

Infertility and Treatment Seeking in India: Findings from District Level Household Survey

Sayed UNISA

Department of Mathematical Demography and Statistics, International Institute for Population Sciences, Deonar, Mumbai 400088, India.

Correspondence at: Tel.: +91 22 42372430; fax: +91 22 25563257; e-mail: unisa@iips.net

Abstract

Introduction: The purpose of the present paper is to give an estimate of prevalence of infertility and proportion of women seeking treatment for fertility in India by different socio-economic characteristics. An attempt is made to compare lifetime infertility, current infertility and childlessness.

Methods: District Level Household Survey is one of the largest cross-section survey covering 643 944 ever married women. In this survey, for the first time, a module on infertility was kept to examine the past and current problem of infertility in India.

Results: Estimates of lifetime primary/secondary infertility for currently married women aged 20-49 with at least two years marital duration is found to be 8.8%. Three-fourth of those who reported lifetime problem of infertility suffered from primary infertility. Childlessness and current primary infertility are found as 3.7 and 2.3% respectively among women. On average, the percentage of childless women are found to be 1.4% higher than infertility showing that voluntary childlessness is negligible in India.

Childlessness and primary infertility are also estimated removing the subset of population who are currently pregnant or using contraceptive, then the prevalence is found to be 8.9 and 6.4% respectively. Percentage of women seeking treatment for lifetime primary and current primary infertility are around 83%. A higher number of women are now going for allopathic treatment for current infertility problems in comparison to lifetime primary infertility. Although the prevalence of current infertility is 2%, there is huge demand of fertility services in actual number in India.

Key words: Childlessness, India, infertility, lifetime infertility, prevalence, socio-economic.

Introduction

Infertility is included in ICPD as one of the components of reproductive health. Many developing countries have not included in their programme this component for services as these countries are facing population problems (Berer, 1999). Moreover, there is a lack of data to show the demand of fertility services in developing countries and to some extent in developed countries too (Sundby *et al.*, 1988; Van Balen *et al.*, 1997; Unisa, 2001, Che and Cleland, 2002; Boivin *et al.*, 2007). Attempts were made to estimate infertility indirectly from the information on childlessness from the census and survey data (Pathak and Unisa, 1993). Some researchers have also estimated infertility from Demographic and Health

Surveys (WHO, 1991; Rutstein and Shah, 2004). In case of India too, reliable estimates of infertility and demand of medical care are not available except for as few localized surveys (Zarger *et al.*, 1997; Unisa, 1999). No comprehensive measures of the prevalence of infertility in India have been carried out, nor have there been any reliable measures of infertility trends. Availability of fertility drugs and reproductive technologies, media attention, less secrecy about the issue of infertility gives an impression that infertility has increased over the period. Moreover, environmental and occupational exposure to chemicals, life style, late marriages, stress and psychological factors, are also found to contribute in increasing prevalence of infertility (Evers, 2002; Foresta *et al.*, 2002; Oliva *et al.*, 2001; Winder, 1989; Olsen *et al.*, 1983).

In order to set up adequate fertility services and to meet the challenges one must know the potential need and demand for medical services in the country. The aim of the present paper is to address two questions: (I) what is the prevalence of infertility in India, and (II) what proportion of couples seeks and/or receive medical care for fertility difficulties? Answers to these questions may empower people with fertility problems and efforts to persuade organizations and government to allocate resources and services for easing the burden of infertility.

Materials and Methods

A separate module was designated on infertility for the first time in the District Level Household Survey (DLHS-3) and the present study is based on this data. The primary objective of this survey is to provide reproductive and child health outcome indicators at the district level in order to monitor and provide corrective measures to the national programme (IIPS, 2010). A multi-stage stratified systematic sampling design was adopted for DLHS-3. In each district, 50 primary sampling units (PSUs), these are census villages for rural areas and wards for urban areas, were selected in the first stage by systematic probability proportional to size (PPS) sampling. In rural areas in the second stage of sampling, households were drawn from the selected villages (PSUs) after house listing. Whereas, in urban areas the second stage of sampling is the selection of Census Enumeration Blocks (CEBs) followed by selection of households in the third stage of sampling. Circular systematic sampling was adopted for selection of households.

