostic investigation of the couple's infertility condition, but had proceeded no further in that direction. Of these nine cases, two are on the road to success – one early pregnancy and one eight-month twin pregnancy – and one is in the process of hormone stimulation to attempt fertilization. Four made unsuccessful attempts at fertilization – one woman had already decided to try a second time; and three are going through a period of uncertainty as to whether to try the NRTs again or to adopt. In two cases, assisted reproduction could be said to have failed definitively, since in one the marriage is to break up and, in the other, the couple decided not to continue trying, and adopted two children.

Of the six who did not proceed with the assisted reproduction protocols, one adopted a child, one decided to live without children, two later became pregnant without these techniques and two continue in conventional treatment for infertility and, in any case, were unable to gain access to assisted reproduction for financial reasons.

This study also grew out of a previous, rather broad study that considered the NRTs and their social and ethical consequences from the perspective of the medicalization of reproduction in Brazil.

In part, this article thus constitutes an exploratory study designed to contribute to inaugurating a debate that has yet to take place on the attitudes and representations of those who use or would like to use these technologies for reproductive purposes in Brazil. Actually, there is a sorry lack of sociological research from this point of view in Brazil, unlike what has occurred in terms of essay and speculative studies on the subject, which are relatively numerous and from which these actors and their discourses are generally excluded. The users' profile is not known, nor are their representations and main categories of reference in dealing with childlessness, nor the contexts and motives that lead them to seek, or not to seek, these techniques. Although we cannot offer definitive answers to these and other questions here, our aim is to contribute to building sound, well-founded hypotheses that will result in more comprehensive research into this issue that bears on reproduction, childhood and the family.

The Introduction of New Reproductive Technologies in Brazil

The birth of the first test tube baby in Brazil was announced in 1984, six years after the world's first successful in-vitro fertilization was recorded in England. The repercussions of the event in medical and scientific circles were perhaps not so great as the prominence it was given in the media.

There was intense debate at the time as to the truth of the event's actually having taken place in Brazil and as to the scientific authorship of the baby, finally attributed to a São Paulo doctor very active in the field of human reproduction in Brazil (Reis, 1985).[2] In the early 1980s, some medical teams reported attempts at in-vitro fertilization in national journals, always recommending these techniques' effectiveness and ease of handling.

The phenomenon of assisted reproduction quickly invaded the media in Brazil, which gave it ample coverage. Not only the press, but the electronic media – particularly television – have occupied themselves with the subject frequently, broadcasting interviews and debates with specialists in the field. There has also been more than one television soap opera entirely devoted to the subject, at a time when assisted reproduction activities were practically just beginning in Brazil.[3]

The publicity given to the birth of Brazil's first test tube baby thus reached a more limited audience, restricted to the major cities, unlike the audience of the soap opera entitled "Belly for Hire" (Barriga de Aluguel), that was broadcast daily, nationwide and at peak viewing times in the late 80s, taking as its theme the most controversial technique in the field of assisted reproduction: surrogacy and surrogate motherhood.[4] The coverage of this issue, broadcast daily for over a year, along with a later rerun at a different time of day, were without a doubt the most important media events in popularizing the subject in Brazil.

The effects of the widespread publicity given to assisted reproduction by the media was gauged by a pilot study, in which we participated, carried out by the Ministry of Health in two

Brazilian towns: Santos, on the coast of São Paulo State, and Jacobina, in inland Bahia State.[5] Asked what they knew of these techniques, 93 per cent of the residents of Santos had already heard of artificial insemination, 94.5 per cent of in-vitro fertilization (or test tube babies) and 95.5 per cent of "belly for hire" (the categories used in the questionnaire). In Jacobina, affirmative responses came from 79.5 per cent, 84.3 per cent and 94.7 per cent, respectively. These indices are particularly surprising considering that there were no public medical services offering assisted reproduction in the towns studied, especially in the poor, rural context of the town of Jacobina.

The material on assisted reproduction that circulates in the Brazilian national press is remarkably up to date, both as concerns its description of how the techniques evolved and in how it presents the accompanying ethical debate (Corrêa, 1997b). Also remarkable is the sensationalist tone with which the material is presented and, at the same time, the simplicity attributed to applying these technologies in the field of medicine. Assisted reproduction is presented as an extraordinary phenomenon, a major advance that breaks not only with the ways medicine is practiced at present, but also with the know-how medicine has accumulated in the – already highly medicalized – fields of sexuality and human reproduction. Contributing to this is the aura of extreme "modernity" conferred on these reproductive technologies by the borderline position that they occupy in relation to the new specialties in the biomedical field: predictive medicine, human genome research, gene therapy research and other forms of genetic intervention such as inter-species hybridization, cloning, etc.

Meanwhile, the techniques are presented sketchily, in such a way as to make them appear simple and easily absorbed, which serves to reinforce the indiscriminate propaganda given to successes of science in this area. Briefly, these technologies are being constructed as accessible, flexible, innocuous, able to remedy the "deficiencies" of nature, thus reinforcing the importance assigned to the role of genetic links in procreation; in short, as able to solve the problems of people with difficulty procreating, as well as holding out other novelties – such as choosing the baby's sex, etc. – that, in principle, they make possible.

Finally, reference to foreign practice and experience serves as the parameter for the advances of medicine in Brazil. Almost all the press reports we consulted cite the name of a foreign specialist who is central to the news item, along with those of his Brazilian colleagues who practice the same techniques – "who do likewise" – as well as describing where their clinics are located.

