Infertility and reproductive technologies: contradictory Russian development and possible population impact

1. Infertility incidence

Russian medical workers and functioners usually state that infertility rate in this country is above 15%, though most often no scientific evidence is provided as a foundation for this figure[1].

According to the data, analyzed by Russian demographers, the share of women who have not had any birth during all their reproductive years, is only 6-7%, and if we take into consideration only those who were married at the moment of population sensus, the figure is even lower at the level of 3-5%. However, it must be emphasized here that such figures do not account for secondary infertility, which might be the reason impeding some people from fully fulfilling their reproductive intentions.

It is also ought to be noted here that, according to widely spread beliefs of Russian population, a couple cannot be infertile if they have at least one child[2] In addition, public at large tends to think that all IVF children are very different from the others and have various physical and mental deficiencies. These ideas are intensified by some public persons, such as Alexander Baranov, major Russian Pediatrician, who insists in all his public speeches[3] that waste majority, if not all, IVF children have serious birth defects, and infertility is caused by female sexual misbehavior resulting in abortions and venereal diseases, and therefore ought to be treated without any governmental help in order not to further facilitate such improper actions.

As a result, infertility in Russia still has a profound stigmatizing aspect about it, therefore figures on its incidence received through representative surveys of population on the whole might be lower than real rate due to strong preference of infertile people for hiding their real situation from the others.

On the other hand, some epidemiological research on this issue, executed according to methodology recommended by WHO, had took place in some Russian regions, and not nationwide. Normally, their results are not presented to population and remain known within the community of medical professionals only.

Some of these researches covered all population of studied areas, while others were random sample surveys. These studies took as their basis WHO definition of infertility (one year of absence of conception in the conditions of unprotected sex with frequency of intercourse not lower than 4 times a month, irrespectively of whether a woman had pregnancies before or after that period) and were conducted among women of 18-45 years of age on the basis of individual files from female clinics (according to Russian regulations, all women, irrespectively of how healthy they are, have their files in such clinics). Research of this kind allows to account not only for primary, but also for secondary infertility which might be a serious factor impeding couple from achieving their initially planned family size.

These epidemiological researches provided with very different results on infertility in various regions. Ii was found out that in Tomsk region in 1996 and 1999 years, 16,7% of women were infertile versus 8,2% in the city of Troitsk in Moscow region in 1999 and 18,95% in the cities/21,3% in rural area of Irkutsk region in 2006-2007[4]. Such differences in date evidence that

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[1] For example, recent declaration by Valentina Shirokova, director of Department for Development of Medical Help to Mothers and Children on Xth All-Russian scientific forum “Mother and child”, the 2009 September the 29th: «Rate of infertile marriages in Russia is above 15%, and, according to WHO, this is a critical level" (available in Russian on http://www.minzdravsoc.ru/health/child/45)

[2] Online survey by GFK-Rus in 4 large cities of women between 20 and 40 years of age. 47% also believe that infertility is not correlated to woman’s age, and only 34% are aware of existence of male infertility. medportal.ru/mednovosti/news/2009/06/19/ivf/

[3] http://medportal.ru/mednovosti/news/2009/09/28/ivf/

[4] Kuzmenko E. T., Cliniko-epidemiologicheskie aspekty zhenskogo besplodiya na primere Irkutskoi oblasti, Russian Academy of Medical Sciences, Siberian Branch, Eastern-Siberian Scientific Center,

it is improper to give average evaluations for Russia on the whole, and that appropriate nationwide research on infertility incidence ought to be conducted (as well as comparative researches of different territories and populations are needed).

Some date on infertility incidence are also provided by nationwide representative investigation "Perents and children, men and women in family and society"[5]. Among the others, in its questionnaire there was a question "How do you think, would you be physically able to have children now, if you so wanted". This question was answered in 2007 by 3361 females and 2171 males aged 18-49. According to answers, 16,5% doubt their physical ability to have a child (8,3% said they definitely cannot do so). For men figures are much lower (hypotetically, due to more stigmatizing nature attributed to male infertility, largely associated with impotence, in Russian context): 1% who definitely can not and 1,4% doubt they can. In addition to stigmatizing nature, which most probably causes figures being lower than real problem incidence, it is important to mention that in the context of such a research answer on such a question is based on self-evaluation, and the respondent might not be aware of real state of his or her reproductive health.

Distribution according to woman's age shows that self-evaluation of their fertility is the highest among 20-24 years olds (only 0.9% thinks they are probably or definitely infertile) and then gradually diminishes to the age groups of 40-44 to 45-49 (20.1 and 41.4% respectively)/ This echoes views of Russian medical practitioners, including reproductologists, that female fertility diminishes with age, and only about 30% of 40+ y.o. can get pregnant without doctors help[6]. Self-evaluation of 25-29 y.o. infertility from the research being cited provides with figure 4.1%. 4.9% for 30-34 y.o., and 11.3% for 35-39 y.o. 82% of women considering themselves most probably infertile belong to the age group of 40-49 year olds.