The DLHS -3 survey is one of the largest ever demographic and health surveys carried out in India, with a sample size of about seven hundred thousand households. Fieldwork was conducted during December 2007 to December 2008 covering 611 districts in the country, gathering information from 643,944 ever married women in the age group 15-49 years. Overall household response rate was 94 cent with 89 per cent for ever married women. The ever-married women's questionnaire contained information on women's characteristics, maternal care, and reproductive health including module of infertility. All household level questionnaires were bilingual, with questions in both regional languages and in English.

The module of infertility consisting of seven questions was canvassed to all ever-married women to gather information on infertility status and treatment seeking in DLHS-3. In this survey, treatment sought and type of treatment (allopathic or other) is also asked to those women who reported problems in conceiving.

Following definitions are used in the paper:

Lifetime infertility: Ever had/have problem in getting pregnant

Lifetime primary infertility: Ever had/have problem in conceiving for the first time

Childlessness: Never had any live birth till interview date

Current primary infertility: Never had any live birth till interview date and reported problem in conceiving for the first time

Estimation of lifetime infertility is based on the question – whether women ever had a problem in getting pregnant (first question of module in the DLHS). Lifetime primary infertility is based on the first question and the timing of this event that is problem in conceiving for the first time (second question of module). Estimation of childlessness is based on the information of the birth history question – women ever had live birth (No). Current primary infertility is based on the birth history information that is no live birth until interview date along with the first two questions of the infertility module about problem of getting pregnant for the first time. For all the above indicators, currently married women in the age group 20-49 with at least two years marital duration are considered for this paper. Current primary infertility has also been calculated removing the subset of population who are currently pregnant or using contraceptive among the same age and marital duration women. Women of ages 15-19 are not considered here as they are in process of maturity and sometimes face adolescent infertility (Agrafiotis, 2007). In case of India, women after marriage frequently visit their parental house for religious and cultural reasons, hence, marital duration of two years is considered here to give sufficient exposure time of 24 months for conception (WHO, 2001).

Demand for medical care was defined as the proportion of couples who decide to seek any medical advice or care to resolve their fertility problems – the question in the module was "Have you or your husband consulted anyone for advice or treatment for infertility problem". The following question in the module of infertility was about the source of treatment (Government allopathic care, private allopathic care, AYUSH, herbalist, traditional healer, religious/faith healing). In the study, overall figures that include any type of care (general advice, diagnostic testing, treatment) and any type of services (allopathic, AYUSH-Indian System of Medicine) are used. However, separate estimate of demand for allopathic treatment are also provided adding government and private allopathic care.

The future number of expected of infertile couples and services required are estimated using projected female population of India by age for 2011 and 2021

(Registrar General of India, 2006). The proportion of currently married women from 2001 census is kept the same for estimating currently married women in 2011 and 2021 considering that marriage dissolution over period will remain more or less same (any marginal increase in divorce will be compensated with marginal decrease in widowhood). Estimates of currently married women population of age 20-49 were multiplied by the proportion of women with corresponding lifetime and current primary infertility from the present analysis to get

estimates of infertile women for 2011 and 2021. Estimated number of infertile women were then multiplied by the proportion of those seeking infertility medical care to get estimates of the number of infertile women seeking fertility treatment.

Results

Results of lifetime, current infertility and treatment are presented by socio-economic characteristics of women. The purpose of giving infertility rates by

Table 1. — Percentage of women aged 20-49 years with at least two years of marital duration who are childless/infertile according to selected background characteristics, India, 2007-2008.