The illusion of simple, immediate access to the "baby you wanted" connected with this kind of publicity is equivalent to what is commonly to be found in the medical literature – both scientific and popular – which, on the one hand, does not mention problems, such as these techniques' extremely low success rates, the attendant risks, etc. The homogeneous manner in which NRTs have been and continue to be presented in Brazil, in line with the features signaled above, fails to disclose the technologies' dubious effects and the limited evaluation to which they are being subjected even in the field of science proper.

One may thus be led to think that this media behavior, in line with the predominant approach taken to the issue by medicine itself, may be connected not only with the formation of demand for NRTs, but also with a complete transformation in our way of thinking about childlessness.

As concerns Brazilian medicine's absorption of NRTs, it is important to highlight some specific features. Traditionally, innovation in the biomedical field reached Brazil by way of its university and/or public hospitals, because of the very high costs of leading edge technology research and also because that was where the staff most qualified for this purpose was concentrated. To this day, universities continue to be preeminently the places where basic and technology research is carried out in Brazil, there being extremely few research institutes unconnected with universities and teaching. The relevant multinational corporations installed here produce almost no innovations in Brazil, which constitutes, at most, a field of research for trials proposed by their head offices in the central countries.[6]

The door remained more or less open until about fifteen years ago, as long as the demand for investment in public and university hospitals was being more or less met. Once new therapeutic

methods and techniques had been learnt and established, doctors – who generally work in both public and private sectors – would, at a second stage, transfer these procedures to their private clinics.

Assisted reproduction did not take the traditional route: it reached Brazil almost exclusively by way of private medicine, a sector which, to this day, accounts for 99 per cent of the clinics and hospitals that offer this kind of service.[7]

Assisted reproduction was introduced by the private medicine sector in Brazil, even in the types of training situation most highly regarded by Brazilian doctors: since the 80s, there is news of seminars being held by small groups of human reproduction specialists working in private clinics (Reis, 1985). These events were organized around foreign doctors invited to come to Brazil to introduce a technique and even to assemble cohorts of patients to undergo the in-vitro fertilization techniques, then to be monitored by Brazilian doctors.[8]

Since 1982 – thus before Brazil's first test-tube baby was born – these courses and seminars have been planned in such a way that hospitalization of so-called "volunteer" patients enrolled in the assisted reproduction programs of private clinics (located mainly in the city of São Paulo) coincide with the arrival of foreign specialists. These patients who normally could not afford the expense of this treatment were thus able to undergo attempts at in-vitro fertilization under the care of Brazilian specialists and the "supervision" of foreign doctors. The latter, in turn, in addition to helping export these techniques to Brazil, gained the opportunity on these occasions to expand and build up their own prestige in the area, as well as an additional field in which to experiment with this emerging therapy. In 1984, the two English doctors responsible for the birth of the world's first test-tube baby (1978), and later, the obstetrician of the first French test-tube baby (1982), participated in services of this kind.[9]

Thanks to this kind of "exchange", certain assisted reproduction medical services in Brazil keep abreast of, or lag very little behind, those in developed countries.[10]

The Medicalization of the Reproductive Process

Although presented and represented as one of the major landmarks of the technological revolution experienced by medicine recently – which they are actually, if considered in purely technical terms – the new reproductive technologies in fact constitute the most recent stage in a historical process whose origins date back to the late 18th century. In itself, the medicalization of childlessness does not constitute a break with the medical tradition, which has an unbroken history of intervening in human sexuality and reproduction – in this case, particularly by way of women's bodies.

In fact, when these new techniques emerged, all the stages of the reproductive sequence had already been medicalized, from the concern with healthy sexuality, through contra(con)ception, pregnancy, breast-feeding, childbirth, child care, etc.

The principal meaning of what we understand by medicalization has to do not only with disease control by the proliferation and consumption of medical acts, or with the profits made by the pharmaceuticals and equipment industries, although these – and other things – usually are associated with the term medicalization. To us, medicalization has to do with the way that, through its discourse and institutionalized practices, medicine exerts a moral authority that legitimizes its interference in the creation of ideas and values.

In the present case, these technologies and their possible psychosocial effects may be leaving their mark on ideas of motherhood, fatherhood, the imperative of procreation, as well as the very idea of life as biological life, and so on – forged historically in modern medical discourse. This primarily because, in the present medicalization of childlessness, more than the presence of lesions or the identification of well-defined causes of infertility, what matters is that medical techniques capable of making babies are being established.[11]

Difficulty in having children – a social and individual fact of life – may, when medicalized, refer to a variety of contexts: people's demands, desires and dreams; scientists' interest in knowledge; the production and sale of medical services and products. In that re-description, however, medicine itself favored the formulation of NRTs as a response to the demand for babies. More than curing, medicine's proposal based on

this "revolution" represented by test-tube babies is for individuals and societies to realize something as ancient as humanity itself: to have children, reproduce, set up a family.

Actually, anthropological studies (Heritier, 1996) indicate that all societies have taken a very poor view of sterility and repudiated it. More than a natural law, reproduction was a norm on which the concerns of social continuity and individual happiness hinged. Traditionally, social remedies for sterility entailed different arrangements between individuals of the two sexes, and in filiation and kinship systems, so as to include or allocate a child to a social group, a lineage or descent. Underlying these arrangements are the ideas, firstly, of the dissociation between the genitor – who contributes the biological material – and the social roles of pater and mater; and, secondly, the existence of legitimate unions of the type we call marriage, agreements between houses, families, etc.

In primitive and ancient societies, the logic of the duty of descent seems to predominate over that of individual wishes. In so-called developed Western societies, reproduction is surrounded by symbolic meanings where what predominates are ideas such as recreation of self, individual continuity, personal realization through motherhood and fatherhood defined on predominantly biological bases, etc. – a perspective perhaps being reinforced by current medical procreative technology. Use of NRTs, initially conceived as medical techniques for the palliative treatment of infertility conditions, is becoming widespread in a manner that transcends this framework and broadens the scope of experiences and debates relating to the problem of individual reproduction, of "wanting" children (also expressed by single men and women, homosexuals), leading to a reinforcement of the medicalization of childlessness in specific contexts.

