Inequitable access to assisted reproductive technology for the low-income Brazilian population: a qualitative study

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Submitted on November 29, 2010; resubmitted on April 17, 2011; accepted on April 20, 2011

BACKGROUND: In Brazil, access to infertility care, including assisted reproductive technology (ART) is restricted. This is a second report of a study which evaluated the availability and access of low-income couples to ART services. The objective was to assess the perspective of health professionals and patients with respect to access to ART procedures within the public health network

METHODS: Qualitative case studies were conducted in five centres offering ART in the public sector. Semi-structured interviews were conducted with 19 health professionals based at these centres and 48 patients (men and women). Data were analysed using thematic content analysis.

RESULTS: All services implemented ART procedures using resources already available. In all except one centre, patients had to pay for the drugs used for the procedures and, in some cases, a fee to cover operative costs and supplies. These charges were incompatible with the financial possibilities of the majority of the low-income Brazilian population. The waiting time for access to ART varied between 3 months and 6 years. In the perspective of both patients and health professionals, the government should help centres to offer ART procedures at no cost to low-income populations.

CONCLUSIONS: The low-income Brazilian population has limited access to ART procedures at the public services. The implementation of ART services cannot be based only on initiatives of the professionals involved but must be part of public health policies. One possible solution is to provide ART at lower cost, making it accessible for a large part of the population.

Key words: assisted reproductive technology / equity / access / social class / public healthcare

Introduction

Most of the countries that participated in the International Conference on Population and Development, including Brazil, adopted the Programme of Action, a comprehensive concept of reproductive health including the prevention and treatment of infertility (United Nations, 1995). More recently, one of the targets of the UN Millennium Development Goals was ‘to achieve, by 2015, universal access to reproductive health’ (United Nations, 2000).

Infertility prevalence has been estimated globally between 8 and 10% of cohabiting couples (Lunenfeld et al., 2004; Larsen, 2005) and in developing countries is estimated as 9% [between 5% (low) and 15% (high)] and the demand for treatment was estimated as 56% [between 30% (low) and 75% (high)] (Boivin et al., 2007). The high infertility prevalence is correlated to the high prevalence of sexually transmitted diseases (STDs) in many developing countries (World Health Organization, 1991; Lunenfeld et al., 2004; Boivin et al., 2007).

More than 30 years since the first in vitro fertilization (IVF), infertility treatment including assisted reproductive technology (ART) is still inaccessible to many men and women in low-resource countries. In many cultures parenthood is important and infertile men, and women in particular, are often stigmatized (Ombelet et al., 2008a; Dhont et al., 2011). For many people, to be childless is a major life problem associated with strong psychological consequences (Greil, 1997; Brkovich and Fisher, 1998; Van Balen and Inhorn, 2002; Inhorn, 2009; van Balen and Bos, 2009), including distress, anxiety,
depression, low self-esteem, feelings of blame and guilt and reduced sexual interest. Elderly people without children have less social support, and childless couples may have difficulty communicating how they feel to friends with children, and perceive negative attitudes from their social world (van Balen et al., 1996; Greil, 1997; Dyer, 2007; Schmidt, 2009). Infertility can lead to marital demise, physical violence, emotional abuse and social exclusion. This situation may induce women to seek ineffective therapies (Ombelet et al., 2008a; Inhorn, 2009; Dhont et al., 2011). Consequently, access to the diagnosis and treatment of infertility, including ART, contributes to resolving social inequities and emotional difficulties.

In developing countries, infertility care and access to ART has received little attention and are neglected by governments. Services are frequently unavailable or available at high cost for majority of the population (Van Balen and Gerrits, 2001; ESHRE, 2007; Vayena et al., 2009). The main reasons justifying the lack of these services were that there are other urgent and life-threatening health problems (Okonofua, 1996; Nachtigall, 2006) and the idea that ART demands high technology in a scenario with limited resources.