Background Characteristics	Lifetime infertility	Lifetime primary infertility	Based on all women		Based on non pregnant and non contraceptive users	
			Childless	Current primary Infertility	Childless	Current primary Infertility
Current age						
20-24	9.4	7.3	10.6	4.6	14.6	7.9
25-29	8.7	6.4	4.2	2.8	9.3	7.0
30-34	8.8	6.4	2.6	2.0	8.5	7.0
35-39	8.7	6.6	2.1	1.7	7.3	6.3
40-44	8.7	6.8	1.8	1.5	5.7	4.8
45-49	8.8	7.0	1.7	1.5	4.4	3.8
Type of locality						
Rural	8.9	6.9	3.8	2.3	8.4	5.9
Urban	8.5	6.3	3.7	2.4	10.2	7.7
Age at consummation of marriage						
Below age 18	9.5	7.4	3.0	1.9	7.1	5.1
18 and above age	8.2	6.0	4.4	2.8	10.8	7.8
Education of women						
No schooling	9.4	7.3	3.4	2.2	7.3	5.4
Less than 5	9.2	7.1	3.2	2.1	8.3	6.2
5-9 years	8.6	6.4	4.0	2.5	10.6	7.6
10 or more year	7.6	5.5	4.4	2.5	11.7	8.0
Education of husband						
No schooling	9.3	7.1	3.4	2.3	7.2	5.4
Less than 5	9.3	7.1	3.3	2.3	8.3	6.3
5-9 years	8.9	6.8	3.9	2.4	9.4	6.8
10 or more year	8.3	6.2	4.0	2.3	10.0	7.0
Religion of the women						
Hindu	9.0	6.9	3.9	2.4	9.6	6.8
Muslim	8.8	6.8	3.3	2.3	6.2	4.8
Christian	6.2	3.9	3.1	2.0	6.5	5.1
Sikh	9.7	7.5	2.7	2.0	10.5	8.5
Buddhist	6.7	4.5	3.1	1.9	9.3	7.4
Caste of the women						
Scheduled Caste	9.5	7.3	3.8	2.4	9.4	6.7
Scheduled Tribe	7.2	4.9	4.1	2.4	8.3	5.8
Other Backward Caste	9.3	7.2	3.9	2.4	8.9	6.2
Other	8.7	6.6	3.3	2.2	9.2	7.0
Wealth index quintiles						
Poorest	9.8	7.6	4.4	2.6	7.5	5.2
Second	9.4	7.3	4.0	2.4	8.0	5.5
Middle	8.7	6.6	3.6	2.2	8.6	6.1
Fourth	8.6	6.5	3.6	2.3	9.9	7.4
Richest	8.2	6.0	3.5	2.3	10.4	7.8
India	8.8	6.7	3.7	2.3	8.9	6.4

socio-economic characteristics is to identify any specific group which is facing and how many of them effort to go for treatment.

Lifetime infertility

Estimates of lifetime infertility give an idea about how many women actually suffered with this problem that they might not be facing currently. This measure gives a better idea about potential need of fertility services in the country. Based on the question whether women have faced any time problem in conceiving (for the first time, after live birth/still birth, abortion), lifetime infertility rates are computed for currently married women in the age group 20-49 with at least two years marital distribution by socio-economic characteristics (Table 1). It is found that 8.8 percent women in India faced the lifetime primary/secondary infertility problem. Three-fourth of those who reported a lifetime problem in conceiving suffered from primary infertility. Age-wise lifetime primary/secondary infertility prevalence is the same for all age groups except for age group 20-24.

It is found that 6.7 percent women have faced or facing problem in conceiving for the first time (lifetime primary infertility). Those women belonging to poorest wealth quintile, Sikh religion, Scheduled caste, who got married before age 18 years, and not gone to school or have less than five years education have higher prevalence of primary infertility in comparison to their counterparts (above seven per cent prevalence).

Childlessness and Current Infertility

Childlessness is defined as how many women at present did not have any live birth whether this might be involuntary or voluntary. Whereas current primary infertility estimates gives an idea about the current problem in conceiving for the first time. The current primary infertility measure is also based on the question whether women have faced problem in conceiving for first time but it is computed only for those women who never had any live birth. Table 1 presents estimates of current childlessness and primary infertility for currently married women with at least two years marital duration by socio-economic characteristics. Childlessness and current primary infertility are found as 3.7 and 2.3 per cent respectively among women. A comparison of childlessness and infertility estimates gives an idea about voluntary childlessness in India. On an average, the percentage childless women is 1.4 percent higher than primary infertility showing that voluntary childlessness is negligible in India. Negative relationship between age and status of childlessness and primary infertility is found as it was expected. At the end of reproduc-

tive ages, both the rates are almost same and it may be noted that less than two percent remained primary infertile by the age 45-49.

Childlessness and primary infertility is also estimated removing the subset of population who are currently pregnant or using contraceptive then the prevalence is found as 8.9 and 6.4 per cent respectively. These estimated are found higher for women belonging to Sikh religion, five and above years of education, belonging to richest wealth quintile, and those women who got married after age 18 and living in urban areas.

