



# Ageing and Reproductive Decline in Assisted Reproductive Technologies in India: Mapping the ‘Management’ of Eggs and Wombs

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## Abstract

In this paper, I discuss the ethical underpinnings to the anthropological analysis of age and reproductive decline in the ‘management’ of infertility, by suggesting that assisted reproductive technologies (ART) ‘use’ age and reproductive decline to further endanger women’s bodies by subjecting it to disaggregation into parts that do not belong to them anymore. Here, the category of age becomes a malleable concept to manipulate women seeking fertility management. In ethnographic findings from two Indian ART clinics, amongst women aged between 20 and 35 years visiting an IVF/ART clinic in Hyderabad city in South India, and women above 50 years of age visiting an IVF/ART clinic in Hisar in North India—reproductive bodies are similarly disaggregated. In case of younger women, the treatment is fixated on rescuing eggs that may be in ‘decline’, and in case of older women, the aim is to engineer a viable pregnancy. Thus, the constant focus on eggs and wombs in infertility treatment creates a body that is not only not whole but also completely without agency. Age becomes a category that has rhetorical value to ‘push’ or persuade women into particular forms of fertility management through infertility medicine. I undertake a problematization of the egg and the uterus through the identification of the recurring motif of the menstrual cycle within IVF treatment to suggest that bodily holism is not part of ART discourse that unethically thrives on promoting technological intrusions to promote its use and normalization.

**Keywords** Infertility · Assisted reproductive technologies (ART) · India · Reproductive ageing · Fertility

Ageing is intrinsically linked to declining possibilities of reproduction especially in relation to women (Bledsoe 2002; Daly and Bewley 2013; Lamb 2000; Lock 1994;

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Martin 2001). According to Daly and Bewley (2013), age-related reproductive ailments amongst women include loss of egg numbers, fall in fertility, rise in miscarriages, ectopic pregnancy, pre-eclampsia, caesareans, stillbirths, neonatal deaths, maternal deaths, and declining uterine receptiveness. Age is, thus, being increasingly marked by medical diagnosis and tests (Cohen 1998), especially in understanding how reproduction and women's recourse to assisted reproductive technologies (ART) are linked.

ART have upturned the notion of reproductive decline and its linkages with menopause as an inevitable consequence of ageing. The imaginings surrounding the 'biological clock' are often fixated upon how ART are facilitating the desire to delay motherhood, to pursue 'other' life goals such as careers and personal fulfilment (Daly and Bewley 2013). But the desire to overturn 'natural-biological' decline is an intrinsic part of reproductive technologies. In that sense, ART have been the focus of ethical inquiries and questions for long (Cannell 1990; Schermer and Keulartz 2002). A large part of the conversation has been on the moral questions of artificially birthing and preserving the human embryo (Roberts 2007), and a significant section has been on the valuation of motherhood in the ART-induced gestational surrogacy arrangement (Andrews 1995; Markens 2007; Qadeer and John 2009).

In this paper, I engage with the ethical-moral questions surrounding the 'management' of age and reproductive decline within infertility medicine through the active disaggregation of the female body. This disaggregation has been a hallmark of Western medicine (Martin 2001) and continues to place women within moralistic standards of 'deviance' and 'propriety'. Most importantly, ART as an extension to obstetrics and gynaecology have furthered the unethical management of the female reproductive body with diagnosis that is often based on 'productive' assessments of the body sans its own agency and desire.

Within Western medicine, the idea of ageing and declining fertility is embedded in a discourse that positions it within the parameters of eggs and their decline (Martin 2010; van de Wiel 2014). Thus, age becomes linked to biological processes that are now moving away from a naturalized metaphor of menopause to one that is increasingly medicalized and subject to technological intervention (Lock 2007). Friese (2015) identifies eggs as the repositories of reproductive ageing within ART. Such an identification is significant because menopause was traditionally seen as the ultimate marker of the demise of female fertility.

Even though ART have been identified in Western popular discourse as the source of, and recourse to, delayed motherhood (Daly and Bewley 2013; Weigel 2016): its emerging use amongst women of all ages is particularly ethically provocative. Knowledge regarding eggs or the ovaries comes to the forefront or becomes part of conversation thanks to ART. As Sanabria (2016) notes, for most women who do not undergo infertility treatment, the knowledge of the disaggregated female reproductive system is not something that is immediately of importance. ART management of infertility makes information about each part, process, and encumbrance of one's reproductive system, essential. In fertility management, women patients are 'made' through new forms of engagement with particular processes of intervention, based on conceptualizing declining reproduction. Here, the category of age becomes a malleable concept to manipulate women seeking fertility management. I suggest that ART 'use' age and reproductive decline to further endanger women's bodies by subjecting it to disaggregation into parts that do not belong to them anymore.

