**ARTs and the Problematic Conceptualization of Declining Reproduction**

***Abstract****: The routinization of assisted reproduction in India has led to its proliferation and easy identification in case of infertility. However, clinical and popular discourse tends to focus primarily on age-related deficiencies in reproduction. Here, both the ‘dangers’ of declining reproduction, as well as, the facilitation of delayed reproduction are areas of focus and eulogization. Bringing together the diverse elements of the medico-social conversation, the aim of this paper is to comment on the ways in which ARTs embark upon to make sense of declining reproduction.*

In its representation, ageing is seen as a state of decline and debilitation. Its physical markers are associated with regression and a slowing down of the ‘normal’ body. In the process, more often than not, conceptually, ageing has also been compared to a pathological-diseased state of being--especially in relation to women’s bodies, where the idea of ageing within biomedicine is associated with progressive reproductive decline (Lock 1986, Martin 2001). The conceptualization of ageing and its association with reproduction is the most provocative in contemporary medical practice and ideology.

In this paper I discuss how ageing and aged bodies become signifiers of failed and resurrected reproduction. This is particularly evident in the case of assisted reproduction through the use of technologies (ARTs) such as in-vitro fertilization (IVF) and/ or intracystoplasmic sperm injection (ICSI), besides other assisted reproductive technologies (ARTs) that are becoming popular in the ‘curing of infertility’ as an emerging health problem. The paradoxical position that ARTs occupy within the socio-medical discourse on infertility is seen in the ways in which the failure of the technology to ‘cure’ is often projected on to issues of age (Friese 2015), just as the technology promises to alleviate the obstacles of age in seeking infertility treatment. However, the recent public fear of the ticking ‘biological clock’, especially with regard to working women in their 30s with no children, and the associated fanfare surrounding the birth of children to 70 year old women through IVF (*Indian Express* 2011)—has led to questions regarding how infertility and ARTs are marking ageing and reproduction in India.

Besides surrogacy and donor insemination, which have received much academic and policy scrutiny in the past few decade, the linkages between infertility and ageing remain largely unexplored in the Indian context. This is significant considering the popular perception that those who have reached a particular age that ‘makes biological reproduction difficult’ seek ARTs. In the West, emerging literature within the vast corpus of writing on infertility and technology, are now beginning to explore the ways in which age and ageing are ‘manufactured’ in the infertility clinic and within infertility diagnosis (Friese 2015). In India, Maya Unnithan (2009) has looked at the idea of reproductive ageing in relation to menopause in India, linking it to the classic study of menopause in Japan by Margaret Lock (1993) that stated how local notions regarding bodily processes do not always adhere to global medical notions regarding the same.

Underlying all of these concerns is the large demand for ARTs that the reproductive tourism industry and the IVF-surrogacy industry caters to (Reddy and Qadeer 2010). The projections of large revenue earnings and the popularity that ARTs have in India have nonetheless not impacted public health interventions. This is problematic considering recent studies that suggest that infertility is not necessarily a ‘lifestyle disease’ impacting the urban rich, but also impacts those living in rural and semi-urban areas and those belonging to the middle and lower middle classes (Sama 2010, Unnithan 2010). Yet, most IVF clinics operate as private clinics providing niche, relatively expensive treatment to couples seeking fertility interventions.

For some years now, the Indian Council of Medical Research (ICMR) has drafted several versions of the Regulation of Assisted Reproductive Technologies Bill (2008, 2010, 2012, 2014) at the behest of the Ministry of Health and Family Welfare, Government of India. The bills aimed to control the use of ARTs amongst prospective parents and clinicians; and covered aspects such as donor insemination, surrogacy and the use of IVF. However, in September 2016, the Government of India unveiled a new draft bill called Surrogacy (Regulation) Bill 2016 which explicitly laid down the foundation for altruistic surrogacy and a ban on commercial surrogacy—as well as an age limit (for women till 50, and for men till 55) to hire a surrogate. This was significant considering an age cap to access ARTs had not been articulated before in the ARTs regulation bill.

In 2015, I conducted a brief pilot study at a private IVF clinic in South India regarding the process of imaging and imagining human gametes in the ultrasound and extraction stages of IVF. This was a follow-up study after my doctoral research of more than five years on commercial surrogacy, ARTs and kinship in India (Majumdar, 2017). At the clinic, I found that medical processes map the human body through diagnostic tests that construct certain ideas of ageing that are then coalesced with chronological ageing. Such diagnosis is the most acute for women, often identifying their eggs or oocytes as ‘aged’ or ‘depleting’. Such diagnosis is not restricted to semantics alone (Martin 2001), but is visually measured through these tests. In addition, the idea of ageing and declining gametes is now being extended to men as well, in the ‘quality’ of sperm that a man would ejaculate for in-vitro fertilization. This is particularly provocative considering new research in the area of infertility is now beginning to focus on men and masculinities that are formed through the process of infertility treatment and sperm donation (Inhorn 2012). The intracystoplasmic sperm injection (ICSI) aims to ‘hand pick’ the best of the lot and manually inseminate the egg with the sperm in a petri-dish, for higher success rates.