Demand for medical services

In case of India along with allopathic system of medicine, other Indian systems of medicine, and alternative system of medicines (Ayurvedic, Yoga, Unani, Sidha, Homeopathy (AYUSH), herbal, traditional medicine, religious / faith healing) are also used by couples for infertility treatment (Kakar, 1983; Unisa, 2000). Women were asked about treatment, / diagnosis and / advice for infertility by any type of medical practitioner. Treatment for lifetime primary as well as current primary infertility behavior is presented in Table 2 only for currently married 20-49 age group women with at least two years marital duration. A very high proportion (around 83 per cent) of women sought treatment for lifetime and current infertility from any source of medicine. Except women who belong to poorest wealth quintile, scheduled tribes and never gone to school all other women have similar pattern of treatment from any source of medicine. More than 90 percent women belonging to Sikh religion and highest wealth quintile are undergoing treatment for lifetime and current infertility.

Seventy two percent and 66 percent women respectively were going for current and lifetime infertility treatment by allopathic system of medicine at all India level. Over all higher percentage of women are going for allopathic treatment for current in comparison to lifetime infertility. Although difference in treatment seeking from any source exists by socio-economic characteristic of women but large differences are found when it comes to women going for allopathic treatment for lifetime and current primary infertility treatment by socio-economic characteristics. There is 40 percent difference in poorest to richest wealth quintile, 26 per cent with no schooling to 10 and above years of schooling and 23 per cent in rural- urban areas among women who are going for allopathic treatment. Around 50 per cent women belonging to scheduled tribes and poorest wealth quintile women can afford to go for allopathic treatment. Most of the women who have undergone

Table 2. — Percentage of currently married women aged 20-49 years with at least two years marital duration who sought treatment for lifetime/currently primary infertility problem, according to selected background characteristics, India, 2007-2008.

Background Characteristics	Lifetime infertility treatment		Current infertility treatment	
	Any type of treatment	Allopathic treatment	Any type of treatment	Allopathic treatment
Current age				
20-24	79.9	64.8	73.6	61.5
25-29	86.4	71.5	84.2	74.1
30-34	85.8	69.1	87.3	77.5
35-39	83.6	66.7	87.0	77.8
40-44	82.2	62.9	85.5	76.5
45-49	78.7	58.9	83.0	75.3
Type of locality				
Rural	81.4	61.7	79.0	66.3
Urban	87.7	77.4	88.7	83.4
Age at consummation of marriage				
Below age 18	81.6	61.7	79.7	67.6
18 and above age	85.4	72.2	83.9	74.9
Education of women				
No schooling	79.2	56.9	76.3	61.6
Less than 5	83.1	63.0	82.7	69.8
5-9 years	86.5	74.4	85.0	77.8
10 or more year	91.0	85.2	90.9	87.2
Education of husband				
No schooling	77.4	53.3	74.2	56.9
Less than 5	79.0	55.8	77.7	63.8
5-9 years	84.1	67.8	82.8	73.3
10 or more year	88.5	78.8	88.3	83.3
Religion of the women				
Hindu	82.4	65.5	80.9	70.8
Muslim	87.2	69.5	88.1	79.2
Christian	82.3	70.2	85.2	73.3
Sikh	96.4	83.6	95.2	87.2
Buddhist	74.0	63.1	75.3	65.2
Caste of the women				
Scheduled Caste	81.6	62.5	78.6	68.9
Scheduled Tribe	72.7	46.1	71.9	50.4
Other Backward Caste	84.3	69.2	84.0	75.4
Other	87.5	74.5	88.5	82.7
Wealth index quintiles				
Poorest	75.4	48.3	69.0	47.8
Second	79.4	57.0	75.5	61.1
Middle	81.5	63.1	81.3	71.1
Fourth	85.0	71.6	86.7	80.7
Richest	91.4	84.0	92.4	88.8
India	83.3	66.4	82.2	71.9

allopathic treatment have availed it from private sector, as complete diagnostic services and treatment are not available in most of the Government health service centres in India.

