Consequences of infertility for women's married lives: Evidence from NFHS 5

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Infertility can have devastating consequences, particularly for women in patriarchal societies, leading to social isolation, a sense of failure, anxiety and depression, and low self-esteem, as their security in the marital home hinges on her ability to bear children. Despite this and while an important dimension of sexual and reproductive health and rights (SRHR), infertility remains a neglected aspect of reproductive health programmes in many Low and Middle Income Countries (LMIC), and its likely influence on marital, family, and community relationships remains poorly addressed in programmes and research (Bourey & Murray, 2022). Most studies of infertile couple have had a predominately medical and clinical focus, with relatively few exploring how infertility influences marital relationships from a social or emotional perspective (Rouchou, 2013; Tao et al., 2012).

Data on infertility prevalence tend to be sparse. WHO estimates suggest that 17.5% of the population globally has experienced infertility (Cox et al., 2022; WHO, 2023). In 2010, globally, 48.5 million couples were unable to have a child, of which 19.2 million were unable to have a first child, and the remaining 29.3 million were unable to have an additional child. South Asia accounted for about one quarter (14.4 million) of these couples. In India, several studies have measured infertility using the data from the National Family Health Survey (NFHS). Only one of these has addressed secondary infertility as well. This study observed that in 2005-06, primary infertility among women aged 20-49 was 2.7 percent, and secondary infertility was 24.6 percent, higher than the global average (Mascarenhas, Flaxman, et al., 2012).

Despite the emphasis on women having to prove their fertility, available studies have tended to focus on socio-demographic correlates, largely neglecting to explore the devastating social and emotional consequences that infertility may have for women's lives. The small body of evidence that does shed light on consequences for women comes largely from small community- or facility-based studies and qualitative studies, and much less frequently, from NFHS (Agiwal et al., 2023; Ganguly & Unisa, 2010; Naina Purkayastha & Sharma, 2021; Syamala, 2012; Unisa et al., 2022). These studies suggest that infertility is likely associated with a range of social, emotional, physical and financial consequences (Jejeebhoy, 1998; Sharma et al., 2024; Sheoran & Sarin, 2015; Unisa, 1999). Labels such as 'barren' (banjh) are levelled against infertile women, and they may face stigma and social ostracism (Mishra & Dubey, 2014; Sharma et al., 2024), they experience low self-esteem, shame and reduced access to family resources or support (Kothari & Sriram, 2024; Singer & Hunter, 2003).

This study utilises data from NFHS-5 (2019-2021) to explore whether at national level, women aged 20-39 who experience infertility are disadvantaged, compared to fertile women in terms of four domains: marital instability, agency, marital control and marital violence.

Data and variables

Data are drawn from the NFHS-5, which aimed to provide key data on health and family welfare, and related issues. The survey used a stratified multi-stage sampling method to obtain a nationally representative sample of households, with estimates available at national, state/union territory (UT), and district level, depending on data availability.

The analysis focuses on currently married women aged 20 to 39, excluding those unmarried, married for fewer than five years, resulting in a sample of 2,73,785 exposed women.

<u>Infertility</u>

We follow the definitions employed to analyse multi-country data from the DHS, including India's NFHS (Mascarenhas, Cheung, et al., 2012). Primary infertility refers to "the absence of a live birth for couples that have been in a union for at least five years, during which neither partner used contraception,

and where the female partner expresses a desire for a child." Secondary infertility refers to "the absence of a live birth for couples that have been in a union for at least five years since the female partner's last live birth during which neither partner used contraception and the female partner expresses a desire for a future child." The prevalence of either type of infertility is calculated as the number of women in an infertile union as a percentage of those in infertile and fertile unions.

Outcome indicators:
The NFHS allows us to explore several issues relating to women's married life – marital instability, namely dissolution and polygyny, women's agency, and their husband's exercise of power over them in marital relationships, including their experience of marital violence. Data for marital instability are available in the district-level module (larger samples), and hence, analysis of these indicators draws on the district-level module. All others are available only in the state-level module, and for these, thus, the restricted sample is employed.

- Marital instability: dissolution and polygyny
- Agency: decision-making, freedom of movement and control over money
- Husband's controlling behaviour
- Experience of marital violence

Analysis:
We compared the prevalence of each control variable and each outcome indicator among women who were classified to have experienced primary and secondary infertility, respectively, with those who were not so classified. Separate multivariate logistic regression analyses were conducted to ascertain the relationship between the two measures of infertility and each of the outcome indicators, after adjustment for differences in the background characteristics of each group.