The World Health Organization (WHO) convened a meeting in 2001 in which it was recommended that infertility be considered a global health problem, and also that it required new innovative approaches like low-cost ART for low-resource settings (Vayena et al., 2002). Since then, several initiatives have been launched. The European Society for Human Reproduction and Embryology (ESHRE) established a Task Force on Infertility and Developing Countries being one of the mandates to explore ART innovations that can be useful in the developing world (ESHRE, 2007). In 2007, the Low-Cost IVF Foundation was established to encourage resources already existing at the institution used, how the centre was organized and the relationship between these centres and the health sector. The main objective was to assess the perspective of health professionals and patients with respect to access to infertility services providing ART within the public healthcare network in Brazil.

**Methods**

This study based on qualitative case studies (Patton, 2002; Turato, 2003) was conducted between June 2008 and June 2009. The study was approved by the Institutional Review Board of the University of Campinas (UNICAMP), Campinas, Brazil and the Review Boards of each of the institutions in which the participating centres were located. All participants signed an informed consent form.

Based on our previous study (Makuch et al., 2010), following the criteria for purposeful sampling (Patton, 2002), five centres were selected. The criteria were: one centre in each of the five geographical regions into which Brazil is divided among the centres which offered IVF and/or intracytoplasmic sperm injection (ICSI) and offered ART under partial or total coverage of the SUS. No services were identified in the northern region of Brazil. Two centres were selected in the southeast region (the most developed region in the country) because the highest number of centres offering ART was located in this area and was the only region with a centre which provided ART at no cost for patients.

Semi-structured interviews (Turato, 2003) were conducted with the coordinator of the centre, health professionals and patients (men and women). Three interview guides were prepared: for the centre coordinator, for the health professionals and for the patients. All the guides had some common topics related to patients’ access to the centres visited and to ART procedures, including scheduling procedures, waiting times and payment for ART. The guide for the coordinators of the centers also included issues related to resources were linked within infertility services to offer ART procedures, how and when these procedures started to be offered, resources already existing at the institution used, how the centre was organized and the relationship between these centres and the public healthcare system. This last issue was also included in the interview guide for health professionals.

Telephone contact was established with the coordinator of the centres and the visit was scheduled. At the time of the visits, patients in the waiting room who were participating in the ART programme were invited to be interviewed. Before initiating the interviews, researchers made sure that the patients clearly understood that not participating in the study would not affect their treatment in any way, and that participation would not offer any benefits. Participation of health professionals and patients was voluntary and all interviews were conducted in a private room.

Interviews were recorded, transcribed verbatim and checked against the recordings before analysis. Transcripts were organized according to units of significance and thematic content analysis was performed (Huberman and Miles, 1994; Minayo, 1998). Analysis was performed by one investigator (K.S.P.) and checked by a second investigator (M.Y.M.). Therefore, data analysis was a process of defining and redefining themes, and linking them back to the accounts given by the health professionals and patients. The focus was on themes that came up in all the interviews and themes that, although not present in all interviews, seemed pertinent to the objectives of the study. The main themes were grouped as follows:

(i) ‘Linking resources within infertility services to offer ART...
procedures'; (ii) ‘Access to ART procedures'; (iii) ‘Cost of ART procedures'; and (iv) ‘Suggestions to improve access to ART procedures’. Given the fact that certain issues are common to two or more of these themes the authors acknowledge that there is some overlap. Quotations from the transcripts were used to illustrate the results presented.

Results

Nineteen healthcare professionals were interviewed: 12 physicians, 4 nurses, a social worker and 2 psychologists. Of these, 10 were women and the mean age was 38.5 years (range 24–58). Among the physicians, the mean time since their graduation was 17.5 years and the mean time of their employment at an ART centre was 15.3 years (range 1.5–29). All the 48 patients invited to participate, 28 women and 20 men, irrespective of whether or not they were couples. The mean age of the women interviewed was 35 years (range 25–45). Thirteen women had completed high school and seven reported that their partners had children from a previous relationship, while two women had adopted children and four had children with their current partner. At the time of the interview, 17 women were undergoing an IVF or ICSI cycle, 8 were waiting to initiate a cycle of IVF or ICSI and 3 had already completed one cycle of IVF or ICSI. Regarding men, the mean age was 35.5 years (range 30–41) and 10 had completed high school. Sixteen had no children; of those with children, two reported that the children were from their current relationship, one reported that the child was from another relationship and one had an adopted child. Thirteen men were undergoing an IVF or ICSI cycle, while five were waiting to begin an IVF or ICSI cycle and two had completed one cycle of IVF or ICSI. No cases of patients who had used donated gametes or embryos were reported.