What form of ‘age’ and ‘ageing’ are becoming part of the conceptualization of decline within assisted reproduction? Below, I present three aspects of declining reproduction within ARTs that are deeply problematic.

**The biological clock**

How is the biological clock to be understood? Why is its linkage to reproduction so particularly popular? The perception of a ticking clock and time that speeds is an important part of the fear linked to the body as progressing towards an ending. That reproduction figures within such narratives both as a form of ending, but also a beginning (through the birth of children and kin) needs more engagement.

Infertility medicine thrives on the perpetuation of the fear of the biological clock, which is increasingly coming to mark women and their productive years at lower ages. Thus, recent popular reportage suggests that post-30s a woman is susceptible to increasing decline in reproduction and the reproductive body. Primarily, the ‘decline’ in women’s reproduction is linked to the idea that women are positioned negatively in linear progression towards diminishing fertility finally culminating in menopause.

The language of decline is predominantly imagined as a ticking time bomb, fixated especially on the falling oocyte reserves. ‘It has been suggested that at age 37 there is a sudden acceleration in the decline in each woman’s egg pool….In addition, egg quality declines with age, but the rate and pattern of this decline are less certain’ (Leader 2006: 3). The quality of the remaining oocytes is further under question in discussions regarding the health of the ‘aging’ mother. The impact of advanced maternal age identified to be after 35 is also seen in the form of ‘increased risks of gestational diabetes, placenta previa, breech delivery, pre-term (and low-birth weight) delivery, emergency and elective caesarean sections and stillbirth’ (Ibid.: 3).

With such a long list of consequences, it means ARTs become an important and essential source of having children. A number of prescribed biochemical (such as follicle stimulating hormone [FSH], and anti mullerian hormone [AMH]), sonographic (antral follicle count [AFC]) tests are used to determine the quality and quantity of oocytes available in the ovarian reserve (Leader 2006: 4). However, in a telling statement, the author notes: ‘It can sometimes be confusing to patients when the same tests are used to predict natural fertility, ovarian response to Gondatropins, and the likelihood of pregnancy in IVF’ (Leader 2006: 4)—signalling the ambiguity in the ways in which assisted reproduction seems to determine declining reproduction. This is especially stark when scientific articles seem to suggest that ARTs may not always provide certified results in facilitating a pregnancy in ‘aging’ mothers (Leader 2006; Lewis et al 2006). Suggestions seem to point towards the need for fertility planning before 35 for both women and men to facilitate assisted conception in a smoother, safer way.

This form of ‘intensification’ in the onset of decline is most acute in its projection in medical and popular renderings (Tomlinson 1999). This intensification in language is not only evident in the anthropological rendering of medical representations of the ‘flawed’ female body heading towards menopause (Martin 2001, Tomlinson 1999), but also in the representation of the ‘aging’ mother herself.

In popular discourse regarding the biological clock—the gendered reproductive body heading towards decline, women’s lifestyle choices becomes the focus of the lament and hysteria. News reports successfully create these linkages leading to an image of infertility that is choice-based and part of a gendered rhetoric on the body and modern lifestyles.

A new term doing the rounds on the infertility front is “voluntary infertility”––a typical urban Indian syndrome. At the root of it is the idea that “biological clock” is not a myth––90 per cent of a woman’s eggs degrade at the end of the 37th year. And at the centre of this phenomenon is the educated, independent, career–minded New Woman, who defers marriage or childbearing till she can afford all the good things in life. But by the time she decides to have a baby her biological clock often slows down (Datta 2010, 48).

In a piece titled, ‘The foul reign of the biological clock’ by Moira Weigel (2016), it is suggested that ‘[t]he biological clock’s cultural role was to counteract the effects of women’s liberation….the existence of a biological clock [was] proof that women could not venture too far from their traditional roles….[defining] female life in terms of motherhood, or the failure to become a mother’ (Weigel 2016).