In addition to the rituals and meanings that may surround birth in any kind of society, in developed industrial societies and in the upper social sectors of poorer countries, birth becomes an object of strong rationalization. The norm of motherhood, always identified with the natural female condition, changes profile and takes on specific features in the light of the idea of planned birth: it could be said today that what is "normal" for a woman is a state of non-conception, medicalized by the use of contraceptives, until the right moment to procreate is determined. Having a child should thus be the object of a deliberate decision involving a duly controlled, willed project where factors such as placement on the labor market, stability (of the couple or single woman), the wish to complete or embark on schooling, concern with the means to provide children with a good education, etc., all count. Plans for reproduction that do not consider factors of this kind, which are extremely common among the poorer and the younger, those most deprived of access to health care – the majority of our population – tend to meet with social disapproval, even when the factors underlying such "plans" are not available – in fact, all possibility of making plans is denied – to these individuals, who normally rely on the extended family, the help of neighbors, etc., with all the limits and problems that this entails.

The notion of freedom to decide on reproductive behavior – where fertility control would be exercised almost as a citizen's right guaranteeing the exercise of a sexuality not only gratifying but safe from the health point of view – implies access to the information and methods necessary for regulating fertility; that is, to health services which (as in Brazil) are not always available. The notion is denied by mechanisms of social exclusion, as can be seen from the history of medical intervention in the process of human reproduction in Brazil and the present mediocre indicators on reproductive and children's health.

Unfortunately, all that can be done here in this respect is to give a brief, superficial glance at some figures, which nonetheless are important to illustrate the introduction of NRTs in the field of reproduction in Brazil, governed by the paradox that we are a highly medicalized society without the guarantees of universal, effective access to medical information, services and care directed to women and children.

Medicalization vs. Reproductive Health Care in Brazil

The medicalization of reproduction in general and of fertility in particular occurred in Brazil chiefly on the initiative of private sector medicine in obedience to guidelines set out by

international family planning agencies – which very often ran counter to the official government position – and with the financial and logistic support of the health products industry (Loyola, 1983b). Fertility rates have thus experienced a decline over the last 30 years that contrasts with the demographic transition patterns of developed countries: from an overall rate of 6.2 children per woman of reproductive age, in the first half of the 1960s, to 4.7 at the beginning of the 1970s, then to 3.7 at the start of the 1980s; and from 3.2 in 1986 to the present 2.5 children per woman of reproductive age (PNDS-1996).

As discussed by Loyola (1982) on the basis of an important nationwide survey,[12] a reduction of this magnitude in the average number of children in such a short space of time cannot be related to improved standards of living as it occurred simultaneously with the increasing impoverishment of Brazil's population. Brazil's falling fertility rates are linked intrinsically to the activities of doctors and medicine, which are responsible for installing potent contraceptive practices in the country.

The results of the research survey indicate that some 50 per cent or more of respondents cite the doctor, in the first place, as the person to be sought out to solve the set of problems they describe, including when to have children, how many children to have, how to avoid having children, what to do when not managing to have children, what to do when pregnant (or partner is pregnant) and unsure whether to have children. What is striking is the legitimacy ascribed to doctors in relation to problems that are normative, such as when to have children and how many to have, and not just technical, such as how to avoid pregnancy, what to do when the pregnancy is unwanted, etc. (Loyola, 1982).[13]

The doctors' action was carried out by way of the unsolicited prescription of contraceptive pills, distribution of free samples of the pill, distribution under agreements between health institutions and pharmaceuticals laboratories or agreements with agencies specializing in family planning, such as Benfam, Sociedade Civil de Bem Estar Social, installed in Brazil in the 1970s, which worked closely with health institutions. Surgical sterilization by tubal ligation was also practiced on a large scale – patients either requested it or were induced by doctors – generally in connection with caesarian surgeries. People from low income strata practiced control on a smaller scale and using methods like abortion.

This occurred not only for lack of defined public policies on human reproduction or of public health institutions in Brazil, but also because of the precariousness and insufficiency of these services, which have always left a significant portion – notably the poorest sectors – of the population without coverage. Also though, and chiefly, it occurred because of the way these services are structured, leaving an enormous field of activity to private initiative, financed by public funds.[14]

Despite changes in government position and, more importantly, the activities of the women's movement against the predatory, harmful effects on women's health of this process of the medicalization of reproduction, the gap between public and private sectors in this area has done nothing but widen; that is, reproductive health in Brazil continues to be dealt with predominantly at the initiative of private sector medicine, with all the implications that this entails.[15]

Unlike other countries, all contraceptives – from condoms to oral or injectable hormone contraceptives, IUDs, diaphragms, jellies, etc. – are sold freely in Brazil without the need for a doctor's prescription. This fact, allied to the lack of quality medical care, is responsible for a form of medicalization where the practice of contraception is divorced from health care. From this results a specific profile of contraceptive practice characterized by a narrow range of methods dominated by surgical sterilization.