Results
Socio-demographic differences between those who had experienced and had not experienced infertility were evident. Overall, about four in five infertile and fertile women were Hindu, and about one-third belonged to socially excluded castes and tribes. While those experiencing primary infertility were younger than those who had a child, those experiencing secondary infertility were older than those who had at least one child. The infertile tended to be better educated than the fertile, more likely to reside in urban areas, and more likely, notably among the secondarily infertile, to belong to the wealthiest two quintiles (not shown in tables).

Marital instability was powerfully associated with both primary and secondary infertility. Ever married infertile women were significantly more likely to experience marital dissolution (OR, 7.5 for both primary and secondary infertility) than their fertile counterparts. And among currently married women, polygyny was far more likely to have been experienced by women who had experienced both primary (OR, 3.31) and secondary (OR, 1.45) infertility than others.

Agency indicators are not uniformly associated with infertility measures. Women who have experienced primary infertility are considerably more likely than others to lack freedom of movement (OR 0.77) and control over resources (OR 0.74). No such disparities are observed among those who have at least one child. Women experiencing secondary infertility were far more likely than fertile women to report husband's controlling behaviour (OR 1.24); no such association was reported among those experiencing primary infertility. Finally, once confounding factors were controlled, all measures of recent marital violence were unrelated with both primary and secondary infertility (similar associations, not shown here, were observed for lifetime experience of marital violence).

Table 1. Odds ratios (and 95% confidence intervals) from logistic regression analyses assessing relationship between infertility and selected indicators, women aged 20-39

	PRIMARY INFERTILITY	SECONDARY INFERTILITY

Marital instability		
Marital dissolution		
Divorced, separated, abandoned (Ever married)	7.53*** (6.84 8.28)	7.53*** (6.53 8.68)
Polygyny		
Husband has a second wife (Currently married women)	3.31*** (2.89 3.77)	1.45***(1.24 1.69)
Agency		
Decision-making	0.94 (0.81 1.09)	0.93 (0.82 1.06)
Freedom of movement	0.77***(0.67 0.88)	1.01 (0.9 1.14)
Control over resources	0.74**(0.61 0.89)	0.86~ (0.72 1.02)
Marital Control		
Controlling behaviour of husband on domestic matters	0.99 (0.84 1.16)	1.24** (1.09 1.42)
Marital violence (12 months)		
Emotional	0.88 (0.69 1.13)	0.84 (0.67 1.04)
Physical or sexual violence	0.86 (0.72 1.03)	0.90 (0.77 1.05)
Physical or sexual or emotional violence	0.90 (0.76 1.08)	0.95 (0.82 1.11)

*~p<.10, *p<.05, **p<.01, ***p<.001 comparing fertile women with those experiencing infertility.*
In adjusted models, each row represents separate models, controlling for age, educational level, place of residence, household wealth status, rural-urban residence, religion, caste and region of residence.

Using data from the NFHS to explore the consequences of infertility for women's lives has both advantages and limitations. While it allows us to draw a national level profile, it is limited in terms of likely indicators of the consequences of infertility that can be measured. Nor do our data permit an assessment about whether consequences differ depending on whether the infertility is attributable to the male or female partner. Moreover, the limited information available on duration of marriage for those whose marriages have ended means that evidence on marital dissolution as a consequence of infertility may only be approximated our measure of infertility. Likewise, while we assume that polygyny is a consequence of infertility, we acknowledge the possibility of polygyny resulting in limited exposure to marital relations and reducing a woman's chances of becoming pregnant. And finally, our data do not permit an analysis of the financial or quality of care consequences related to accessing assisted reproductive techniques (ART) and other treatments, although there is evidence that disrespectful care providers and exorbitant charges place a heavy burden on infertile couples and may inhibit further treatment (Kothari & Sriram, 2024; Unisa, 1999).

Findings call for a better understanding of the adverse consequences of infertility for women's lives, and how the marginalisation of infertile women increases the risk of adverse health and social outcomes. Large national surveys must pay more attention to collecting information relating to infertility, including for those whose marriages were dissolved, and its correlates. Because of social norms and norms of masculinity, an infertile female may face discrimination and loss of prestige in both the marital home and in society more broadly, and may face isolation, compromised agency, and poor family relations. Action is needed at multiple levels. For one, infertility services, including screening, testing and treatment, and couple counselling must become better integrated into primary health services. Behaviour change communication and norm change activities must include those aimed to reverse the social stigma, loss of security and prestige, and compromised ability to exercise rights that result from infertility. Programmes to enhance male involvement must sensitise men about infertility and their role

in supporting an infertile wife, and help them arrive at new notions of masculinity. Health care professionals need to understand cultural and social implications of infertility in order to provide counselling along with treatment and referrals to the infertile.