In this paper, I engage with the disaggregation of the female reproductive body within clinical discourse in infertility medicine by looking at the intersections between age and reproductive decline. In the section that follows, I discuss the ethical underpinnings to the anthropological analysis of age and reproductive decline in the ‘management’ of infertility. Thus, the constant focus on eggs and wombs in infertility treatment creates a body that is not only not whole but also completely without agency. In ethnographic findings from two Indian ART clinics, amongst women aged between 20 and 35 years visiting an IVF/ART clinic in Hyderabad city in South India, and women above 50 years of age visiting an IVF/ART clinic in Hisar in North India—reproductive bodies are similarly disaggregated. In case of younger women, the treatment is fixated on rescuing eggs that may be in ‘decline’, and in case of older women, the aim is to engineer a viable pregnancy. Thus, age becomes a category that has rhetorical value to ‘push’ or persuade women into particular forms of fertility management through infertility medicine. Age and ageing become additional spaces of questionable ethicality within ART practice. This is evident in how particular bodily processes that have temporal and age-related impact on the female reproductive body are often ‘dismissed’ in the overt focus on eggs and wombs—that themselves have age-related linkages in ART diagnosis.

Thus, I suggest that a missing focus within the study of declining fertility is the clinical and social mapping of the regularity of the menstrual cycle. Its importance in the identification of fecundity can never be discounted. Yet, it is never identified within clinical discourse as providing the most important keys to fertility management. I undertake a problematization of the egg and the uterus through the identification of the recurring motif of the menstrual cycle within IVF treatment to suggest that bodily holism is not part of ART discourse that unethically thrives on promoting technological intrusions to promote its use and normalization.

## Ageing and the Management of Infertility

In pending Indian legislation on ART, titled the Draft ART Regulation Bill, 2017, the ‘patient’ is defined as ‘an individual or couple who comes to any registered assisted reproductive technology clinic for management of infertility’ (2017: 3). The technology does not provide a ‘cure’, as infertility remains a social problem requiring varied technological interventions and, of course, ‘management’. The three most commonly recognized and administered ART to address infertility include the IUI, IVF, and ICSI. Intrauterine insemination (IUI) facilitates conception by directly inserting ejaculated and stored sperm (from a donor or the husband/partner) into the ovaries, through a syringe-like aperture. The *in vitro* fertilization (IVF) technique involves artificially fertilizing the extracted egg<sup>1</sup> (from the woman/egg provider/egg donor<sup>2</sup>) and the sperm

<sup>1</sup> I use ‘egg’ instead of ovum/oocyte, as many of my respondents have identified it as the ‘egg’ in their interviews.

<sup>2</sup> The difference between the egg ‘provider’ and egg ‘donor’ is a new form of distinction that was brought into effect to identify those women who provide their eggs in exchange of compensation; and those who donate them such as relatives and friends (without any exchange of compensation). Though in Elizabeth Roberts’ (2012) ethnography of IVF in Ecuador female relatives may ‘gift’ eggs to their childless relatives in exchange for financial support.

in a petridish in the laboratory. The fertilized embryo is then transferred into the uterus of the woman seeking to be the mother or the gestational surrogate. Intracytoplasmic sperm injection (ICSI) involves a more hands-on approach through the micromanipulation of the egg with the sperm in the laboratory, leading to the fertilization and transference of the embryo into the uterus. The fertilized embryo is then transferred into the uterus of the woman seeking to be the mother or the gestational surrogate. There are other forms of ART like preimplantation genetic diagnosis (PGD) which this paper does not discuss. The first two (IUI and IVF) appear prominently in this paper in the identification of the forms of clinical diagnosis and intervention that is provided.

The mapping of fertility diagnosis in ART-related medical practice is ‘obsessed’ with the identification of ‘factors’. In continuation with the machine-oriented focus and ideology of Western gynaecology that has viewed women’s reproductive bodies as components within a production-assembly line (Martin 2001)—infertility medicine also targets the reproductive body in terms of ‘factor fixation’ (Inhorn 1994). As women’s ‘fertility mapping’ (Franklin 2002) becomes an important tool within ART intervention, age becomes a definitive category by itself. Thus, ‘age factor’ is cited as an important ‘cause’ of infertility. Inhorn and Birenbaum-Carmeli (2008, 181, *emphasis mine*) note:

Whereas the fecundity of older men can often be enhanced through ICSI, women’s fertility is highly age-sensitive, often requiring donor eggs at later stages of the reproductive life cycle ... *ART-induced time may thus become a thoroughly gendered problematic in some societies*, giving new powers to men (including divorce of once fertile wives) and creating new feelings of stigma among aging women.

Despite the recent focus towards the equal, if not more, involvement of ‘male factors’ (such as low sperm count, absence of motile sperm) in a couple’s fertility, traditionally, women have been the major targets for ART intervention. Thus, female factor infertility has diverse and dynamic types, akin to the different types of ART trying to address the factor under scrutiny. There is a major cultural difference in how discourse surrounding ART imagines age and the female reproductive body. In India, ‘female factors’ tend to dominate clinical conversations and diagnosis, but the focus includes past reproductive history, such as abortions, miscarriages, and sexual dysfunction (Sama 2010)—and not just age. In the West, oocytes, or eggs, become an important source of age-related decline in the ART discourse with ‘egg freezing’ as an important node for ‘anticipating future infertility’ (Martin 2010).

