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Extended Abstract

Time Course of Treatment Seeking for Medically Assisted Reproduction (MAR): A Comparative Study Between Private and Government Healthcare Facilities in Guwahati, India

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Abstract

Infertility affects nearly 180 million couples globally, with South Asia having one of the highest primary infertility rates. In India, despite the growing demand for fertility services, disparities in accessibility persist, particularly between private and government healthcare facilities. Time to treatment is an important factor to understand treatment seeking behaviour. This cross-sectional study aims to compare the treatment-seeking time course of women undergoing Medically Assisted Reproduction (MAR) in a private and government facility in Guwahati, India. A total of 97 women were interviewed using a structured schedule, collecting data on sociodemographic characteristics and infertility treatment history. Time-related factors, such as pre-consultation (planning pregnancy, perception of infertility) and post-consultation (treatment duration, waiting time) phases, were analysed. Preliminary findings show that women seeking treatment at government facilities delayed their initial consultation by an average of 10 months compared to those at private facilities. Additionally, private facility treatment seekers had a shorter treatment duration during their first MAR consultation and faced less waiting time between treatments. Treatment seekers devote more time to non-MAR treatments along with lengthy waiting times. These disparities highlight the need for improved accessibility and quicker transition between treatments, particularly in government facilities, to reduce the overall treatment duration and increase chances of successful conception.

Keywords: Medically Assisted Reproduction, infertility, time-course approach, medical consultation

Introduction

Almost 180 million couples are suffering from either primary or secondary infertility in developing countries (Rutstein & Shah, 2004), accessibility and affordability of infertility treatments should be seen as a fundamental human right (Ombelet, 2011). Among various regions worldwide, South Asia has one of the highest primary infertility prevalence (Mascarenhas et al., 2012), out of which India has one of the highest infertility rates. Although the demand for fertility services in ever increasing in India (Patra & Unisa, 2022) , there exists disparities in accessibility of the facilities due to sociocultural aspects. Unlike developed countries, India has little or no financial assistance for availing infertility treatments even after rapidly developing the facilities for Medically Assisted Reproduction (MAR) (Malhotra et al., 2013). Time plays a crucial role towards eligibility for MAR treatments and consequently successful conception and delivery (Domar et al., 2021). There are several studies discussing the determinants of infertility and treatment seeking in Indian context. However, there is a little scientific literature on infertility treatment seeking, specifically Medically Assisted Reproduction, with time as an outcome measure. Though there is a little consensus about the time-related endpoints (Sunkara et al.,

2020), this study attempts to shed some light on the fertility behaviour and treatment duration of MAR treatment seeking women. Thus, this study aims to compare the treatment seeking time course of women undergoing Medically Assisted Reproduction (MAR) in private and government healthcare facility.

Methodology

A cross-sectional study of women undergoing Medically Assisted Reproduction for over a month in Guwahati, Assam, India, have been included in this study. Guwahati, a prominent city in Northeast India, has emerged as a leading center for Medical Assistance in Reproduction (MAR) in the region. Couples from across the Northeast seeking parenthood frequently visit the city for advanced fertility treatments. For this study, two healthcare facilities, one private and one government-run MAR facility permitted the researcher for data collection. The available types of MAR were in-vitro fertilization (IVF), intrauterine insemination (IUI) and intracytoplasmic sperm injection (ICSI). The donors and the treatment seekers who have been in the consultation stage or the consent for MAR has not begun yet have been excluded from the study. Data was collected by the researcher from 8 July to 12 September 2024. A structured interview schedule which has been approved by the Students Research Ethics Committee (SREC) of the researcher's academic institute as well as the ethical bodies of the healthcare facilities was used. The list of treatment seekers who would arrive on a certain week was available, out of which the respondents were randomly selected for the interview. The interviews were conducted maintaining confidentiality after obtaining the informed consent, verbal or written. A total of 97 women (73% from private facility and 27% from government facility) participated in the study.

Data has been collected regarding the sociodemographic characteristics (age, education, occupation, religion, social group etc.) and infertility treatment history (cause of infertility, treatment type etc.). The time-course has been broadly classified as pre-consultation and post-consultation period. Pre-consultation consists of the important events viz. a) Time to planning pregnancy, b) Time to perception of infertility, c) Time to initial consultation. Post-consultation constitutes the time duration of treatment and waiting time to the next treatment, for both MAR and non-MAR procedures. Thus, time (in months) is the outcome variable for the statistical analysis in this study.