References

Agiwal, V., Madhuri, R. S., & Chaudhuri, S. (2023). Infertility Burden Across Indian States: Insights from a Nationally Representative Survey Conducted During 2019-21. *Journal of Reproduction & Infertility*. https://doi.org/10.18502/jri.v24i4.14156

Bourey, C., & Murray, S. (2022). Intimate partner violence among women with infertility. *The Lancet Global Health*, *10*(6), e778–e779. https://doi.org/10.1016/S2214-109X(22)00205-4

Cox, C. M., Thoma, M. E., Tchangalova, N., Mburu, G., Bornstein, M. J., Johnson, C. L., & Kiarie, J. (2022). Infertility prevalence and the methods of estimation from 1990 to 2021: a systematic review and meta-analysis. *Human Reproduction Open*, *2022*(4). https://doi.org/10.1093/hropen/hoac051

Ganguly, S., & Unisa, S. (2010). Trends of Infertility and Childlessness in India: Findings from NFHS Data. *Facts, Views & Vision in ObGyn*, *2*(2), 131–138.

Jejeebhoy, S. J. (1998). Infertility in India - levels, patterns and consequences: Priorities for social science research. *Journal of Family Welfare*, *44*(2), 15–24.

Kothari, A., & Sriram, S. (2024). Voices of the Unheard: Women and Infertility in India. *Human Arenas*, *7*(1), 212–231. https://doi.org/10.1007/s42087-022-00269-8

Mascarenhas, M. N., Cheung, H., Mathers, C. D., & Stevens, G. A. (2012). Measuring infertility in populations: constructing a standard definition for use with demographic and reproductive health surveys. *Population Health Metrics*, *10*(1), 17. https://doi.org/10.1186/1478-7954-10-17

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

Mishra, K., & Dubey, A. (2014). Indian Women's Perspectives on Reproduction and Childlessness: Narrative Analysis. *International Journal of Humanities and Social Science* , *4*(6).

Naina Purkayastha, & Sharma, H. (2021). Prevalence and potential determinants of primary infertility in India: Evidence from Indian demographic health survey. *Clinical Epidemiology and Global Health*, *9*, 162–170. https://doi.org/10.1016/j.cegh.2020.08.008

Rouchou, B. (2013). Consequences of infertility in developing countries. *Perspectives in Public Health*, *133*(3), 174–179. https://doi.org/10.1177/1757913912472415

Sharma, S., Sharma, R., Manani, P., & Prasad, I. V. (2024). Infertility Among Married Women in Northern India: A Qualitative Study of Coping Strategies and Social Stigmas. *International Journal of Women's Health and Reproduction Sciences*, *12*(1), 33–41. https://doi.org/10.15296/ijwhr.2023.7890

Sheoran, P., & Sarin, J. (2015). Infertility in India: social, religion and cultural influence. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 1783–1788. https://doi.org/10.18203/2320-1770.ijrcog20150947

Singer, D., & Hunter, M. (Eds.). (2003). *Assisted Human Reproduction: Psychological and Ethical Dilemmas* (1st ed.). Wiley.

Syamala, T. S. (2012). *Infertility in India: Levels, trends, determinants and consequences*.

Tao, P., Coates, R., & Maycock, B. (2012). Investigating marital relationship in infertility: a systematic review of quantitative studies. *Journal of Reproduction & Infertility*, *13*(2), 71–80.

Unisa, S. (1999). Childlessness in Andhra Pradesh, India: Treatment-Seeking and Consequences. *Reproductive Health Matters*, *7*(13), 54–64. http://www.jstor.org/stable/3775703

Unisa, S., Negi, K., Pujari, S., & Chaurasia, V. (2022). Do dietary patterns and morbidities have a relationship with primary infertility among women? A study from NFHS-4 (2015–16), India. *Journal of Biosocial Science*, *54*(4), 682–697. https://doi.org/10.1017/S0021932021000274

WHO. (2023). *Infertility prevalence estimates, 1990-2021*.