In this process, mothers, motherhood, and maternity are actively ‘made’ by doctors and the technology. ‘The origins of maternity become complicated with the advent of ovum-related technologies. By forcing the biological roles of maternity to fragment into genetic and gestational components, ovum-related technologies force a conceptual fragmentation of materiality as well’ (Kahn 2000, 112). In studies on egg freezing in the West, the discourse on ART places women in ‘dichotomous’ representations, rendering them as ‘selfish’ in the pursuit of individual ambitions over motherhood, or ‘victims’ in the inability to find suitable partners, or suffering from debilitating diseases (Martin 2010; van de Wiel 2014). This form of stereotyping is further complicated in the representation of women who have become older mothers through IVF, in how they

‘manage’ stigma of previous childlessness or delayed childbirth, or the suggestion of ‘borrowed eggs’ in public spaces amongst younger mothers (Friese et al. 2008).

In India, most of the analysis regarding childlessness is concentrated on the ways in which the womb is imagined, through studies of gestational surrogacy (Majumdar 2014; Pande 2009). Egg freezing and egg donation remain nascent areas of analysis due to the possibility of keeping such third-party engagement in assisted reproduction secret (Bharadwaj 2003), and also because socially, the gestational role has much more importance in South Asian imaginings regarding motherhood.

Within this analysis, the menstrual cycle is an important part of the ART discourse, but often ignored in most anthropological analysis. The menstrual cycle on an average may appear at the end of 28 days, and is an important core to the IVF cycle, that mimics the biological rhythm of egg release. This may be so for various reasons: the extraction of more eggs through the administration of hormones during one particular IVF cycles; or to induce ovulation to support better fertilization through IUI. In many ways the menstrual cycle becomes an artificial mode of facilitating assisted reproduction within IVF. ‘Aside from being marked by monthly cyclical phases, menstruation changes through the different phases of a woman’s life, from menarche to menopause’ (Sanabria 2016, 46). A key aspect of the cyclical influence is the desire for rhythm. Thus, the rhythmic pattern of the monthly cycle is an orderly, structured ‘subjugation of time’ (Wellmann 2017, 17). As a natural process, its appearance, nonetheless, carries certain forms of ‘affectation’—as seen in its experiential rendering amongst women. In such a context, the irregular, arrhythmic cycle is also cause for worry. Recent clinical findings point towards the ways in which the menstrual cycle is no longer a reliable marker of a fertile body (Cooke and Nelson 2011). Thus, women with regular cycles may still be unable to get pregnant, pointing towards a changing definition of fertility and the female body (Mac Dougall et al. 2012).<sup>3</sup> Irregular menstrual cycles are also a recurring reproductive health issue amongst women frequenting fertility clinics. How does the menstrual cycle appear within infertility discourse that aims to overturn or anticipate reproductive decline based on assumptions about an ageing reproductive body? In the sections to follow, I embark on a discussion of how eggs and the uterus are implicated in the absent management of the menstrual cycle within IVF as part of an unethical treatment protocol that is fixated on arresting age-related reproductive decline, or overturn it.

## Methodology and Data

This paper is based on ethnographic fieldwork conducted in 2018–2019, in the North Indian town of Hisar and in the South Indian metropolis of Hyderabad. Hisar was chosen due to the fame of its IVF clinic, Shikhar (pseudonym), that catered to many women, and men, past their reproductive prime. The IVF specialist and owner of the clinic, Dr Anuj, had been featured in the Indian and foreign press as someone who facilitated pregnancies and childbirth amongst childless women in their late 50s, 60s, and even early 70s.

<sup>3</sup> The decline in egg quality can be seen via an ultrasound scan and are measured quantitatively through the ovarian reserve test.

Hisar is part of a largely agrarian, rural state, called Haryana—and most of the patients who came to Shikhar belonged to rural gentry. Most couples who came to the clinic came from many of these poorer parts of Haryana and adjoining states were not formally educated or were school dropouts. Some were also poor farmers managing households through small landholdings. Many of them had never known about IVF, and had struggled through decades of childlessness and social stigma, until much later—when they finally heard about the technology. Others came to the clinic after they saved money or were able to borrow enough to invest in the treatment. IVF cycles are expensive in India, but the cost varies from city to town, with the latter charging less. Dr Anuj at the Shikhar clinic had brought down the charges for his IVF cycles to accommodate both rich and poor farmers in the area, as many of the latter had initially been reluctant to fund expensive, untested procedures to facilitate pregnancies for their wives, instead preferring to marry again. The average IVF cycle cost included multiple expenses for drugs and hospital stays, and third-party gametes was close to 1300 USD. The per capita income in Hisar varied as well depending upon differences between agricultural income, and salaried jobs. However, the state government of Haryana clocked an overall high per capita income at approximately 1300 USD, but poorer regions within the state had lower per capita incomes (Rao 2015).

In Hyderabad city, my ethnographic fieldwork was conducted in three clinics: a women's fertility hospital, a men's fertility clinic, and a homoeopathic clinic specializing in infertility management. For this paper, I focus on the first: the women's fertility hospital. Here, most of the women patients were educated, and many were employed in different sectors of the economy, such as information technology, teaching, services or corporate offices. The per capita income in Hyderabad is higher at approximately 2700 USD as per 2018–19 figures (Vadlapatla 2019). As most of the respondents were salaried, they had comfortable incomes to support relatively expensive IVF procedures. Again, the cost of the procedure varied from clinic to clinic in Hyderabad city, but the average IUI procedure cost between 150 and 400 USD, and an IVF cycle would cost between 1300 and 1500 USD.