The test for normality has been carried out using Shapiro Wilk test. The baseline characteristics of the treatment seekers has been described using univariate analysis. The comparison of the outcome variable has been done using t-test for two independent samples.

Preliminary Findings

Table 1 shows the profile of the treatment seekers. The average ages of the women seeking treatment and their husbands were 34 (SD:5.22) and 38.4 (SD: 5.26) years respectively. Out of 97 treatment seekers, about 46% were diagnosed with **female factor** which is the highest cause for infertility. A significant share of the treatment seekers (37%) were beneficiaries of **Below Poverty Line card.**

The treatment seekers visiting public and government facilities show no statistically significant difference in the average time taken for pregnancy planning and their infertility perception (Table 2). However, the women visiting government facility **delay their initial consultation by on an average 10 months** than those consulting in a private facility.

In case of non-MAR, Allopathic treatment is the most preferred treatment over Ayurvedic, Homoeopathy or traditional treatment types.

For MAR treatment, in-vitro fertilization (IVF) is the most preferred treatment. However, for the treatment seekers who had sought MAR prior to the current treatment, a relatively cheaper and less invasive procedure intrauterine insemination (IUI) was found to most sought treatment (Table 3).

Table 4 shows that the treatment seekers in the private facility who sought MAR consultation more than twice had **almost 3 months lesser** treatment duration on their first ever MAR consultation than those in the government facility. It indicates the prompt switch to the next treatment by the private facility treatment seekers.

It also found that the average waiting time in between non-MAR treatments was significantly higher for the treatment seekers in the government facility, which indicates that the treatment seeker has been away from the treatment seeking process for a longer period of time than the private facility treatment seekers. It is also seen that the treatment seekers spent more time on non-MAR treatment than on MAR, which can lead to subsequent delay for their first MAR consultation.

Expected Findings

This study is a part of an ongoing PhD thesis. Almost fifty percent of the data collection has been completed and has been used for analysis in this study. After the data completion, more robust estimates could strengthen the hypotheses and possibly indicate the study findings towards similar direction. Further, the role of sociocultural aspects on time to treatment can be analyzed to understand the disparities among the treatment seekers. The tentative time period for data collection ends in another four months, after which these analyses will be redone with a larger sample size.

Conclusion

Although treatment seekers perceive and acknowledge their infertility, there is a significant delay in medical consultation. Moreover, during the treatment seeking journey, the waiting time in between subsequent treatments are lengthy. There is a need to examine the factors associated with these delays. The burden of delay in consultation is higher for the treatment seekers in the government facility. Thus, there should be epidemiologic and demographic surveys to understand the barriers which lead to inability and delays in seeking treatment.

References

Domar, A., Vassena, R., Dixon, M., Costa, M., Vegni, E., Collura, B., Markert, M., Samuelsen, C., Guiglotto, J., Roitmann, E., & Boivin, J. (2021). Barriers and factors associated with significant delays to initial consultation and treatment for infertile patients and partners of infertile patients. *Reproductive Biomedicine Online*, *43*(6), 1126–1136. https://doi.org/10.1016/j.rbmo.2021.09.002

Malhotra, N., Shah, D., Pai, R., Pai, H. D., & Bankar, M. (2013). Assisted reproductive technology in India: A 3-year retrospective data analysis. *Journal of Human Reproductive Sciences*, *6*(4), 235–240. https://doi.org/10.4103/0974-1208.126286

Mascarenhas, M. N., Flaxman, S. R., Boerma, T., Vanderpoel, S., & Stevens, G. A. (2012). National, regional, and global trends in infertility prevalence since 1990: A systematic analysis of 277 health surveys. *PLoS Medicine*, *9*(12), e1001356. https://doi.org/10.1371/journal.pmed.1001356

Ombelet, W. (2011). Global access to infertility care in developing countries: A case of human rights, equity and social justice. *Facts, Views & Vision in ObGyn*, *3*(4), 257–266.

Patra, S., & Unisa, S. (2022). An exploration of treatment seeking behavior of women experienced infertility and need for services in rural India. *Frontiers in Reproductive Health*, *4*, 978085. https://doi.org/10.3389/frph.2022.978085

Rutstein, S. O., & Shah, I. H. (2004). *Infecundity, infertility, and childlessness in developing countries. (DHS Comparative Reports No. 9.).* (Article DHS Comparative Reports No. 9.). https://dhsprogram.com/publications/publication-cr9-comparative-reports.cfm

Sunkara, S. K., Zheng, W., D'Hooghe, T., Longobardi, S., & Boivin, J. (2020). Time as an outcome measure in fertility-related clinical studies: Long-awaited. *Human Reproduction (Oxford, England)*, *35*(8), 1732–1739. https://doi.org/10.1093/humrep/deaa138

Tables

Table 1: Baseline characteristics of the MAR treatment seekers.