This is the method most used by married women in Brazil. In 1996, 40.1 per cent of these women had already been sterilized by 28.9 years of age (PNDS, 1996).[16] The pill, the second most used method, shows the highest rates of discontinuance: some 80 per cent of married women had used it at least once in their lives, although only 20 per cent were doing so today. The medication is generally self-administered and, for reasons of the high incidence of unpleasant, undesirable side effects, its use often interrupted, generally without guidance from a doctor or health service, thus exposing the women to unwanted pregnancy. From these circumstances, one may

infer that use of contraception in Brazil may be leading increasingly to recourse to induced abortion among women highly motivated to control their fertility. (Giffin, 1992)[17]

It is a criminal offence to practice abortion in Brazil, except in cases of rape and imminent risk to the mother's life. However, it is performed clandestinely on a large scale and, in most cases, in improper conditions.

The difficulty in regulating birth, at a time when an enormous and varied range of contraceptive methods is available, is a consequence of the lack of public sexual health programs, of the State's failure to make means and services available in the field of reproduction, the most glaring expressions of which are clandestine abortion and voluntary recourse to surgical sterilization. As these produce sterility caused directly by medical intervention, the dynamics of the recourse to these procedures is central to the present discussion of assisted reproduction and the process of the medicalization of sexuality and reproduction (a medicalized solution to a medically created reproductive problem). This "sterilization culture" would not have developed in Brazil without the apparatus that gives it support; that is, the high prevalence of surgical deliveries, which today represent around 50 per cent of all deliveries in Brazil (PNDS, 1996).[18]

Following the dominant trend in western medicine, hospitalization rates for childbirth are high in Brazil. In the last 5 years, 91.5 per cent of births occurred in hospital, and 87.7 per cent of these were assisted by a doctor. Half the women had more than 7 ante-natal appointments which, added to the 28.7 per cent who had between 4 and 6 appointments, results in what looks like reasonable coverage (PNDS, 1996). Nonetheless, a more detailed study carried out in the municipality of São Paulo (the wealthiest in the country) shows that, in fact, women very often have to approach two or three hospitals before managing to find a bed, even for a normal delivery. This difficulty is aggravated in the case of a risk pregnancy, as ante-natal coverage does not guarantee proper referral for delivery, simply for lack of beds and/or health workers (Berquó, 1995).[19] This high medicalization of pregnancy and childbirth coexists with high rates of maternal and infant mortality – contrary to what one would expect; that is that, taken together, the decline in fertility, the high prevalence of ante-natal care and assisted delivery would tend to reduce these rates.

The overall infant mortality rate for the approximate period from 1986 to 1996 was 48 deaths per thousand live births – rising to 65 in rural areas, against 42 per thousand live births in urban areas – with strong regional differences reflecting long-standing social and economic inequalities that continue in Brazil.

Maternal mortality in Rio de Janeiro was 52.41 deaths per 100,000 live births, in 1990 (Silva 1995), and continues particularly high, especially considering the level of medical know-how in the field and the simplicity of the "technology" necessary to avert most of these deaths.^ In around 90 per cent of cases, the causes of maternal death in Rio de Janeiro, a pattern repeated throughout the country as a whole, are eclampsia (pregnancy-induced crises of hypertension), hemorrhages, infections and pregnancy terminated by abortion. Given current standards, maternal mortality would be prevented in 96 per cent of cases by simple, well-known, cheap treatment (Silva, op. cit.), a fact that makes this rate an excellent indication of the quality of medical care provided to the reproductive cycle, from ante-natal care through pregnancy to delivery and puerperium. Only with total neglect of health care and serious deficiencies in terms of material and human resources – as occurs in Brazil – can women already admitted to hospital for delivery fail to receive proper care for simple pathologies like those mentioned here.

This is the context where the NRTs were introduced; that is, a context framed by an enormous accumulation of advanced know-how and technology going hand-in-hand with mediocre rates of reproductive health. Situations detrimental to conception and fertility thus coexist with the rapid development and absorption of advanced techniques for artificializing the reproductive process that, in a short time, may establish a vicious cycle of surgical sterilization and clandestine abortion/ infertility/ assisted reproduction in Brazil. Even though this cycle may not be applicable to the same women, it is worth considering in collective terms.

The Demand for Assisted Reproduction

Although lack of information makes it practically impossible to calculate even an estimate of the demand for assisted reproduction in Brazil, we believe it to be relatively small – in the first place, because of the high cost of applying it. According to information gathered from interviews with doctors, the price of an attempt at in-vitro fertilization ranges from four to five thousand US dollars (Corrêa, 1997). For the users interviewed for the present study, however, the cost of each attempt is claimed to range from eight to ten thousand dollars, including the cost of medicines and certain complementary examinations. In most cases, given the low success rate, the in-vitro fertilization cycle procedure has to be repeated several times before obtaining a pregnancy and the longed-for baby.[22] Added to this is the time the woman has to make available, which will entail her being absent from the labour market, having a job activity with flexible hours or being able to take frequent leaves of absence, and having funds sufficient to be able to undergo the "treatment", including the risks of multiple pregnancy, which are strongly enhanced by its use. In the second place – and consequently – demand is small because these techniques are excluded from public health services and from among the paid or reimbursable procedures covered by private health plans and insurance, and so become inaccessible to the poor population and a large part of the less well-off middle class.

This is the case with four of the women we interviewed, who – although they also claim other reasons – opted to adopt or to remain childless when confronted by the financial cost that undergoing this "treatment" would entail. Among those who resorted to these technologies, all from the upper class (with monthly income in excess of five thousand dollars), they claim that they had to save or go without in some way in order to meet the expenses resulting from the treatment. In addition to these four, two women who could not afford to pay interrupted the medical protocol for the investigation and treatment of infertility, mainly for the reason that the "treatment" proposed comprised insemination with donor, which they and their partners considered inadmissible.

