

## Declining birth rate in Developed Countries: A radical policy re-think is required

Geeta NARGUND

President, International Society for Mild Approaches in Assisted Reproduction (ISMAAR: [www.ismaar.org](http://www.ismaar.org))

Chief Executive, Health Education Research Trust ([www.hertrust.org](http://www.hertrust.org))

Medical Director, The Centre for Reproduction and Advanced Technology, London ([www.createhealth.org](http://www.createhealth.org))

Correspondance at: [geetanargund@gmail.com](mailto:geetanargund@gmail.com)

There is a concern about declining birth rates in both the developing and developed world ([www.rand.org](http://www.rand.org)). Fertility rates tend to be higher in poorly resourced countries but due to high maternal and perinatal mortality, there is a reduction in birth rates. In developing countries children are needed as a labour force and to provide care for their parents in old age. In these countries, fertility rates are higher due to the lack of access to contraceptives and generally lower levels of female education. The social structure, religious beliefs, economic prosperity and urbanisation within each country are likely to affect birth rates as well as abortion rates. Developed countries tend to have a lower fertility rate due to lifestyle choices associated with economic affluence where mortality rates are low, birth control is easily accessible and children often can become an economic drain caused by housing, education cost and other cost involved in bringing up children. Higher education and professional careers often mean that women have children late in life. This can result in a demographic economic paradox.

The Total Fertility Rate (TFR) of a population is the average number of children that would be born to a woman over her lifetime if she were to experience the exact current age specific fertility rates through her life time and she were to survive from birth through the end of her reproductive life. It is obtained by summing the single year age specific rates for a given time point. Perhaps more relevant to the current debate is the replacement fertility rate which is the total fertility rate in which women would have only enough children to replace themselves and their partners. Effectively it is the total fertility rate at which newborn girls would have an average of exactly 1 daughter over their lifetimes. By definition replacement is only considered to have

occurred when the offspring reach 15 years of age. The replacement fertility rate is roughly 2.1 live births per woman for most industrialised countries. Due to increased mortality rates, the approximate average for developing regions of the world is 2.3. At this rate, population growth through reproduction will be approximately 0, but still be affected by male-female ratios and mortality rates

The fertility of the population of the United States is below replacement among those native born, and above replacement among immigrant families and the socially deprived (Singh *et al.*, 2001). However the fertility rates of immigrants to the US have been found to decrease sharply in the second generation as a result of improving education and income. It will take several generations for a real change in total fertility rates to be reflected in birth rates because the age distribution must reach equilibrium. For example, a population that has recently dropped below replacement fertility rate continues to grow because the recent high fertility produced large number of young couples who would now be in their child bearing years. The phenomenon carries forward for several generations and is called population momentum or population lag effect. The time lag effect is of great importance to human population growth rates. The state policy institutes and international population studies are closely monitoring how reproductive patterns cause immigrant generations globally.

Although recent data show that birth rates in the UK have increased (Office of National Statistics, 2009), this is predominantly due to immigration so there are still serious concerns about long term replacement. There are two potential means of addressing the problem of providing a young productive workforce able to generate income to

provide the social care for the old and infirm. The first is to find ways of increasing the birth rate; this is essentially a long term solution but one which should provide more steady and predictable results. The second is to encourage immigration of a predominantly young and skilled workforce; this may provide an instant answer to the problem but is likely to be short-term unless the immigrants decide to stay in large numbers. In the long term it is doubtful whether reliance should be placed on immigration to solve an intrinsic societal problem in developed nations, namely a falling birth rate.

The declining birth rate is not unique to Britain and Western European countries. Countries like Japan have a similar concern.

There are several factors such as lifestyle factors, an increase in sexually transmitted diseases, rise in obesity and environmental factors involved in urbanisation and urban lifestyle that are affecting fertility and have led to rise in male and female subfertility. In addition there are socio-economic factors that have led to women and couples delaying having children. Lack of affordable housing, flexible and part-time career posts for women and affordable and publicly funded (free) child care have contributed to the current low fertility/birth rates. Couples/women are delaying starting a family which has led to a true decline in their fertility levels due to ovarian ageing and related reasons leading to reduced chance of conception.

It is necessary for governments to provide adequate publicly funded reproductive health and social care in order to achieve required birth rates and have a younger population to contribute to nation's and global progress. It can be argued that women now contribute more to the total workforce and social welfare agenda (tax and national insurance) than ever before and deserve to get reproductive benefits from the public purse.

In parallel, it is also necessary to have a national and an international initiative for the prevention of infertility and protection of fertility. The projects will need to be focussed at the specific needs of the local population. It is necessary for governments to work in close partnership with the voluntary sector to achieve the maximum effect.

The most important project will have to address raising awareness at an individual, family, community and social level as well as at primary, secondary and tertiary healthcare level regarding factors affecting male and female fertility. A regular and open education programme for women and men would empower them with knowledge required to protect their fertility. Furthermore, recent surveys suggest that prevention of reproductive and sexual health problems would be best achieved through education

in secondary schools. It is important to plan a practical and a meaningful initial and follow-up programme for reproductive and sexual health education in secondary schools, with an aim to prevent future infertility. In developing countries it would be necessary to provide this education to women and men at grass roots level in their homes and communities. This is aimed at increasing natural conception rates.