Linking resources within infertility services to offer ART procedures

The coordinators of all the services visited had been involved in the initial institutional discussion and linking resources to implement and maintain ART procedures as part of the attention offered to couples in their infertility services. Of the five services that offered ART, four were located at public university teaching hospitals and one at a state public hospital. All initiated their activities at the beginning of the 1990s, some initially offered low-complexity procedures such as intrauterine insemination while preparing the services for the implementation of the more complex procedures: IVF and ICSI.

Teaching hospitals maintained by the federal or state universities utilized resources already existing such as physical space, human resources, technical capacity and, in some cases, partial laboratory facilities, to implement ART procedures. Also partial financial support was obtained from these universities for equipment or to adapt the facilities to comply with requirements for ART. One of the university services had prepared a new area for ART and begun negotiations with the State Health Department for the provision of laboratory equipment and supplies. In the mean time patients with indication to ART were referred, in a very restricted number (2–3 per month) through a temporary agreement to a private clinic. Only the service located at a state hospital in the most developed state of the country (São Paulo) received funding for human resources, laboratory capacity and supplies and for the drugs for patients from the State Health Department making it possible for this service to offer ART at no cost for patients.

In all services included in the study in which the patients needed to pay for the procedure, a common strategy to reduce the cost of the treatment was to perform some procedures, like ultrasound monitoring or laboratory tests, through the SUS. The above-mentioned procedures are part of the list of approved procedures performed under coverage of SUS for infertility and other gynaecological conditions. Other costs, such as the drugs used for follicular development, and in some cases anaesthesia, disposables and a fee for the general operative costs, were charged directly to the patients. Despite the strategies used to reduce costs, services were unable to offer ART at no cost for patients or at an affordable cost to the lower-income classes.

Coordinators of the visited centres recognized that the services did not meet the needs of the most under-privileged segments of the population, as well as that the population served by their centres would have been unable to pay the cost of ART procedures at private clinics. Two of these centres also provided services for profit at a different schedule and at a higher cost. The income obtained helped to maintain the laboratory; however, it was not sufficient to support the clinic or to provide services at no cost to those unable to pay for them.

Access to ART procedures

Based on information provided by both healthcare professionals and patients, two patterns for scheduling a consultation to initiate ART procedures were identified. One was through the SUS referral system: patients had to consult first at a basic healthcare unit in order to be referred to the infertility service where the procedure was performed. The other way of scheduling was directly at the ART service.

Man, no children, south region: ‘She went to the service and was referred by the public health unit nearest our house and then when she got home she said to me:—The only problem is that it’s going to be a long process’.

Before scheduling consultation for ART patients needed a screening consultation followed by an informative meeting. Only in one service the routine was different: the first contact was an informative meeting at which the ART procedures and the cost that the patients would have to pay were explained, afterwards the screening consultation was scheduled. Couples who needed surgery or treatment prior to initiating ART procedures had an additional delay, mainly related to where the procedure would be done: in a public service, in a Health Maintenance Organization or in a private clinic. Patents sometimes had to wait for several months before managing to perform them within the public healthcare network.

After completing these initial routines, couples were able to schedule the ART procedure. All services determined the number of new consultations per month or per cycle of ART and this was one of the reasons for the waiting time. In the centre in which ART was at no cost for patients only 40 new consultations per month and women up to 45 years old were accepted. Older women were referred to ovum donation. The waiting time for IVF and ICSI was as much as 5 years. At the institution that performed ART through an agreement with a private centre, it was not possible to calculate
the waiting time, since there were 400 couples on the waiting list, and an average of only two couples per month initiated treatment. In the other services the waiting time varied from some months to some years.

Woman, no children, southeast region: ‘That was it, when all the tests were ready, I had to wait for four years, [it’ll be five years now]. I am still waiting’.

Health professional, northeast region: ‘All the couples are listed in a book, and these patients, after they get into the book, we actually had to stop including names because we already had over 400 patients listed and we knew we would not be able to cope with that amount’.