Meanwhile, contrary to the argument generally used by the doctors who practice it, our figures indicate that the demand for assisted reproduction in Brazil, or at least in Rio de Janeiro, is not spontaneous. In all the cases studied, referral to the specialists in applying these techniques came from doctors themselves, generally gynecologists in private sector medicine. In this way, doctors play the role of screening access to these technologies. All the women had learnt of the existence of these technological resources through the media, but were emphatic in declaring that they would never use them spontaneously, either because "I did not know if it was appropriate to my case", because "I thought it all very artificial", "a cold sort of thing", because "it would be absurd to submit oneself to that with so many abandoned children around", or simply because "I never thought of it".

Whether these techniques were judged favorably or unfavorably did vary according to the informants' situation, however. Those who could not opt for the technologies – for financial reasons, for having desisted because the investigative diagnostic procedure was too invasive, or because the "case" involved donation of sperm – endeavored to devalue them as "artificial", "dangerous" or even "absurd" compared with other alternatives. Those who became pregnant (two women in the group) or those who continued trying to become pregnant by way of assisted reproduction consider them, on the contrary, welcome and a good thing, while one of them went as far as to exclaim: "long live science!" (29 years old, married, pregnant with twins by Icsi^). Similarly, the former tended to feel "odd" about children engendered by way of these technologies, while the latter judged them "as natural as those born naturally" or even better: "because when it depends on medicine it is far more wanted, more looked forward to; what you went through, what you wanted... it's far more loved" (idem).

The Discovery of Infertility

Although they value assisted reproduction, the women who underwent it are unanimous in emphasizing the financial, physical and emotional costs of the procedures, their invasiveness, side effects, the waiting list, the day-to-day upset,

the psychological stress and the not always favorable effect on the couple's relationship (in two cases, this situation resulted in the couple's breaking up). Why then did they offer no resistance and why were they, on the contrary, so eager to use them, as indicated by our interviews?

In the first place, the discovery that one is infertile constitutes a trauma that runs counter to deep-rooted beliefs and prevents deep-seated values from being realized, as we shall examine below. This realization is thus generally accompanied by enormous frustration and helplessness that leave the couple vulnerable to the miraculous promises of science. The second reason is that infertility is generally late in appearing. On the one hand, it may appear following a long process of preparing for the birth of a first child, which very often involves major psychological and material investment: "they were just getting started in life", "they didn't feel prepared", "small apartment, etc.", "they wanted to be in a position to give a good education". On the other hand, the discovery of infertility occurs at a moment when the woman is approaching the biological limit for risk-free pregnancy. All the interviewees mentioned being haunted by this problem. The realization that one is infertile is thus accompanied by a sense of urgency: "you get so desperate when you discover you're infertile that you'll do anything... you really lose all discretion" (33 years old, childless, one unsuccessful attempt at Icsi).

This urgency that leaves the couple psychologically fragile is reinforced in the course of the process of seeking a solution: the series of tests that precede referral to a specialist in assisted reproduction. Thus, when the couple reaches the stage of beginning the IVF attempts, as expressed by the last informant quoted: "they are prepared to do anything", to submit to all the requirements of the treatment, including its risks. And here we encountered a factor that we consider of the greatest importance: doctors' concealing or minimizing the real risks of employing these technologies. Asked whether they had been informed of the low success rates of these technologies, most replied affirmatively, but the normal clarification given by doctors on this point proved to be to equate the chances of an IVF pregnancy to those of a pregnancy by sexual relation: a 25 per cent chance of success.[24]

It may be argued that, as a result of the sense of urgency and the heightened desire for pregnancy that ensue when one embarks on using this technology, the patients themselves may minimize the risks. One of the women interviewed told us that "I didn't want to know, for fear I would abandon the treatment". However, cases like these do not relieve the doctor of the responsibility of insisting on giving the correct information.

The Desire to have Children: Assisted Reproduction vs. Adoption

Asked whether at any moment in their lives they had considered the possibility of living without children, all the women interviewed responded negatively, or that even if they had considered it, they had rejected the possibility: "it's impossible to think of living without children"; "I've always liked children"; "I think there are couples who can live without children... but that's not for us"; "life would be meaningless without a child"; "a child is a happiness"; "a woman without children is a freak"; "a couple without children is not a family, a family always has to have children"; "a couple without children isn't a family, it's a couple"; "a couple that doesn't have children is an incomplete family".

For this group, wanting children thus form part of the very logic of constituting a family and, on this logic, wanting to set up a family comes before wanting children. It is on this logic too that most of the informants were against homosexuals' and single women's using these techniques. "A child has to have a mother and father, it has to be a couple: you have to think about the person that's coming"; "a homosexual couple with children is an inversion of values, of the family. It's all right their having an affair, but bring a child into it – no way". The desire to set up a family, however, itself forms part of the broader logic of reproduction, of the desire to guarantee one's own continuance by way of one's children, for whom the family environment formed by a father and mother is at least desirable, if not fundamental. "It's good to watch a child grow, to bring one up, treat it with loving care... that child reflects you, it's a happiness" (44 years old, childless, attempting IVF and

adoption); "It's important to fight to leave something of yourself, a continuance of yourself, a reflection of yourself, you leave something in the world. Our parents left us... it's a way of improving the world" (44 years old, two adopted children).

Education may suggest that this idea of the child as a "reflection of oneself" entails acceptance of adoption as an alternative to assisted reproduction. This, however, is one of the most sensitive points in analyzing the problem of reproduction in the light of the current medicalization of childlessness since, unlike the babies-on-demand of the NRTs, adoption is more an expression of interest in the child and of the social interest – if one may call it that – of assuring and furnishing the means of social reproduction to children already born. The contrasts between these two practices can be even starker in a country like Brazil, which is marked by social inequalities and where the problem of social exclusion – which primarily affects groups like those formed by children – is growing steadily worse.