Fertility treatment in the UK as in other European countries is currently funded and managed by the Department of Health within the government. Since healthcare has several priorities such as cancer, care of elderly and acute medicine, fertility care is not high on the agenda. This has led to inadequate funding and concerns about inequity. The need for private assisted conception due to lack of public funding may eventually lead to only the rich benefiting from fertility treatment. This will lead to long term social inequality. The state should fund the mild IVF treatments which are safer, less costly and have comparable success rates to the standard downregulation protocols (Heijnen *et al.*, 2007; Nargund and Frydman, 2007; Verberg *et al.*, 2009; Nargund 2009). This will improve access to fertility treatment for the socially deprived. The European Human Rights Act (October 2001) recognises "right to family life" as a basic human right. It is also widely accepted that "human reproduction" is an important and fundamental wheel of life with spokes spread across societal, economic, population, immigration, employment, education, health, wealth and family life (Figure 1). It involves sustaining the current family structure for the creation of future generations.

The term "Strategy for Reproduction and Family life" should replace "Fertility Treatment" in government policies and should be seen within a wider context as indicated in Figure 1. It should therefore be funded not just by the Department of Health, but by a dedicated department within the government which addresses this subject in the short and the long term in the best interests of the families, societies and nations. Reproduction is important in order to achieve a balance of family life, diversity, socio-economic equality and progress across communities. It is the only area that spreads not only through a cross-section of society but also longitudinally through generations.

There is a need for collaboration between individual governments, the EEC, United Nations and the World Health Organization, to take this strategy forward.

In summary, in order to address declining birth rates:

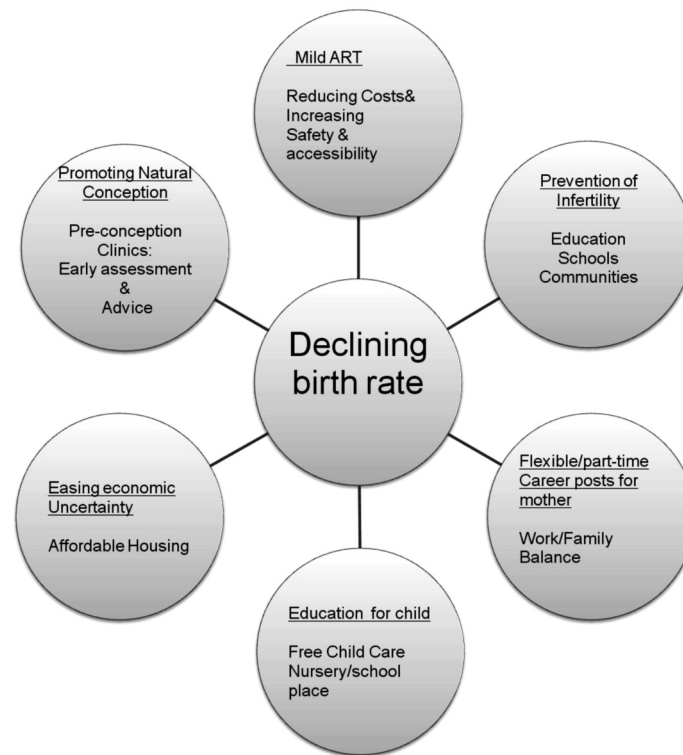


Fig. 1. — Proposed policies to address declining birth rates in developed countries.

1. There is an urgent need to initiate strategies at local/national and international level to prevent infertility and protect human fertility.
2. Early and cost-effective assessment of fertility problems and assisted reproduction should be provided as part of public health care. For example: a) There should be a strong emphasis on protection of reproductive health in the secondary school curriculum. b) Specially designed “pre-conception care” clinics must be established within the Public Health Service to educate men and women on factors affecting their fertility and to help them help themselves to natural conception. c) An ongoing fertility awareness programme should be set up for communities funded by local governments in conjunction with the local voluntary sector. A tailored and sensitive programme could enhance the effect in a multicultural population. d) A long-term plan for affordable housing for young couples should continue. This could help couples plan an early parenthood. e) Provision of affordable and high quality child care facilities should be available. f) Flexible, part-time career posts for women should be a priority.
3. The government should prioritise the provision of safe, mild and cost-effective assisted reproduction treatments (ART) with single embryo transfer (SET) so that more treatment cycles could be offered within the available health budget. This would save costs associated with

drugs, hospital admissions for OHSS and multiple pregnancies.

4. The role of immigration trends in improving birth rates and its long-term effect need to be evaluated.
5. “Strategy for Reproduction and Family life” should replace “Fertility treatment” as a government policy and it should be dealt with across many departments as indicated in Figure 1 to boost the birth rate and national economy, employment, family life and societal growth. A separate department must be established to promote family life.

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