Though both the cities have a mixed clientele of women across all ages frequenting the IVF clinic, the majority, interviewed through open-ended questionnaires of durations between 30 and 240 min, belonged to particular age brackets. The aim in this paper is not necessarily to embark on a comparison of the two cities and their respective cultures but to showcase the ways in which age is configured in the administration of IVF. The cultures of the two spaces are different and do figure in the analysis wherever applicable: to highlight the nuance in infertility medicine across local-global spaces. However, it is important to note that the clinic in Hisar is particularly known for its larger number of elderly women patients, and Hyderabad was seen as a site with younger, professional women frequenting IVF. This does not mean that such an ART demographic is not available in other parts of the country—except in the peculiar case of the Hisar clinic. A common element to both the spaces was the reluctance to discuss income, and other details of the treatment include seeking third-party intervention in the form of egg donation. I have employed grounded theory and narrative analysis to highlight the themes that emerge from the fieldwork. The identification of the particular themes is evident in the conceptual demarcation of the paper and its sections. Quantitative data has been used to support the qualitative data findings.



In Table 1, I plot a rough sketch of the number of women in Hisar and Hyderabad suffering from particular reproductive ailments, preventing them from getting pregnant—based on the patient’s retelling of the diagnosis. This is done in terms of four distinct age brackets with the number of women diagnosed with dominant fertility issues. As the table suggests, a majority of the woman interviewed in Hisar belonged to the 50–59 age group, while in Hyderabad, there were no patients in that age group who were interviewed—with the majority belonging to the 30–39 group.

The table represents an overlap in the diagnosis that the women mentioned in relations to their ailments through some broad categories that are common to both Hisar and Hyderabad. Specifically, the ailments amongst the women interviewed can be identified as below.

In Hisar, the average age of women seeking treatment here was 42.23 years amongst 17 women. Amongst the 17 women interviewed, the highest number of women (5) had ectopic pregnancies that had led to blocked tubes; three did not know the reason for their infertility; another three women were trying to get pregnant after having lost their teenage and adult sons to accidents. Four of the women were trying IVF because of their husband’s low sperm count, and one woman mentioned that she had a tumour in her uterus or uterine fibroids, while another woman had polycystic ovarian syndrome (PCOS), and finally, one woman cited age and obesity as issues behind her infertility.

In Hyderabad, the average age of the 29 women interviewed at the Hyderabad hospital was 30.1 years. Amongst the 29 women interviewed, a significant number of women (7) identified their reproductive ailment as ‘cysts’, including ovarian cysts, endometrium cysts, and hormonal imbalance leading to the formation of cysts; seven did not know the exact reason for their infertility, or refused to divulge; three had been diagnosed with PCOD/PCOS; two women identified their infertility issues as emerging

**Table 1** Mapping of ailments amongst women frequenting IVF clinics in Hisar and Hyderabad

Place	Total no of women interviewed	Majority fertility ailment diagnosed as per age group*			
		20–29 (no. of women)	30–39 (no. of women)	40–49 (no. of women)	50–59 (no. of women)
Hisar	17	Tubal	infection/husband low sperm count (2) PCOD/husband’s low sperm count/blocked tubes/seeking another son after the demise of grown son (4) known/husband’s low sperm count (7)	Blocked tubes/seeking a son after the demise of a grown son/obesity (4)	Reason for infertility not
Hyderabad	29	PCOD/PCOS (13)	Irregular periods, ovarian/uterine cysts (14)	Age-related (2)	-- (0)

Source: Author’s Field Data

\*by majority, the reference is to repeated diagnosis of similar ailments amongst one particular age group

from irregular periods; and 10 women had a variety of infertility issues including advanced age, husband's low sperm count, and multiple abortions.

The aim of this brief mapping is to build on the discussion that follows on how infertility-fertility is managed in ART clinics and how age comes to be reconfigured within such a setting. It is also important to understand that irrespective of local socio-cultural and economic contexts, in India, childlessness is viewed with great prejudice—and for women across the spectrum, to bear a child, preferably a son, and be a mother is an important rite of passage and a form of becoming (Bharadwaj 2003; Patel 2006; Unnithan-Kumar 2003).

## How Age is Implicated in 'Rescuing' Eggs and Diagnosing Infertility

In clinical practice, women of 'fertile age', in their 20s and early 30s, with no ostensible anomalies in their reproductive system and regular periods are nonetheless unable to conceive. In seeking to understand the reasons for sustained infertility, the oocyte reserve or the egg sac in the ovaries comes into focus. Eggs and their health are marked by new clinical discourse that is at pains to understand how and why younger women are exhibiting 'depleting' egg reserves that point towards an onset of early menopause (Cooke and Nelson 2011; Mac Dougall et al. 2012).<sup>4</sup> The representation of eggs within infertility treatment is within the ambit of decline and 'finitude of fertility', which comes attached to the essential linkages with age: '[A]ge is equated with accumulating genetic damage, rapidly falling fertility, poor quality embryos, and miscarriage' (van de Wiel 2014). The sense of 'urgency' to the anticipated rapid decline of eggs within infertility management is always exacerbated, even when the woman is young and healthy.