According to the patients, the bureaucracy for scheduling, the delay in making an appointment for screening or for the initial consultation at the ART centre and the entire procedure of obtaining ART was difficult and constituted a hurdle. According to the health professionals, the services were unable to attend to the existing demand for ART procedures. However; they were unable to estimate how large this unmet demand might be, since they only had contact with the patients who had managed to gain access to the service.

Health professional, southeast region: ‘The demand is enormous, we already have a 4-year waiting list; we had to limit access; we limited access to 40 new couples a month; so those that manage to schedule a screening appointment by telephone get into the clinic; those that don’t, just have to try again’.

Cost of ART procedures

Except in the centre that offered services at no cost for patients, in the other clinics patients had to pay. Both professionals and patients mentioned costs of ≏US$2000 per IVF/ICSI cycle only for the medication, reaching US$3000 per cycle in the cases when the additional fee was added. In one of the clinics which charge some costs for ART, the established policy was: one couple in every 10 was selected, in accordance with social criteria, to be exempted from paying. One of the healthcare professionals at this service estimated that slightly over half of those seeking treatment actually received the treatment, and the others joined the waiting list of those who were soliciting exemption.

Health professional, central region: ‘We do not have an agreement with the SUS for these services. So, it costs around ≏US$550–750, which patients have to pay to the foundation that maintains our laboratory, and patients will have to buy the medication. . . . I would say that around 60% of the patients end up having the treatment, while for the remaining 40% we have a waiting list that we refer to as the ‘unable to pay’ list . . . we treat one couple from this list free of charge, yes, one or two for every 10 procedures’.

Some patients reported that they had learned that the procedure was not free at the screening visit and the majority considered that the costs were ‘very high’ and this was consider the greatest difficulty to access ART. Furthermore, some couples said that they had planned and saved, whereas others reported having taken a loan or sold possessions.

Woman, no children, southeast region: ‘We sold a truck that we had and used some of the money to buy the medication’.

In some clinics both health professionals and patients said that the medication had a discount if patients showed a card given at the clinic when acquiring the medication at the pharmacies recommended by the clinic. This practice is not allowed by the Brazilian Federal Public Health Authorities (Brasil, 2010).

Man, no children, northeast region: ‘They gave my wife a little card that is good for some of the medication; there is one drug that has a discount of 40%; others have 30%; an injection that costs US$700, with the discount the price goes down to almost US$400’.

Suggestions to improve access to ART services

The principal suggestions made both by professionals and patients stated that the SUS should offer this kind of treatment in more institutions and subsidize ART in order to facilitate access. Moreover, they also said that more clinics offering this type of service should be implemented to reduce the waiting time and the waiting lists on which it is also unclear as to how long patients have to wait. They emphasized that faster attention should be provided to older women, who have less time in which to become pregnant. Also patients suggested that more information on ART services should be provided in the media; that the procedure for scheduling appointments should be simpler and faster, and that the time between screening and the first consultation should be shorter and the criteria governing the waiting lists should be clear. Table I presents a summary of the main information from the five visited centres.

Discussion

Our study gives more in-depth comprehension of the inequity presented in a previous quantitative study (Makuch et al., 2010) showing that the access of Brazilian low-income couples to ART within the public healthcare network is extremely limited. Only one centre among the five visited provided ART at no cost for the patients. Nevertheless, it is necessary to take into account that the main limitation of our study was that the selection of the case study was based on information provided by state and municipal policy makers (Makuch et al., 2010). Therefore, we cannot affirm that all infertility centres linked in some way to public health were identified. Another limitation is that we only interviewed patients who already reached the ART centre and with more or less difficulties gained access to perform a procedure. Our study does not represent the needs of the whole infertile population, because it is unlikely that the poorest infertile individuals gain access to the ART centre.

In Brazil, the extent of the inequity to access to ART becomes evident when we take into account that almost three out of the four million infertile women depend on public health services. In our study, ~50% of the interviewed men and women reported having completed 11 years of schooling. In Brazil, the average number of years of schooling is 7.1 years (range 5.9–9.2) and only 30% of the population has >11 years of schooling (range 21.9–35.6% according to geographical region). Additionally, in a national survey a direct correlation between higher years of schooling and higher income can be observed (IBGE, 2010). Based on this information we can affirm that at
the public sector ART centres visited the poorest were not being cared for.