Of the women who made up our sample, two adopted children after thoroughly investigating the difficulty of becoming pregnant or after frustrated attempts at assisted reproduction treatment. One of them insisted several times on the advantages of adoption and the fact that, for her, this constituted a real option – not forgetting the fact that this couple had the material means with which to go on trying with the NRTs. However, she reported having made several attempts at "artificial insemination", but did not accept the indication of in-vitro fertilization received from one doctor, because she felt "a test-tube baby too artificial". (44 years old, two children by adoption).

Although many women often refer to the numerous "abandoned children in need of a home" who people the streets of a city like Rio de Janeiro, adoption almost always appears as a last resort. This is because the idea of creating a child has a broader meaning than merely socialization; the idea of the "reflection of oneself" associated with the child entails transmitting not only social characteristics but also – and above all – biological characteristics: "it's good to watch him growing inside you"; "it's important, the experience of pregnancy, watching your belly grow, having a life inside you"; "all women find pleasure in getting pregnant"; "it's important to give that little bit of ourselves, a piece of ourselves, of our body". The idea of creation implies not only the pregnancy phase, the growing inside one's own body, but also the view that the child constitutes a kind of bodily prolongation of the parents.

This gives rise to the fact that the women interviewed are all against donations of "other people's" reproductive material and surrogate wombs, because they are associated with the idea of the presence of a "foreign body" between the couple. In some cases, this logic is even applied to adoption, which is seen as the incorporation of an "other": "I wouldn't recognize myself in an adopted child" (42 years old, childless).

It is also on this logic that many women accept the idea that homosexuals adopt children – "because it's already in the world and in need" – but not that they generate them by assisted reproduction, as is implicit in this quote from one interview: "not like that (by assisted reproduction) because they already have this tendency (to be homosexuals), and that way the child would pick it up too"; or from another: "because it's not biologically normal".

The rejection of donated reproductive material – a point on which the group was unanimous – is also due to the fact that this practice, in addition to exposing the couple's biological shortcoming, excludes one of the partners from the genetic reproduction, thus jeopardizing the "balance of the couple", "the stability between the partners", "would be a dirty trick by one against the other"; especially, as in the cases studied here, where only one of the partners was considered medically infertile. When we raised the hypothesis of reproduction involving donation of ovule plus donation of semen, or of an already formed embryo, the rejection was equally violent. In both situations, all "prefer" and "recommend" adoption.

The belief that reproduction is, by definition, an eminently natural process is expressed also in the association between infertility and the idea that "perhaps nature didn't intend us to have children" manifest as a fear that accompanies the

treatment, and also as the ever-present expectation – even among those women who have already exhausted all avenues, including attempts at in-vitro fertilization – that one day they will finally "get pregnant naturally".

Assisted Reproduction and Gender

That men are more resistant than women to admitting their condition and seeking medical help is quite well known and generally associated with gender attributes surrounding the notion of virility – physical strength, solidity, self-control, etc. This distancing from human biological fragility that seems to characterize the male ethos is particularly relevant in relation to reproduction, historically seen as women's business. Not only is in the woman's body where almost the entire reproductive process (pregnancy, childbirth, breast-feeding) takes place, but it is also her body that bears the brunt of all the flaws and advances in technology designed to control or activate reproduction.

It is thus no surprize then that, in the group studied, it was the women who systematically took the initiative of seeking medical help when the couple realized their situation to be one of infertility. Some husbands accompanied their wives to doctors' surgeries and gynecological clinics, but the investigation as to the possible causes of the difficulty in impregnating bears primarily on the woman and her body.

Although this attitude is common to the whole group under study, male resistance to seeking out and submitting to a doctor's guidance is greater among the lower classes (Loyola, 1983), as in the case of the discourse of a domestic we interviewed. Her husband was enormously resistant to her – and especially his – undergoing the procedures to investigate their difficulty in becoming pregnant, while she "did everything the doctor ordered" (even though, in this case, the infertility problem was due to the male partner).

Men's resistance and embarrassment are understandable, particularly in this specific case, when one recalls that historically infertility was attributed exclusively to women. It became a men's problem also only with relatively recent research into spermatogenesis. It is not strange then to hear the domestic's account of her husband's accusations: "you're a sick woman; all women have children; you, nothing".

Even today, infertility is associated with impotence, which explains why men are more resistant to all the alternatives that become socially visible or are likely to raise doubts as to their fertility, such as donation of semen, surrogacy and even adoption. Men's embarrassment at exposing themselves to suspicions of infertility still seems to be quite strong, even among the upper and middle classes, as shown by the example of the former husband of a doctor whom we interviewed (both work in the health field), who preferred to resort to donation of semen rather than adoption – the only case that reported this "preference". To him, a donation of third-party semen could remain concealed by medical confidentiality, unlike adoption, which would make the couple's infertility problem public. The couple finally separated in the course of the treatment.

The secrecy surrounding recourse to assisted reproduction obeys this same logic. The women interviewed were unanimous in agreeing that the semen donor's identity should be kept secret. The group was divided as to others' knowing about the suspected infertility and the treatment measures: half saw no problem and even rely on the help of relatives and friends, while the other half preferred not to expose themselves.

Although confidentiality is proposed in ethical rules surrounding the use of the new technologies and contributes greatly to the difficulty of conducting sociological research in association with medical teams, this confidentiality is unlikely to be maintained in the environment of the doctor's consulting rooms – whether because thoughtless support personnel may inadvertently name the procedure that the patient in the waiting room is about to undergo or because the atmosphere of solidarity that sometimes reigns in these environments leads couples to exchange experiences with others in the same or similar situations.