The depleting egg reserve, thus, becomes an effective marker of the transition from a 'simpler' to a complex and more expansive technological intervention. This is an essential part of the rhetoric surrounding the advertising and promotion of egg freezing or oocyte cryopreservation in an anticipation of unintended future infertility (Martin 2010; van de Wiel 2014). With new reproductive technologies, Martin (2010, 529) notes that there is a constant expansion in the group of those identified as infertile, drawing from those who many not be medically infertile: '[T]his expansion multiplies the types of bodies and pregnancies that are subjected to medicalization'.

In the ethnography, technological transformation occurred through IUIs giving way to IVF wherever conception did not occur. IUI is unable to provide the same manoeuvrability that IVF extends through the artificial insemination of the egg and the sperm. IVF is also a more expensive procedure, requiring more time and investment, on the part of the couple undergoing the treatment—and the clinic administering it. ART clinics in India, especially, are known for advertising their 'success rates' (Sarojini et al. 2011). Thus, in Hisar amongst 17 women interviewed, each woman had undergone an average of 2.1 attempts at IVF. In Hyderabad, on the other hand, amongst

<sup>4</sup> Even though recent studies suggest that a changing lifestyle wherein the environment, sedentary living and unhealthy eating is impacting men and women's reproductive bodies—the idea of an egg reserve itself comes under scrutiny. Despite 2 years of unprotected sexual intercourse, and an age at which a woman is still deemed fertile, depleting ovarian reserves become indicators of failing fertility.



29 women, there was a higher average of IUIs at 2.5 attempts. As mentioned earlier, the average age of respondents in Hisar was 42.23 years, as opposed to the average age in Hyderabad at 30.1 years. Is the IVF-IUI intervention, then, demarcated by age-related factors, or a more protracted extension of the technology?

Divya, Swathi, and Anita were interviewed at the same hospital in Hyderabad. They navigated hormonal and ovarian issues to be ultimately shifted towards IVF. In all three narrations, even though it is the egg ‘quality’ that is seen as the primary reason for a shift towards IVF, there are hormonal issues, uterine and ovarian cysts, irregular menstrual cycles, or unexplained issues that the women recount from their diagnosis:

I have been coming to this hospital for the past one month. They have taken two scans and found two cysts in both my ovaries. I was given birth control pills for that cyst. For the past one and a half years we have been trying to have a child. I was being treated at another hospital earlier for irregular periods. Here, the doctor has not suggested IUI, instead recommending IVF. This is my second day of the IVF treatment. For 10 days I will be given injections to increase my egg count, and after 14–15 days the eggs will be removed, fertilised and then inserted back into my uterus. (Divya, 24)

Over the past six years we have attempted six IUIs, with gaps between each one. I am unable to remember or trace the order and the year we tried these IUIs. I don’t know why they failed, especially because you don’t get to know if the eggs are fertilized or not in an IUI. At this hospital, our first IVF was a failure, and the doctor could not find the cause, so, she said a discount [in IVF price] would be provided in the next session. So, after the first failed attempt we waited for three months, but were advised to forego IVF in the summers, as the success rate in these months is low. So, we waited for another three months. Now, in the recent attempt, they have collected the eggs and have fertilized them. (Anita, 34)

We attempted another IUI at the last hospital but that failed too and that is when the doctor suggested a laproscopy. They found cysts in my left ovary and the uterus. After I was diagnosed with minor PCOD, they asked me to go for IVF (despite requesting for an IUI), as my eggs were not viable for the latter. So, for two months they ensured my eggs were not released by suppressing them, until this August, when they began giving me injections for 10 days and managed to collect 31 eggs! (Swathi, 26)

The extension and amplification of technological intervention into patient’s lives are connected as much to the diagnosis of physiological deficiency, as to the gendered identification with particular technologies. Dr Anuj at Hisar’s Shikhar clinic mentions:

IVF is always used where the fertility problem is primarily with the woman...  
ICSI is used where the fertility problem is with the man. The IUI is the closest an ART comes to in mimicking the natural process.

This form of clinical demarcation is evident in the administration of technological interventions. Thus, IVF and the harvesting of eggs/ oocytes through providers, or the woman herself, are also part of the insistence on pursuing the technology. IVF successfully facilitates the circulation of eggs and embryos in a ‘bioeconomy’ that

depends on third-party provision of gametes and their valuation based on socio-economic aspects (Wahlberg 2018). This is evident in the ways in which egg freezing has become an important way by which fertile women in anticipation of delayed and declining fertility seek to avoid the intervention of third-party egg providers altogether (Martin 2010).