In addition, 91% of women self-evaluated as in- or sub-fertile 91% already have children and 85% of them do not want any more children. Two thirds of those who have doubts in their fertility (excluding 40+ from this group) believe that reproductive technologies can help them resolve this problem if they so wanted.

Irkutsk study (Kusmenko 2006) also provides with information on main reasons for (female) infertility in the area which consist of (in the order of incidence, from high to low):

In the city

- Menstrual cycle disorders (primary infertility),
- Endometriosis (secondary infertility)
- Consequences of ectopic pregnancy
- Pelvic Inflammation disease
- Complications of the last pregnancy (including that ended in abortions)

In rural area

- Menstrual cycle disorders (primary and secondary infertility)
- PID (secondary infertility)
- Ectopic pregnancy
- Complications of the last pregnancy (including that ended in abortions).

It is interesting that endometriosis looks like the "civilization disease", causing infertility almost only among urban and not among rural women. Another interesting issue consist in the fact that main reason for female infertility in both urban and rural context consists in hormonal disorders and not in the consequences of abortions and STD.

Scientific Center for Medical Ecology, thesis for the degree of Candidate of Medical Science, Irkutsk, 2008, manuscript copy.

5 Roditeli I deti, muzhchiny I zhenshiny v semie I obshestve, Nezavisimy institute sitsialnoy politiki, Maleva T.M, Siniavskaya O.V., eds., Moscow, NISP, issue 1, 2007

6 Personal conversation with Kamilova D.P., reproductologist from Moscow IVF clinic "Mat I dita" ("Mother and child").

However, hormonal disorders are more severe in the cities (absence of ovulation in 51% of cases versus 32%, hyperprolactinemia 22.5% versus 12,6%).

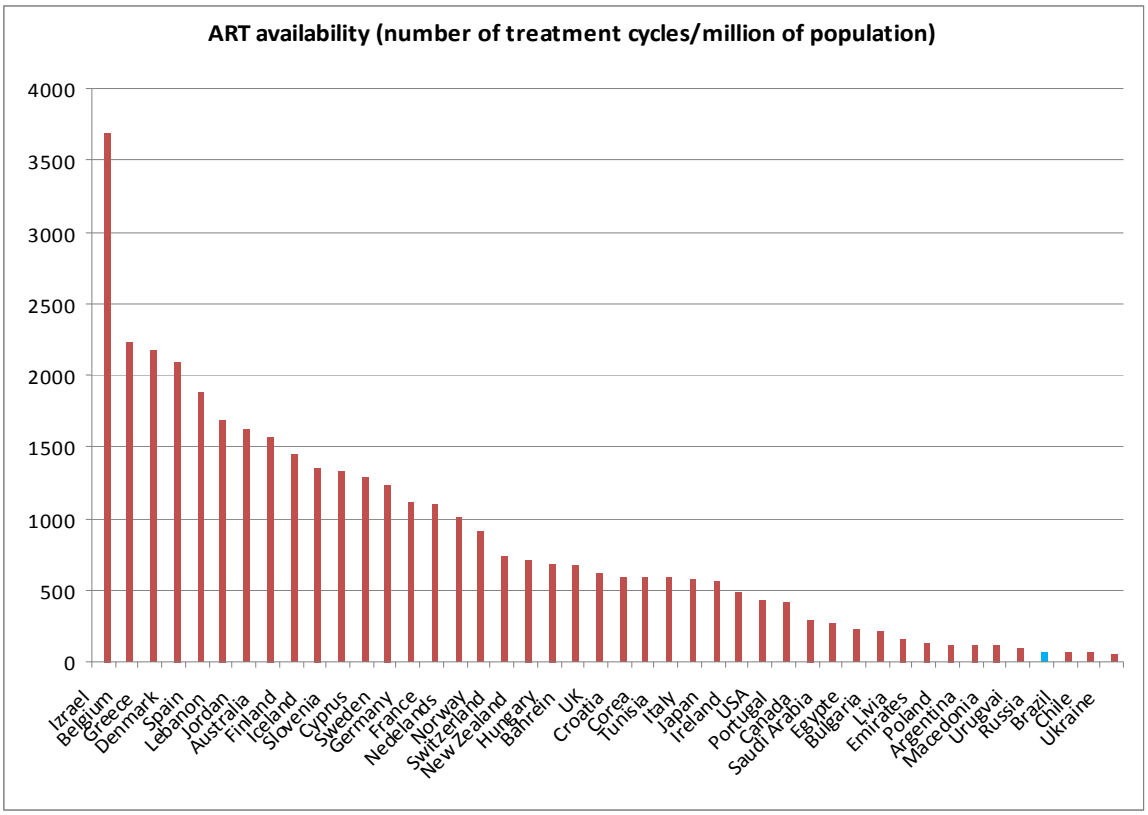
In 35,8% of cases male partners were also in- or sub-fertile (much higher figures comparing to self-evaluation above).