The fact that couples need to pay for the medication and in some cases also an extra fee constitutes a barrier. It should be taken into account that the cost reported by health professionals and patients was between US$2000 and US$3000 per IVF/ICSI cycle in a country in which only 5.3% of the total population earns this amount as a monthly income (range 3.8–8.1%). In many cases the cost of one IVF/ICSI cycle is more than half of an average individual’s annual income (IBGE, 2010). Another barrier reported both by patients and professionals are the long screening process and the long waiting time, up to 5 years before initiating ART which constituted a difficulty as time passed mainly for older women aged over 35 years (Daar and Merali, 2002; Dyer et al., 2002).

Despite the fact that many social movements have advocated for reproductive health rights, including the right of all individuals to found a family, less effort has been dedicated to inequity in infertility by the Brazilian authorities, including access to ART. However, this statement should be interpreted with caution because the work-up and treatment of infertility in developing countries is a challenge and it is possible that policy makers do not wish to compromise already limited resources, human resources and facilities by assuming the cost of expensive infertility services including ART in a country with major other life-threatening diseases such as maternal and infant mortality, high HIV and AIDS prevalence, other infectious diseases like malaria, dengue and yellow fever among others (Okonofua, 1996; Nachtigall, 2006).

It was stated (Nachtigall, 2006) that ‘relatively few of the world’s infertile men and women can be said to have complete and equitable access to the complete range of infertility treatments at affordable levels’. This statement could also be valid for Brazil; however, to our knowledge there are no national studies in which infertile women and men were interviewed regarding their perspectives on access to affordable infertility services (van Balen and Bos, 2009). Many women in developing countries are exposed to more situations that may provoke infertility like early sexual debut, STD and unsafe abortion (Ombelet et al., 2008a), and the fact of their urgency to resolve their childlessness poses a high demand for infertility care including ART (Van Balen and Gerrits, 2001). However, it is not acceptable to require more public funds to offer ART for a large low-income population at the basis of no cost for patients if there are no policies and/or clear commitment of the services to offer more affordable options of ART, in order to use restricted funds in an appropriate approach (Blackwell et al., 2001).

In a recent declaration several countries, including Brazil, recognized health as an important issue emphasizing the integration of reproductive health into health services (Oslo Ministerial Declaration, 2007). It is also important to consider that, although individuals who require ART are not receiving the care they need in accordance with the philosophy of integrated, universal healthcare, the principle on which the SUS was founded, what does exist satisfies part of these needs, as confirmed in this study, and serves as a good starting point from which to improve towards equity in healthcare.

The common ground between health professionals and patients refers to the fact that the government needs to help the low-income population achieve their reproductive desires, and this includes providing ART. Implementation of ART centres cannot be simply a voluntary process initiated by some professionals with some policy makers. A