But an important element in the narratives and the identification of the depleting egg is the role of the menstrual cycle. The menstrual cycle forms a missing element to most analysis regarding the identification of infertility and its management, especially in marking the transition from IUI to IVF. Sanabria (2016) finds that the menstrual cycle is perceived as the ‘death of an egg’, or the prospect (and certainty) of a pregnancy and child (Matsuo 2019). But, the irregular period is sans order and rhythm, and signals a pathological uncertainty. Inhorn (1994, 259) finds Egyptian women linking menstrual irregularities to infertility:

Inevitably, menstrual problems are viewed in terms of abnormality and irregularity, which can be overcome through regulation. Thus, “an abnormal period”, “an irregular period”, “or too many periods each month” are all deemed to be causes of infertility. The “lack of a period” is also considered a dire problem ...

Such an analysis is in contrast to Matsuo’s (2019) findings amongst Indian women where the missing menstrual cycle may be seen as the sign of a pregnancy, and lead to celebrations especially amongst kin of infertile women waiting for a child, but the eventual onset of bleeding may be construed as a sign of a miscarriage, rather than an irregular period.

Amongst the 29 women interviewed, the irregular ‘period’ was often mentioned by women between the ages of 20 and 30 years. But it was the ‘irregular cycle’ that became the subject of infertility management and ailments. I would like to note here that the irregular cycle repeatedly appeared in the narratives of many of the women interviewed in Hyderabad. For instance, Sujata, 31, has a problem of irregular cycles, and is taking medication for it for the past 3 months, so that her ovulation can begin:

The doctor has suggested that we go for an IUI. We have no time for intercourse...my husband is travelling on most days. Currently, I am on my 4<sup>th</sup> cycle of IUI and this month they asked me to come during my ovulation period for blood tests.

However, Sujata’s ‘natural’ rhythms are linked to the erratic nature of her sexual relationship. The irregular period becomes a symbol of the interventions in the intimate life of the couple—this is seen in the ways in which the doctor’s recommendation suggests IUI to facilitate ‘natural’ conception especially since regular sexual intercourse, due to her husband’s absence, has been missing.

Obstetricians and gynaecologists diagnose menstrual absence as part of larger health issues common to women in India including malnutrition, anaemia, and also psychological stress (Matsuo 2019). According to Matsuo (2019, 6), ‘Whether the absence of three-month menstruation is considered a pregnancy or just irregular menstruation depends on the [participants] and their circumstances’. Thus, the ‘treatment’ gets conflated to the problematic period. This is why menstrual cycles figure prominently

in the diagnosis of PCOS/PCOD leading to questions regarding the quality of eggs through the regularity of cycles.<sup>5</sup> In Hisar and Hyderabad, doctors mentioned the widespread occurrence of PCOS/PCOD as a big reason for infertility amongst women in their 20s.

Sharanya, 25, is at the IVF clinic because a cyst causes her unbearable pain during periods:

This pain has been there for three periods now, and this is my second month of treatment at the hospital. They haven't exactly figured out why the cyst is there, but are nonetheless giving medication to dissolve it. They say there is a hormonal imbalance in my body. Prior to these three months I had regular periods. Only these three months the pain during periods has been unbearable. I keep fainting and feel feverish, and the first day of the periods is extremely painful. Otherwise, we do not have a problem. After this treatment the Doctor has advised us to try to conceive normally.

In Sharanya's case, the cyst is a symbol of the complicated treatment, which is not alleviating the issue of her painful periods but exacerbating it. However, Sharanya is also clear that once the irregularity is controlled, natural conception is 'prescribed', meaning she is not infertile. This is a critical intervention in the demarcation of the fertile-infertile: the doctor's prognosis regarding the possibility of natural conception. The irregular period is seen as just that: an anomaly, and something that can be overcome, without recourse to ART.

### **Facilitating a Viable Pregnancy: Implicating Aged Women in a Politics of Visibility**

Within ART clinical discourse, amongst 20–30 years old in Hyderabad, irregular periods once treated 'may' signal a return to 'normal' conception, without recourse to IUI or IVF (even though there are no guarantees)—but not amongst those past 35 years. In case of 40-year-old Sirisha, desperate to conceive to cement her second marriage, conception is possible through 'natural' sexual procreation as her follicular tests have shown good results—yet she is visiting the ART clinic. Even though, Sirisha has regular menstrual cycles, a 40 years old is not necessarily scrutinized regarding the same. The underlying assumption of declining fertility is linked to age and the slow disappearance of the menstrual period—so the focus is always and forever on the eggs and their viability. However, in this section, I scrutinize how the focus within infertility medicine shifts considerably towards the uterus as a woman ages, to facilitate a pregnancy rather than rescue 'dying' or absent eggs. Pregnancy, here, is often facilitated through third-party egg providers.