The hysteria surrounding declining reproduction amongst women, has led to research suggesting that women indulge in ‘reproductive expediting’ or more frequent sexual activity as they grow older to ‘capitalise on their remaining fertility’(Easton et al. 2010: 516). Such ideas reposition women in their reproductive bodies, despite increasing research and feminist critique against the overwhelming control of the biological clock (Friese 2015).

Yet, the male reproductive body remained beyond bounds of the ‘biological clock’, with mythologies of perpetual fatherhood seeming to make male reproductive ageing seem impossible. But newer research has begun to identify the long-term impact of late fatherhood in the form of autism, and schizophrenia—and the gradual decline in sperm quality and production as a form of male menopause, also known as andropause, without the complete pause in reproductive capability (Lewis et al 2006). Research seems to suggest that if the male partner of a woman aged 35+ is older than 40 years of age then the child is likely to develop genetic and other birth abnormalities (Leader 2006; Thacker 2004). The ‘weak’ sperm is increasingly the focus of research and the intervention of assisted reproduction: ‘Women should thus no longer be viewed as solely responsible for age-related fertility and genetic problems. Infertility is not just a woman’s problem and awareness of the male biological clock will allow couples and their physicians to proceed with proper testing, diagnosis, and (if needed) treatment of the male partner’ (Lewis et al. 2006: 2369).

The gendered biological clock is coming full circle in identifying declining reproductive bodies that need active and constant intervention of ARTs. In attempting to circumvent decline amongst women that menopause heralds, ARTs are repositioning women’s, and men’s, reproductive bodies as under the constant threat of a permanent ‘pause’.

**Postmenopausal reproduction**

In May 2016, 72-year-old Daljinder Kaur became a mother to an infant son in the North Indian state of Punjab. The news was widely reported, and mentioned the intervention of assisted reproductive technologies (ARTs), such as in-vitro fertilization (IVF), for achieving the impossible (*The Guardian* 2016). Daljinder, and her husband Mohinder Singh Gill (79), had been childless for most part of their married life until they decided to visit the local IVF clinic. This incident was not a stray event; over the past decade, many couples in India have been seeking assisted conception to overcome years of childlessness (*Indian Express* 2010). The ‘miraculous’ nature of such births is one of the reasons for the increasing popularity and focus on ARTs. In recent years, India (especially the Northern states of Haryana and Punjab) has seen a rise in post-menopausal motherhood with women and men of ages ranging from 60-80 years birthing children. This alarming trend has led to childless seniors seeking parenthood by actively engaging with ARTs, and the subsequent mushrooming of IVF clinics in small towns to cater to this particular demand (*Indian Express* 2010). Nonetheless, the technologies are not without fault (Sarojini, Marwah and Shenoi 2011) and are based on notions of fertility that must match ideal-typical conditions to be able to mimic a ‘natural’ conception and birth.

In a ‘post-reproductive’ world, nature is constantly being manipulated and re-manufactured to provide solutions to ‘better living’ (Lock 2007). Here, age is the biggest source of manipulation, especially through hormone replacement therapies to extend women’s reproductive lives, and delay the ‘death knell’ that comes with menopause. The post-menopausal, then, are really not menopausal as much as they are post-reproductive. Grappling with the question of defining ageing couples having children through IV means a reconceptualization of chronological ageing itself. The biological clock under such circumstances stands exposed, making it necessary to conceptualize menopause in relation to menstruation to be able to understand how IVF reverses the ‘lack’ in case of a ‘post-menopausal’ women to facilitate the birth of a child. When does reproductive life begin, and when does it end?

For Margaret Lock (1986), the cross-cultural engagements with menopause (in her case the study of Japanese menopausal women) means that bodily ‘decline’ is not felt similarly everywhere. She finds that even though menopause is a biological process, it has cultural and racial meanings attached to it. The intervention of technology within such a narrative adds further complexity. That the aged seek such technology to resume a productive and reproductive life means that the idea of regeneration itself is coming under scrutiny. So while modernity is the signal of moral and societal degeneration as seen in the emergence of old age homes, and neglect of the elderly in India (Cohen 1999; Lamb 2009)—the post-modern is seeking to regenerate the elderly into productive lives to prevent their social dissolution.