CONCLUSIONS

These attitudes that generally surround the reproductive process in Brazil – the embarrassment in relation to infertility, the desire to have

children and to set up a family – lead one to believe that, unless significant changes in the value system – some already under way – occur and spread rapidly, demand for NRTs will increase, particularly if these services become accessible to a less limited portion of the population than is the case at present. However, there is nothing to indicate that this will occur as quickly as did the introduction and spread of these technologies in Brazil. Meanwhile – and contrary to the claims of assisted reproduction specialists – demand for these technologies is not spontaneous but induced by doctors themselves, which does not mean to say that the stimulated recourse to NRTs is not widely accepted and welcome. This because assisted reproduction responds to a "desire to have children", seen as indispensable to setting up a family, a project to which the women studied assign great value.

At the same time, an analysis of the historical process of the medicalization of sexuality and reproduction permits one to suppose that the NRTs may be reinforcing the ideas – already strongly marked by medical (and psychological) discourse – of life (understood as biological life), of motherhood/ fatherhood and of the imperative of procreation.

As we have seen, the child is seen as reflecting the parents, not only in the social sense of the term, but also and especially in biological terms, a representation that the reproductive technologies tend to reinforce.

It is in this sense that recourse to the use of donated reproductive material – semen, ovule, donated embryo, surrogate womb – is treated as something extraordinary and unjustified, as the presence of a "foreign body" in a process that is still seen by the group as eminently biological and as restricted to one single couple. Against these possibilities, adopting a child emerges spontaneously in the interviewees' accounts as preferable and, very often, desirable. Even in cases that do not involve reproductive material donated by third parties, however, the desire for genetic reproduction may, in certain circumstances, accentuate rejection of adoption as an alternative to infertility, thus contributing to reinforce the exclusion of numerous children, such as those that exist in Brazil. More importantly, however, there are limits on the "competition" that the NRTs may represent to the practice of adoption as a way of constituting a family – as shown by the rejection of donation of semen, embryos, etc. Moreover, the limits – or lack thereof – of science do not always coincide with the limits of individuals and the social groups to which they belong.

NOTES

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1. Some of these techniques – artificial insemination, for example – are actually very much older. This particular technique has gained new status, however, following the development of the freezing and storage of sperm in banks, and the opportunities for exchange and trade that resulted. Others are technically far more complex, as is the case of in-vitro fertilization (IVF) and its variants. These two groups of techniques are also usually divided according to whether fertilization occurs inside (the former case) or outside (the latter case) the woman's body. The set of new technologies also comprises ancillary procedures such as the freezing of semen and embryos, the practice of donating reproductive material and others being developed in parallel, such as sex selection and the diagnostic studies prior to implantation, as well as research with human cells and embryos. Finally, the cloning of human cells theoretically offers the possibility of procreation: in this case, reproduction would occur not only outside the sexual relationship, but outside the very division of the sexes itself. Unlike the other techniques, however, this one has not been made available on the medical services market.
2. The same year, even before the first Brazilian test-tube baby was born, a patient died as a result of complications ensuing from the treatment

and manipulations of in-vitro fertilization in that same doctor's clinic. Contradictorily, this unhappy case brought that doctor even greater "renown", at least in terms of the visibility of the "research" he was conducting in the field of human reproduction.

3. These two soap operas were produced and broadcast in the late 1980s by the same nationwide television network mentioned - Rede Globo. This investment doubtless reached a far greater audience than the press coverage – even more so considering the penetration that television achieves in everyday life in Brazil and the extremely high illiteracy rates there (an average of 18 per cent for the country as a whole), that exclude a large portion of its citizens from information conveyed by the print media.
4. In the fictitious Brazilian example, a wealthy woman hires the womb of a far poorer women who in the end expresses the wish to keep the child she has borne.
5. Ministry of Health / Cebrap "Comportamento Sexual da População Brasileira e Percepção do HIV/ AIDS" (Sexual Behavior of Brazil's Population and Perception of HIV/ AIDS), Pilot Project Report: Santos (São Paulo) and Jacobina (Bahia), 1996.
6. Universities are thus where the major innovations in the biomedical area have been introduced over the last thirty years, as occurred with heart surgery, hemodialysis, transplants, diagnosis by imaging, all initially centered on the major public and university hospitals of Brazil's large urban centers.
7. Of the roughly fifty in-vitro fertilization clinics in all regions of Brazil, only one – located at Campinas State University, in São Paulo State – is public.
8. In one of these initiatives, a medical team hired a Brazilian television network that had already paid to bring Australian specialists into Brazil that same year (1984), for the dual purpose of training a small group of Brazilian doctors in their new specialty and putting out a live broadcast on the technical procedures involved in in-vitro fertilization, which might result in the birth of the first test-tube baby, rights to which would be retained by that company (Reis, 1985 and Corea, 1987).
9. This was the French doctor, René Frydman, who to this day frequents medical circles in Brazil. We had the opportunity to interview him in 1996, when he came to Brazil for the third time. According to his declaration, to this day, he "receives many Brazilian doctors" at the assisted reproduction service he heads in Paris.
10. In the previous research cited (Corrêa, 1997), all the doctors interviewed reported spontaneously having been in contact with foreign specialists and centers in the course of their careers and emphasized the importance of this contact in the development of assisted reproduction in Brazil. However, Brazilian reproductive medicine is a feeble presence at the international level if one considers that, in all the issues of three international journals specializing in fertility (Fertility and Sterility, Human Reproduction, and Contraception, Fertilité et Sexualité) published over a 10-year period (1984-1994), we encountered only eight articles by Brazilian authors.
11. There is no space here for a detailed discussion, but it is worth indicating that the category of infertility is extremely poorly delimited by comparison with usual standards for establishing causality and nosology in medicine. This imprecision adds to the lack of definition to which those with reproduction difficulties expose themselves, a fact that weighs heavily in the current medicalization of childlessness and the abuses associated with it.
12. National Survey of Human Reproduction carried out by the Brazilian Analysis and Planning Center (Pesquisa Nacional sobre Reprodução Humana do Centro Brasileiro de Análise e Planejamento), between 1975 and 1978, which constituted a landmark in studies of human reproduction in Brazil.
13. It was asked about other agents: professor, priest or other clergy, job superior, colleagues at work, social worker, psychologist, books and specialist sources, pharmacist, neighbor, relatives and friends. Also studied were the pressure exerted by employers, particularly on working women, and the potential influence of the mass media.
14. This standard of controlled reproduction, induced explicitly or diffusely, was presented by the foreign agencies as a way of surmounting Brazil's underdevelopment, while the institutional agents themselves justified their actions, as a rule, as a way of "combating poverty", "reducing families' cost of living", and "preventing the social exclusion" caused when children are abandoned. Most curious is that these methods entered Brazil and spread in a context from which birth control-based population policy was absent: the Brazilian government even disapproved of the idea, which also drew strong condemnation from the Catholic Church and national left-wing political groups.
15. In fact, since the 1970s, one striking feature of Brazil's national health service has been health care based on the purchase of third-party private health services by the State, through the