<sup>5</sup> In Egypt, according to Marcia Inhorn (1994, 257), 'The most common ovarian cause of anovulation is the polycystic ovary syndrome (PCO), a condition of self-perpetuating, chronic anovulation. PCO, in fact, represents a complex ovulatory dysfunction involving the hypothalamus, pituitary, ovaries, adrenal glands, and peripheral adipose (fatty) tissues, all contributing to an endocrine imbalance usually associated with infrequent ovulation, hirsutism (excessive, male pattern hair growth), the growth of multiple "follicles" (cysts) on the ovaries, and infertility'

Despite widely held beliefs that women cannot reproduce after menopause, Shikhar clinic in Hisar was openly subverting this narrative by facilitating pregnancies amongst women in their 50s and 60s. Amongst the 17 women interviewed, seven were postmenopausal, but the fertility treatment here was centred on ‘creating the period’—rhythmic return to a reproductive life. The resumption of bleeding was important for women who were beyond the biological limit for childbearing. This artificial bleeding was meant to provide a sense of ‘resurrection’ of dormant reproductive organs, especially the resuscitation of the uterus for the embryo transfer:

I administer 2 mg of Estedcol to initiate periods amongst post-menopausal women. After this there is a need for exposure of nine days, followed by an observation period of not more than 15 days. After the periods start, I administer a progesteron cycle that lasts for 2-3 days. All this is as per the clinical protocol associated with the administration of Estedcol. (Dr Anuj, Shikhar Clinic)

Hormonal birth control pills effectively suppress the ‘natural’ cycle—but retain the perception of ‘regularity’ through the monthly bleeding. In IVF treatment, which is also ‘artificial’, the period is conjured ‘artificially’, to fulfil differing ends. ‘I make most of our post-menopausal women “bleed” through the administration of estrogen and progesteron. This is to make their uterus ready for the embryo transfer. As you know eggs cannot be produced artificially after menopause.’ (Dr Vineeta, Haryana IVF).

Postmenopausal women in Hisar believed that the resurrected period was a sign that the subsequent pregnancy they carried belonged to them. Knowledge regarding the use of egg providers by the clinic was not discussed openly. None of my respondents, both the elderly women who had babies, or the doctors, would openly admit to the use of egg providers for their pregnancies. The visible pregnancy was deeply valued, and as Dr Anuj mentioned, ‘Motherhood is through the act of pregnancy. Here, most people believe that the woman who carries the child is the mother.’ Which is why, he proudly advertised the pregnancies that he facilitated amongst three of his patients, aged 66, 70, and 60.<sup>6</sup> All three had pregnancies and delivered their children through caesarean,<sup>7</sup> and all three had suffered decades of childlessness. Here, the pregnancy was a symbol of the reframing of age-related reproductive decline. This was similar to Chiaki Shirai’s (2019) study of Japanese women navigating third-party participation through an egg donor, who valued the pregnancy over their ‘genetic’ connection with the foetus. ‘[T]he physical aspects of childbirth ... the pain of delivery is considered by many to be essential to engendering “maternal instincts”’ (Shirai 2019, 308).

In India, the folk procreative ideology regarding ‘seed and earth’ identifies the uterus/womb as the prime repository of the man’s seed (Fruzzetti and Östör 1976). Agrarian symbolism is very particular for rural Indian patients frequenting Shikhar, and the uterus comes to occupy centre stage within such a discourse. However, and this is

<sup>6</sup> The pregnancy is also an important part of the script in Hyderabad, amongst the visibly ‘younger’ women visiting the clinic for fertility treatment. However, many of the narratives of birthing here were also stories of miscarriages and abortions, and for the desire to carry their foetus.

<sup>7</sup> Sama’s report suggests that a majority of IVF pregnancies result in caesarean sections. This is validated by research findings from my fieldwork as well. Especially in the case of older women, Dr Anuj insisted on a caesarean.

important, surrogacy was not a popular option amongst the women frequenting Shikhar. Gestational surrogacy depends on the third-party participation of another woman to carry the artificially fertilized embryo—effectively negating the value of the visible pregnancy to offset decades of childlessness.

Even though, for many of the women at Shikhar, in their late 40s and early 50s, or in their 60s—the visible pregnancy is a huge attraction, it is important to note that the uterus/womb was also under scrutiny for signs of ageing. Two out of the 17 women interviewed in Hisar had uterine fibroids, which they referred to as '*bacchedani mein gaanth*' (knot in the womb).<sup>8</sup> The uterine tumour, or fibroids, is a common ailment amongst the women visiting the Shikhar. The issue of uterine fibroids stemmed from a variety of past reproductive ailments such as ectopic pregnancies leading to lost fallopian tubes or blocked fallopian tubes. Many of the women interviewed in Hisar mentioned having their tubes 'blocked', which was not diagnosed in time. In Hisar, 5 of the 17 women had ectopic pregnancies and were diagnosed with tubal blockage. In Hyderabad, 6 out of the 29 women had between 1 and 2 miscarriages and abortions, though the exact reasons were not cited. Except for three women, none of the others mentioned any diagnostic problems with the tubes or uterus. Angrezo, 52, was diagnosed with uterine fibroids at a small clinic in her village during one of her many treatment cycles to get pregnant. The clinic told her that she would have to remove her uterus to remove the fibroids. 'For me, it was like the end. No hope of any children.' But then she came to Shikhar after reading about the clinic, and its list of older pregnant women, in a local newspaper. She was able to get pregnant through IVF, after her fibroids (which was a benign tumour) were removed by Dr Anuj.