SOCIODEMOGRAPHIC CHARACTERISTICS	
Mean Age (SD)	34.01 (5.22)
Mean Years of schooling (SD)	14.84 (3.87)
Mean Age at marriage (SD)	27.23 (5.84)
Occupation (%)	
Not working	47.42
Working	52.58
Husband's mean age (SD)	38.36 (5.26)
Husband's mean years of schooling (SD)	14.45 (4.18)
Husband's Occupation (%)	
Not working	2.06
Working	97.94
Religion (%)	
Hindu	72.16
Muslim	10.31
Christian	11.34
Others	6.19
Social Group (%)	
Scheduled Castes	1.05
Scheduled Tribes	26.32
Other Backward Classes	21.05
None of them	51.58
Administrative Region (State)	
Arunachal Pradesh	4.12
Assam	74.23
Manipur	8.25
Meghalaya	8.25
Mizoram	1.03
Nagaland	3.09
Tripura	1.03
Place of Residence (%)	
Rural	30.21
Urban	69.79
Below Poverty Line (BPL) Card Holder (%)	
Yes	37.23
No	62.77
INFERTILITY TREATMENT HISTORY	
Diagnosed cause of infertility (%)	
Male factor	18.09
Female factor	45.87
Both	8.51

Unexplained	25.53
Current MAR treatment (%)	
IVF	92.13
IUI	5.62
ICSI	2.25
Previous MAR treatment (%)	
IVF	22.41
IUI	75.86
ICSI	1.72
Non-MAR treatment ever undergone (%)	
Traditional/religious practices	3
AYUSH	3
Allopathy	83.6
Surgery	10.45
Average cost per cycle (in Indian Rupees)	
Private	150000
Government	75000
Total	**97**

Table 2: Comparison of average time to pregnancy planning, infertility perception and initial consultation of treatment seekers availing MAR in the government and private healthcare facility

Event / Facility	Marriage to planning (in months)			Planning to perception of infertility (in months)			Perception of infertility to initial consultation (in months)		
	Mean	SD	t	Mean	SD	t	Mean	SD	t
Government	19.92	20.25	1.53	14.16	12.3	0.26	15.84	23.2	**2.56****
Private	12.64	20.25		13.27	14.97		5.78	14.13	

***5% level of significance*

Table 3: Percentage of treatment seekers according to treatment type and sequence of consultation

Type	Percentage of treatment seekers (%)		
MAR			
	Last to Last	Last	Current
IVF	7.69	22.41	90.53
IUI	92.31	75.86	7.37
ICSI	0	1.72	2.11
Total	13	58	97
Non-MAR			
	Last to Last	Last	Latest
Traditional	NA	8.7	3
AYUSH		4.35	3
Allopathy		73.91	83.58
Surgery		13.04	10.45
Total		23	67

Table 4: Comparison of average treatment duration and waiting time for treatment seekers in government and private healthcare facility.

MAR															
	Duration of Second to last MAR			Waiting time to last MAR			Duration of last MAR			Waiting time to current MAR			Duration of current MAR		
	Mean	SD	t	Mean	SD	t	Mean	SD	t	Mean	SD	t	Mean	SD	t
Government	5.75	4.5	**2.33***	8.2	6.69	-1.18	2.85	1.34	-0.81	18.09	18.54	1.26	4.68	6.58	1.62
Private	1.88	1.35		16.18	20.83		4.91	9.04		11.34	15.14		3.09	2.96	
Total	**13**			**37**			**58**			**54**			**97**		
Non-MAR															
	Duration of Second to last MAR			Duration to last MAR			Waiting time to latest non-MAR			Duration of latest non-MAR			Waiting time to MAR		
	Mean	SD	t	Mean	SD	t	Mean	SD	t	Mean	SD	t	Mean	SD	t
Government	NA			11.8	12.96	1.22	29.4	12.9	**2.28*** **	17.78	20.13	**3.31*** **	24.66	39.26	0.32
Private				6.12	9.17		8.7	9.17		5.62	9.45		20.26	38.78	
Total				**23**			**18**			**39**			**39**		

***5% level of significance*