I would like to link the above argument to reportage that links the desire for children amongst the elderly infertile as means to ensure continuity and inheritance (Sinha 2010). Couples like Daljinder and Mohinder may have tried different forms of conjugal arrangements to overcome their infertility and childlessness, until the advent and intervention of IVF, signalling the importance of biology and genes in the desire for children. Research has contradictory findings regarding the elderly and their experiences with childlessness (Kreager and Schroeder-Butterfill 2004). For instance, some research suggests that de facto childlessness[[1]](#endnote-1) may have very little to do with involuntary infertility—but more to do with social support as you age (Indrizal 2004). However, demographic trends in Europe suggest declining populations as women and men age, and put-off reproduction (Evandrou and Falkingham 2004). The positioning of childlessness for social support can never be discounted. An IVF specialist in Haryana, where reportedly many of the ageing, senior couples have conceived children, is called the ‘rogue doctor’, for facilitating conception amongst those who are socially seen as being of ‘inappropriate age’ to be parents (*The Independent* 2017). Such images are constructed within the IVF community, reflecting on the paradox of how declining reproduction becomes an important part of ARTs and its preponderance.

**Infertility as chronic**

In a recent news report, in response to fears of declining fertility in the state of Telangana in India, an IVF specialist is quoted as saying: ‘We are seeing a constant increase in infertility due to various reasons like late marriages, increasing incidence of polycystic ovary syndrome (PCOS), consumption of junk food, obesity and even endometriosis’ (*The Times of India*, 2018). Through public discourse, IVF specialists create a sense of the infertile as not only medicalised, but also demanding immediate medical intervention. However, the nature of the technology and treatment create a sense of long-term debilitation, whose cure, ironically, rests upon the achievement of a single treatment of conception and the following pregnancy and birth.

In the aforementioned news piece, sociologist Satyapriya Rout connects declining fertility to a future with an ageing population: ‘While it [declining fertility] might not be a cause for immediate concern, in the long run the overall population will begin to reduce and can have several implications—like a huge ageing population’ (Ibid.). The fear of decline, and age is mesmerizingly enmeshed and infertility is a sign of early decline and ageing. In theorizing infertility, an association with the chronic may not have been explore fully, yet. But in reality, the nature of chronicity plays out in the framing of the ‘disease’.

This is seen especially in recent studies linking infertility to toxic environments. Clinical and epidemiological studies linking infertility to urban environmental toxicity are emerging as a major intervention. Largely because the linkages are not immediately evident (Foster and Holloway 2003), studies draw data from women and men visiting fertility clinics, and from particular regions. The regional differences become an important marker to assess the impact of urban environmental toxicity on fertility and reproductive health. In their review of available clinical studies, Foster and Holloway find that the weight of evidence and consistency of data linking fertility and fecundity, endometriosis and spontaneous abortion to pesticides, dioxins, dibenzofurans and PCBs range from weak to moderate—none of the connections are overtly strong.

According to Manderson and Smith-Morris:The distinction of chronic–acute is inaccurate even in strictly biomedical terms, since the notion of acute fails to distinguish between: (a) conditions that are relatively benign and self-limiting; (b) those that are life-threatening; and (c) those that shift from an acutely symptomatic phase to an extended period of poor health and physical limitations, as is characteristic of numerous medical conditions that have effective medicinal or therapeutic approaches (Manderson and Smith-Morris 2010, 3–4).

The above formulation of the difficulty in conceptualization plays out in relation to infertility treatment through its process and consumption. While positioned as chronic in seeking out continued treatment, the state of medicalised childlessness is seen as ‘acute’ by the patients. The desire for a child and its immediate redressal are ‘acute’, but come to be manufactured within the prism of ‘chronicity’. The state of infertility is both ‘self-limiting’ and extended over long periods of ‘poor health and physical limitation’––which are brought on through the use of ARTs. Without ARTs, infertility is childlessness––a social state that does not impact bodily negotiations medically, though it may involve other alternative forms of healing (Unnithan-Kumar 2004).

However, their association with harmful urban lifestyles and increasing infertility has become staple fodder for public conversations moderated by infertility specialists. This makes good business sense, while at the same time pushing for the traditional biomedical perception of the female body as ‘perpetually pathological’, and thereby suffering from chronic, inevitable infertility.

**Conclusion**

‘Denaturalizing ageing’ involves, ‘[t]aking charge of aging is a prime objective today, in part because of aging populations on economics worldwide, and extensive investment is being made into the development of enhancement technologies for this purpose’ (Lock 2007: 201)—and this is what marks the engagement with ARTs with declining reproduction.

The destabilization of chronological ageing through the ‘remaking’ of biology in popular discourse and practice necessitates the use of ARTs—while making infertility an ultimate biological reality. Infertility has long moved away from a primarily social affliction to become a pursuit of genetically-related children through technology.

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1. ‘The de facto Childless are those who cannot rely on care from their children because relationships have broken down or because children have physical or mental disabilities, lack the resources to offer support or have moved away’ (Shaw 2004: 208). [↑](#endnote-ref-1)