<table>
<thead>
<tr>
<th>Centre/region</th>
<th>Access to ART</th>
<th>Payment</th>
<th>Waiting time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Southeast</td>
<td>First consultation scheduled by patients on a specific day determined by the service, no formal referral was required. Triage, if necessary other procedures were performed, scheduling for initiation of ART procedure.</td>
<td>At no cost for patients</td>
<td>To schedule the first consultation to gain access to ART service a few months. After that, to perform ART, between 2 and 6 years.</td>
</tr>
<tr>
<td>II. South</td>
<td>First consultation scheduled through the municipal central system, referral from health unit required. Triage, if necessary other procedures were performed, scheduling for initiation of ART procedure.</td>
<td>For the drugs</td>
<td>To obtain the first consultation between 3 months and up to 4 years. After obtaining consultation at ART centre ~3 months to initiate treatment.</td>
</tr>
<tr>
<td>III. Central–West</td>
<td>First consultation scheduled through the municipal central system referral from health unit required. A determined number of consultations for each month (20–25). Triage, if necessary other procedures were performed, scheduling for initiation of ART.</td>
<td>For the drugs and fee for the laboratory</td>
<td>Referral from the primary health network to the ART centre between 2 and 3 months. After triage and initial exams, the waiting time for initiating ART procedures was between 2 and 3 months and up to 1 year.</td>
</tr>
<tr>
<td>IV. Northeast</td>
<td>Referrals to the reference centre for infertility consultation trough the health units. Very difficult to schedule an infertility consultation due to the high number of patients. Triage, if necessary other procedures were performed, scheduling for initiation of ART at a private ART centre.</td>
<td>For the drugs</td>
<td>Not estimated. Waiting list of 400 couples, 2 couples were scheduled to initiate ART procedures per month.</td>
</tr>
<tr>
<td>V. Southeast</td>
<td>Patients scheduled the first consultation directly at the ART centre, no need for a formal referral. After informative meeting, first consultation was scheduled. Triage, if necessary other procedures were performed, scheduling for initiation of ART.</td>
<td>For the drugs</td>
<td>If patients can pay for the drugs and do not need other procedures they can initiate ART procedure 2–3 months after informative meeting. The delay to initiate procedures is due to patients’ lack of resources for the drugs.</td>
</tr>
</tbody>
</table>
big arsenal has to be mobilized, which has to include human resources, facilities, equipment, supplies, drugs and out-of-hours personnel, among others (Ombelet et al., 2008a). A recent example that may help policy makers find solutions to enable the poorest of the population to achieve their reproductive desires is from Egypt, a country which implemented a system to offer ART for the poor segment of the population (Inhorn, 2003). Ombelet and Campo (2007) also reported examples on possible solutions that could help infertile couples in low-resource areas of the world.

Fifteen years has lapsed since The Cairo Conference (United Nations, 1995) and it is time to reevaluate reproductive health rights and take action, including infertility care, as stated in the declaration guaranteeing access of the low-income population to well-equipped and staffed infertility centres. At the time of the study there were 56 registered clinics providing ART in Brazil (REDLARA, 2009); however, there was no information on whether the clinics are of the public or private sector or both. Health professionals mentioned that the government should help the existing centres that are already providing ART to extend assistance to more low-income couples. In general, these professionals did not make any mention to the possibility of performing ART at more affordable costs in the future (low-cost stimulation protocols and low-cost laboratory procedures) which are currently being tested (Ombelet and Campo, 2007; Frydman and Ranoux, 2008; Ombelet et al., 2008b; Ombelet, 2009).

The existing centres albeit located mainly at the public teaching hospitals are currently offering ART charging a fee for patients, although it is a right to receive medical care at no cost. One possibility of reducing the existing inequities is to invest in these centres to provide attention at no cost to low-income patients. However, it is important that the provision of services be under appropriate care which could reduce inequity, avoid the inappropriate expenditure of funds, help reduce malpractice and improve results (Jones and Allen, 2009).

Our findings reveal that it is possible to take initiatives to make ART available to the less privileged sector of the society, by organizing existing resources. However, it is necessary to take one more step beyond the initiatives of health professionals, which includes a political commitment of policy makers. We agree with Fathalla et al. (2006) that now is time to cross the boundary from talking and writing to commitment of policy makers. We agree with Fathalla MF, Sinding SW, Rosenfield A, Temmerman M. 'Infertility and social suffering: the case of ART in developing countries. In: Vayena E, Rowe P, Griffin PD (eds). Current Practices and Controversies in Assisted Reproduction. Geneva, Switzerland: World Health Organization, 2002, 15–21.

To assess the magnitude of the infertility problem, countries need national prevalence data in order to decide resource allocation (Nygren and Zegers-Hochschild, 2008). With this information, it is recommended that countries conduct need assessments of the local capacity to provide ART. The present findings may encourage policy makers to reconsider the attention given to infertility and ART in low-resource countries.

Acknowledgements

Authors would like to thank all the participants for sharing their experiences, particularly men and women patients of the ART services visited.

Funding

This study was partially supported by the Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP), award # 07/00055-9 and the Conselho Nacional de Pesquisa (CNPq), Brazil under award # 573747/2008–3.

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Authors’ roles

M.Y.M., C.A.P., M.J.D.O. and L.B. contributed to the study design and M.Y.M. and K.S.P. to the data collection and analyses. M.Y.M. and L.B. wrote the first draft of the manuscript. All authors participated in the reporting stage and have seen and approved the final version of the manuscript.