2. Infertility treatment and Assisted Reproductive Technologies.

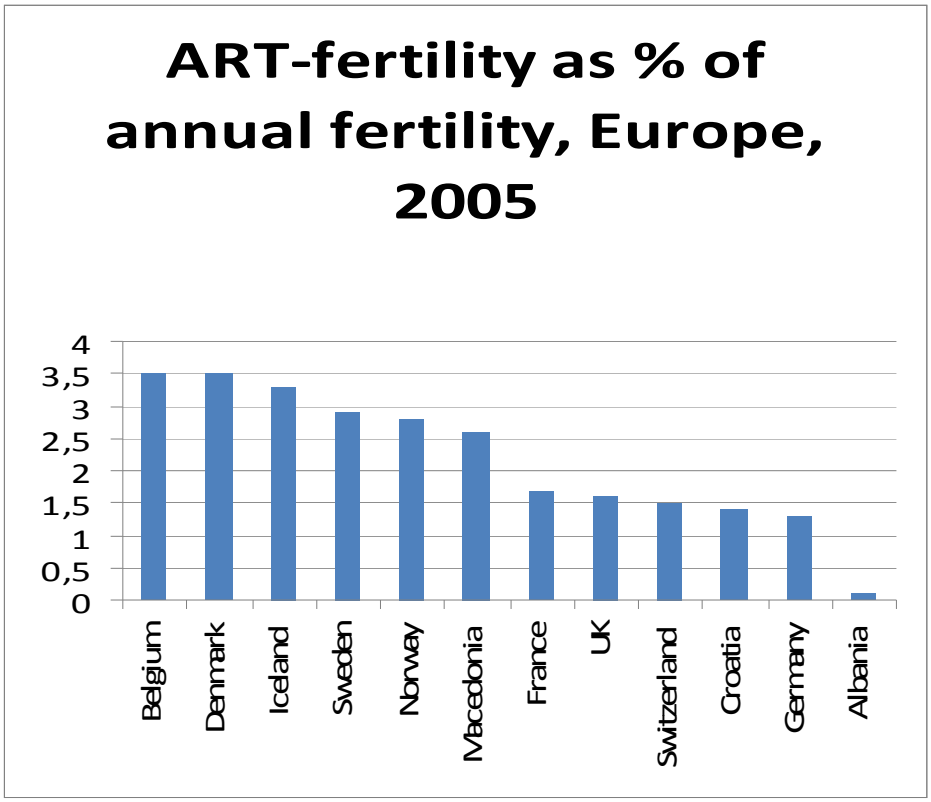
Currently, traditional methods of infertility treatment, in Russia as well as in the rest of the world, gradually but steadily yield the field of the battle to ART. This is only partly due to ART somewhat higher success rate. The other reasons, as everywhere, include lobbying on the part of reproductive clinics and pharmaceutical companies. According to contemporary Russian medical norms, now a couple or an individual ought to undergo only 2 years of traditional medical treatment before being referred to IVF clinic (in the 1990-s, this period often was 8-10 years).

Development of ART, however, answers growing need of modern people to fully control their fertility, being "the other side of the coin" of modern contraception development. Growing popularity of ART, as well as growing figures of percentage of ART-conceived children in some countries, is associated not only with comparatively more generous state policy in the area of reimbursement of ART treatment to patients, but also with the tendency of motherhood becoming older in all developed countries.