Future potential demand of medical care for infertility

In order to set up adequate fertility services and to meet the challenges one must know the potential need and demand for medical services in the country. Hence, number of infertile women and out of them how many are going for medical care is projected for 2011 and 2021. Projected female populations and

proportion of currently married women are used from census statistics and prevalence rates of infertility and treatment seeking are used from the estimates of DLHS-3. Table 3 shows the projected number of women of age group 20-49 for 2011 and 2021 respectively. Estimation of currently married women (couples) shows that there will be 184 and 239 million women respectively in 2011 and 2021. Sixteen and 21 million currently married women aged 20-49 have lifetime primary infertility in 2011 and 2021. Of these women, eight and 11 million go for allopathic treatment if the current rate of 66 per cent seeking treatment is used. Over the period, it

Table 3. — Projected figures of potential need and demand for infertility medical care.

Categories of estimation	2011 Estimated number (×1,000)	2021 Estimated number (×1,000)
Number of projected women of ages 20-49	228,840	296,365
Number of currently married women of ages 20-49	184,921	239,486
Number of currently married women who will have lifetime infertility (9%)	16,642	21,553
Number of currently married women who will have lifetime primary infertility (7%)	12,389	16,045
Number of currently married women who will go for allopathic treatment for lifetime primary infertility (66% - low)	8,543	11,064
Number of currently married women who will go for allopathic treatment for lifetime primary infertility (85% - high)	11,002	14,249
Number of currently married women who will have current experience of primary infertility problem (based on 2% prevalence - low)	3,698	4,789
Number of currently married women who will go for allopathic treatment for current primary infertility (85% - high)	3,143	4,071
Number of currently married women who will have current experience of primary infertility problem in 2011 (based on 5% prevalence - high)	9,246	11,974
Number of currently married women who will go for allopathic treatment for current primary infertility (85% - high)	7,859	10,178

may be expected that use of allopathic treatment will increase and at least 85 percent will seek allopathic treatment. Using 85 percent going for allopathic treatment potential demand of services is also projected and it is found that 11 and 14 million would undergo treatment. It is also projected and presented in table how many vurrent primary infertile (couple) there will, how many of them go for treatment.

Discussion

For the first time in India we have lifetime prevalence of primary/secondary infertility data from the District Level Household Survey that has included module on infertility. This estimate is valid insofar as DLHS-3 consists of a representative sample of whole population of India. The analysis shows not very significant variation by socio-economic characteristics in the prevalence of infertility. However, demand for infertility medical services varies largely by wealth quintiles, education and residence.

In the study conducted in the USA on the trend of infertility, it is found that rates stayed more or less the same over the period 1985-2002 (Stephen and Chandra, 2006). In contrast, in some of the African countries, prevalence was dropped drastically from exceptionally high level of 50 percent (Larsen, 2005). In India, the prevalence of infertility is similar

to estimates derived for the developing countries (Boivin *et al.*, 2007). In this study too, similar to USA pattern of lifetime infertility, we are expecting lifetime infertility prevalence will remain more or less at the same level. Therefore, it is justified to use the same prevalence rates of 2007-2008 for projection of infertile women in India for 2011 and 2021.

Children and motherhood are important in developing countries for socio-cultural reasons and continuity of marriage (Berer, 1999; Unisa, 1999). However, among women belonging to low socio-economic strata only about half used allopathic infertility treatment. One of the factors for low demand is that people may not be motivated to seek treatment if fertility services are limited or unavailable in public health sector (Sundby *et al.*, 1998; Unisa, 2001; Bovin *et al.*, 2007). Couples have to spend considerable amount of money for fertility treatment which is difficult to manage in their available resources (Unisa, 2008).

A lot of medical research has been devoted for the advancement of procedures that can be offered as infertility services. Some of the fertility treatments range from relatively simple hormone treatments to highly complex and invasive procedure. The success rate of these procedures varies, but few are encouragingly high ones (Statistics of Human Fertilisation and Embryology Authority of the U.K., 1999). A

large proportion of women seeking infertility treatment have ovulation and reproductive tract infection (Norris, 2001). We need epidemiologic surveys to estimate demand for specific treatment services for infertility in India. However, basic low cost diagnostic and treatment services may be provided at community level health facilities in India as very large number of women going to be infertile in coming years. Looking at the potential demand of services, component of infertility may be included with more emphasis in the current policy of health services to women/men.

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