Decades of misdiagnosis are blended into the narratives of childlessness that women in rural India encounter. These may not be effectively treated, while doctors embark on new forms of intrusive treatments and effectively put the lives of elderly women at risk during pregnancies and caesarean sections. Dr Anuj acknowledges:

Ageing means weakness and debilitation, especially when the endometrium skin tissue begins to degenerate. We have to deal with that as we prepare the uterus for IVF. Unfortunately, we cannot escape natural degeneration. [However, in the same breath he speaks of how] The pregnancy of an older woman mimics the same forms of morbidity as the middle-aged woman. The clinical outcomes for women in their 60s are similar to those in their 40s ... the [only worrying] clinical outcomes of conducting IVF amongst ageing women was the birth weight that the babies had. Many of these elderly women had babies who weighed 2 kgs. I have also noted a mild to moderate occurrence of IUGR or intrauterine growth retardation amongst the babies.

<sup>8</sup> Inhom (1994) mentions that Egyptian women would translate complex medical diagnosis in their own language to make meaning out of an otherwise alien treatment protocol.

The issue of co-morbidities and health risks to the elderly woman and the foetus/infant<sup>9</sup> was an important part of the discussion circulating in mass media reportage regarding Shikhar clinic. Dr Anuj was referred to as the ‘rogue doctor’ for purposely endangering the lives of these women (Majumdar 2018): which he countered with his specific answers regarding medically sustainable pregnancies amongst elderly women and, also, by positioning himself as a ‘feminist’ providing women relief from decades of social stigma due to childlessness. His patients were happy because they were finally able to have children, and those who had miscarriages after their IVF cycle would come back for repeated IVF cycles till they got pregnant. In such a situation, elderly women did not care ‘if they died’ while giving birth: for them it was important to fulfil their till-now elusive destiny of motherhood.

## Conclusion

While amongst older women, years of childlessness, and misdiagnosed or untreated issues came to be focused on the uterus (with the understanding that their ovaries are in decline, or have stopped releasing eggs due to menopause), in case of younger women, ART management begins to engage with the entire reproductive system, albeit in a piece-meal fashion. Ovaries, uterus, tubes, and menstrual cycles become part of this complicated narrative of invasive and aggressive medicine. Li-Wei Chien et al. (2002) suggest that, often, uterine tumours may come into being through IVF interventions, such as ovarian hyperstimulation. Hormonal interventions to alleviate other reproductive issues may also lead to the development of new, or the resurrection of older, ailments. In such a situation, facilitating a viable pregnancy remains an illusion that is spouted as part of the elaborate process of infertility management. Of importance, here, is the linking of age and reproductive decline as effective tropes to facilitate both disaggregation and more active medico-technological intrusion through ART.

In this paper, I discussed the ways in which women’s age is signified through their reproductive bodies, which are ‘broken down’ to facilitate intrusive ART techniques that play on the trope of disaggregated body parts, such as the egg and the womb. Such management of infertility requires the active propagation of particular forms of ideology regarding motherhood, and declining reproductivity that occupy shifting goalposts. Thus, the fear of declining reproduction is fostered amongst younger women through the clinical discourse regarding declining eggs and fertility, pushing them to more aggressive technological interventions such as IVF; in case of older women, past menopause, the same technology is used to champion late motherhood at the risk of death in the pregnant woman and her unborn child. At this point, the medicalization of ‘age’ as category, rather than experience (Crampton 2013), becomes the justification for unethical practices within ART.

<sup>9</sup> In the ethnographic fieldwork, there was very little mention of prenatal testing of babies for Down’s or other genetic disorders that may be passed through the elderly parents. Often such tests would cost more money, and the risk of losing the precious pregnancy through the amniocentesis meant that many couples would prefer to forego such testing. However, one man in his mid-fifties whose wife gave birth to their son at 45 via IVF, mentioned that their doctor in an adjoining state, insisted on conducting an amniocentesis, saying: ‘I cannot give you a child who has any disability’.



In the management of infertility, as I have shown in this paper, there is very little focus and engagement with the woman's reproductive self in its wholeness. This is evident in how the menstrual cycle is constantly manipulated amongst younger and older women, yet made absent in the final push towards the intrusive and aggressive technology.

ART practitioners continue to position themselves as 'saviours' in popular discourse in India, rescuing women from stigma emerging from infertility—but are wary of subjecting the ways in which treatment is managed to ethical inquiry. The treatment protocols followed are never entirely transparent to the patient, and she must navigate incomplete information regarding her body and ailments to achieve pregnancy and childbirth. The fallacious promises of 'percentage of successful pregnancies' continue to be identified as unethical ways of marketing ART, which often do not live up to the promise of providing healthy and safe pregnancies. Unsuccessful IUI and IVF cycles are always positioned on the reproductive decline and the age of the woman in her 'questionable' reproductive choices.

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## Compliance with Ethical Standards

**Competing Interests** NA

**Ethical Approval** This research has been granted ethics approval by the Institute Ethics Board, Indian Institute of Technology Hyderabad. A copy of the ethics approval can be obtained upon reasonable request via the corresponding author.

**Consent to Participate** Data was conducted through informed consent gathered from respondents before participation. The interviews were audio taped depending on approval from the participant.

**Consent to Publish** The research documented in this paper has approval for publication.

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