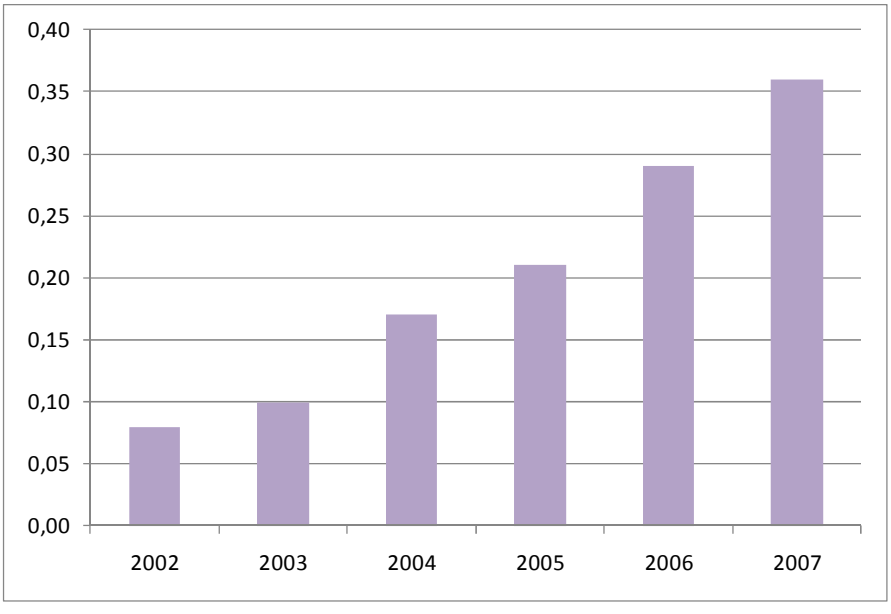
Demographic impact of technologies directly correlates with the index of number of IVF treatment cycles per million of population. In Russia in 2002 it was only 68, while this year leader was Izrael (3688). Accordingly, ART availability to those needing it was there much higher, much higher should be the result as well. According to this index, ART availability is especially high not only in some developed "Western" countries (Belgium, Greece, Denmark, Spain, Australia, Finland, Iceland, Slovenia), but also in several Near East countries such as Lebanon, Jordan, Cyprus.



Percentage of ART-conceived birts in overall country fertility is the highest in the most generous countries with developed network of IVF clinics:



In Russia now there already is about 100 of IVF clinics, but they are geographically very unequally spread, this further diminishing access to them for the majority of population: 41,9% of clinics are located in Moscow or Saint-Petersburg. As a result of low (although growing) availability of IVF to population, in 2007, only 0,45% of annual fertility in Russia was made by ART conceived children. It must be stressed again that this percentage grows very fast every year:



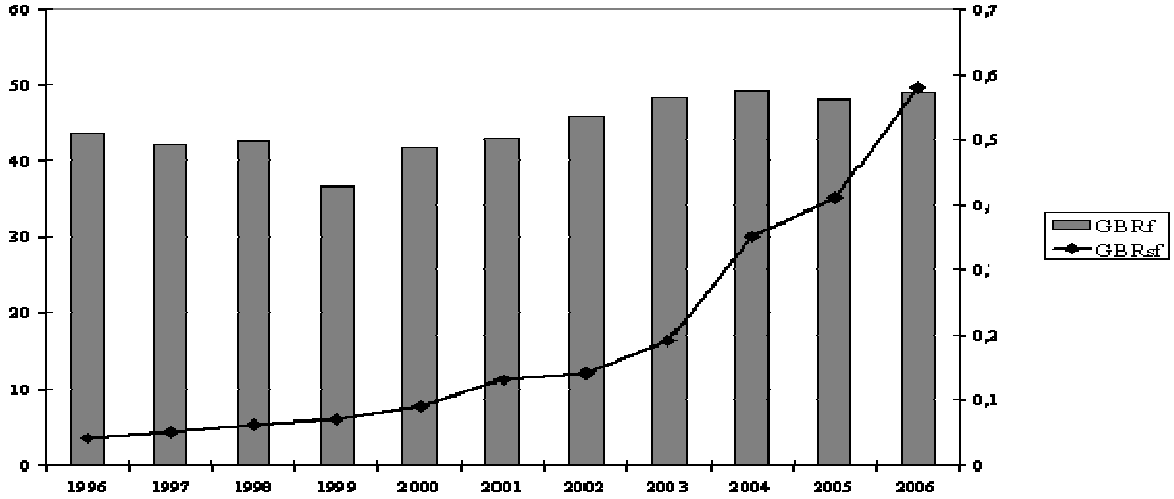
We can also see that in Russia, as well as in other developed countries, the share of older IVF/ICSI patients steadily grows (for example, in IVF cycles, their share was 33,1% in 2005, 33.4% in 2006 and 39.4% in 2007)

However, in many other European countries age of patients in IVF programs is higher (Russia being in this respect similar to Albania, Poland, and Ukraine, where the majority of IVF

patients are<34): in Switzerland, Italy, Spain and Ireland the majority is 35+, and in Germany, France, Norway, Hungary both age groups are approximately equally present.
Our calculations for GBRf and TFR considering its ART-related components also show significant demographic potential of ART in our country:

Russia: «natural» fertility is almost stable,

While ART-fertility growths



On the whole, very diverse researches show that infertility in Russia is a problem of rather serious social and medical importance. And, from the demographic point of view, realization of state programs of financial help to infertile couples and individuals in what concerns infertility treatment might provide with statistically significant impact in fertility grows only on a condition of growing ART availability to population, diminishment of concerning prejudices among population on the whole and high state functioners, and continuing tendency of growing mother age at birth of her children, which is present in Russia as well as elsewhere, though hypothetically the process did not reach its full extent yet.
In the other words, the older with be average age at motherhood, the more pronounced will be demographic value of ART.

TFR components