National Medical Care and Social Security Institute (Instituto Nacional de Assistência Médica e Previdência Social, Inamps). This institution was extinguished in 1988 and, in its place, the Single Health System (Sistema Unico de Saúde, SUS) was proposed, which follows the same orientation in this particular.

16. In the last decade, the public and social security health system has deteriorated so severely and steadily that, whenever possible, even the poorest seek private sector medicine by way of private insurance. All types and qualities of the latter exist, obeying the logic of consumption, pure and simple, even though they fail to provide coverage for the greater part of those neglected by the State, which to date has not managed to develop a proper policy for controlling and orienting the growth of this medical services market. Some 30% of Brazil's population is covered by some kind of health plan or insurance. The gravity of the healthcare situation can be seen when considering that, in a context where the population is becoming steadily poorer, public per capita health spending is decreasing, presently standing at around US$ 50 per year (see, Berquó, 1995).
17. In Brazil as a whole, 50 per cent of married women with two children are sterilized, and 66.4 per cent with three. Sterilization rates in Brazil are "more than double those prevalent in the wealthy countries" and far higher also than the Third World, where the figure is 25 per cent of couples sterilized (PNDS, 1996).
18. The private sector continues to be the most important source for women in Brazil to obtain any kind of contraception method: in around 60 per cent of cases, the contraceptive was purchased in this sector. Among the methods used, the pill accounts for most cases: 90.5 per cent, in 88.2 per cent of which cases, it was bought in a pharmacy; the rest in hospitals, surgeries and private clinics. Only 7.8 per cent of oral contraceptives were distributed by the public sector.
19. As we pointed out at the start, the fact that the government pays for private sector medical acts directed primarily to profit has led to certain distortions, such as the most prescribed being the best paid. These include surgical deliveries, that have not stopped growing since the 1970s, to a number so high as to earn the name "the caesarian scandal". Aggravating this practice is the fact that, since that time, these operations have been used for purposes of sterilization – tubal ligation – both at the request of expectant mothers and by decision of the doctor. A study carried out in São Paulo State in 1988 shows that ligation is arranged with the doctor during the ante-natal care, before childbirth or even during delivery and, what is more appalling, in 32 per cent of the cases, women reported getting pregnant just so as to be sterilized during the surgical delivery. This, without a doubt, is the most deplorable aspect of ligatures in Brazil: their being done clandestinely as an illegitimate source of profit; because, in addition to being exploitative, this practice denies the right to choose even this very method, but in a context of enlightenment and as part of caring for women and their health (Berquó, 1993).
20. Neither is the fact that ante-natal consultations are offered at health institutions in Brazil synonymous with proper care in this period. The prevalence of anti-tetanus vaccination, for instance – one of the considerations evaluated by the nationwide survey considered here (PNDS 1996) and a very simple, beneficial procedure – is inadequate. Against the expectation of two doses of vaccine per pregnant women, in fact, around 40% of the women received no dose at all.
21. Despite the tendency for maternal mortality to decline in Rio de Janeiro, it is far in excess of what is to be found in developed countries and levels recommended by the WHO, which considers 20 deaths per 100,000 live births to be the maximum acceptable limit.
22. There are no studies estimating the cost of a IVF baby in Brazil. Marcus-Steiff (1990) indicates that, in France, each IVF attempt costs an average of US$ 3,000 and, in the United States, from US$ 3,000 to US$ 6,000. Considering the estimated failure rate of higher than 80 per cent, a pregnancy – which does not mean a guaranteed birth – could cost, at the time, more than US$ 25,000 to US$ 48,000 in those countries. According to Testart (1990), each attempt cycle costs around US$ 2,000 in France. With an expected success rate of 10 per cent, an test-tube would, according to him, cost around US$ 20,000.
23. Icsi (intracytoplasmic sperm injection) is a procedure of in-vitro fertilization, where one single spermatozoon is injected into the ovule. Through this new technique, a couple where the infertile impairment is attributed to the masculin partner, can try to reproduce bypassing semen donation.
24. The problem of the success rate is a very sensitive point in the use of NRTs. In addition to being low, it has become accepted practice in the scientific field to employ cosmetic procedures to disguise the limitations, in addition to the poor scientific practice in comparing the use of different reproductive techniques for different cases or indications. These facts are highly deserving of criticism.

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