

Levels, Trends and Determinants of Infertility in South Indian States

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Abstract

Introduction: Infertility is becoming an important public health issue around the world but is often not gained attention. Though consequences of infertility are a cause for concern, efforts are made to reduce the total fertility rate while care for infertility received less attention. According to WHO, approximately one in six people have experienced infertility at some stage in their lives. It is argued that increase in infertility rates may be a factor responsible for reducing fertility rates in India. It is also found that women from states with lower Total Fertility Rate (TFRs) levels reported higher infertility as compared to women from states with a high level of TFR, which indicates increasing infertility is contributing to the declining fertility in India. Analysis of NFHS data at the state level revealed that primary infertility has shown a remarkable increase, especially in the southern states of India.

Objectives of the Study

1. To understand the levels and trends in infertility in Southern states of India
2. To examine the determinants of infertility in Southern states

Data and Methods: Data from the five rounds of National Family Health Survey is used to understand the levels and trends in infertility in southern states of India over time. For further analysis, data from the fifth round of NFHS is used. At first, the analysis is carried out to understand the levels of primary infertility, childlessness and secondary infertility for states of India. In the next step, an attempt is made to understand the trends in primary infertility, childlessness and secondary infertility for southern states, namely, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana. Infertility by duration of marriage is found at the third stage. Subsequently, association between socioeconomic factors and child marriages is analysed. An attempt is also made to understand the factors contributing to the prevalence of primary infertility and childlessness for in southern states of India. Women in the age group 15-19 are excluded in the analysis in order to avoid the effect of adolescent sterility. Similarly women who are married within 5 years of the survey are also excluded as these women are not considered in the definition of infertility and childlessness.

Results: Primary infertility and childlessness is higher in some of the states viz., Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Maharashtra, Tamil Nadu and Telangana than other states. Secondary infertility is higher in the states of Andhra Pradesh, Kerala, Tamil Nadu and Telangana. Southern region is having higher levels of infertility as compared to other regions. Decreasing trend is noticed in the case of primary infertility in southern states from 1992-93 to 2015-16, increasing trend is noticed in all the southern states between 2015-06 and 2019-21 except Karnataka. There is notable increase in primary infertility in the states of Andhra Pradesh and Telangana. Similar pattern is observed in the case of childlessness in all the southern states. Secondary infertility levels do not change much between 1992-93 and 2019-21 in southern states except Kerala. In Kerala secondary fertility level has increased from 0.9 to

1.6. The burden of primary infertility significantly reduced within the first three years of marriage. However, the decline in primary infertility is very minimal after three years of duration of marriage for all the southern states.

Logistic regression results show that age as a significant predictor for all three forms of infertility under consideration. Women in the age group 40-49 have higher likelihood for primary infertility, childlessness and secondary infertility than women in the age group 20-29. Women belonging to “Christian and others” religion have higher risk of primary infertility and childlessness as compared to Hindu women. Every increase in household wealth quintile and educational level of women decreased the likelihood of primary infertility and childlessness. It is interesting to note that odds of being infertile are higher among women who are overweight/ obese than among women have normal weight. Prevalence of diabetes appears to be a significant predictor for secondary infertility. Women who got married in the age group 20-24 and 25 and above found to have high risk for all forms of infertility. Using unsafe cooking fuel too showed a significant effect on the infertility.

1. Introduction

Infertility is becoming an important public health issue around the world but is often not gained attention. Though consequences of infertility are a cause for concern, efforts are made to reduce the total fertility rate while care for infertility received less attention. Addressing infertility issues is an important component of reproductive health. Most of the countries do not have adequate policies and programs to address infertility. According to WHO (1), approximately one in six people have experienced infertility at some stage in their lives. At least 80 million pairs suffer from infertility worldwide (2) and secondary infertility rates are double the primary infertility (3) and infertility is a significant problem worldwide. It is argued that increase in infertility rates may be a factor responsible for reducing fertility rates in India. It is also found that women from states with lower Total Fertility Rate (TFRs) levels reported higher infertility as compared to women from states with a high level of TFR, which indicates increasing infertility is contributing to the declining fertility in India (4). Understanding the level of infertility is crucial to develop appropriate interventions and policies (5). Analysis of NFHS data at the state level revealed that primary infertility has shown a remarkable increase, especially in the southern states of India. Consequence of involuntary childlessness are usually severe in low and middle income countries than western countries (6-8). Separation and divorce rates are much higher among infertile couple in African countries (9). Studies have found that infertility as a reason for violence (10-12). Infertility is not just a medical challenge, it affects psychologically and financially on the couples.

Earlier studies have brought out that various background factors such as socioeconomic, demographic and life style factors are responsible for the existing levels of infertility. It is evident that age at the time of marriage is a significant factor for infertility. Studies have shown that higher the age at marriage, higher is the risk of infertility (13-14). Kundu et al. (2023) analysed National Family Health Survey (NFHS) data and found that increase in age increased the risk of primary infertility and decreased the risk of secondary infertility (4). Similarly other characteristics such as religion, caste, educational status of women and place of residence appeared to be the predictors of prevalence of infertility (13, 5). It appears that wealth index of the household and prevalence of infertility is inversely related.

It is observed that there is lack of consensus on definition of infertility between the clinicians, epidemiologists and demographers. In English demographic terminology, infertility is defined as the inability to bear children due to either the inability to conceive or inability to carry a pregnancy to a live

birth. According to World Health Organization (1), infertility is defined as the disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse. However, for a survey data, one-year period is too short a time and therefore demographers use five years as reference period to declare couple as infertile. Definition of infertility is a concern as studies use different definitions which makes the comparison difficult.

India being the most populous country, the main focus was to control fertility. Having higher percent of population in the reproductive age group, India is the major contributor for the global infertility. Despite the significance of the problems, hardly there are efforts taken to manage the issue. However, National Family Health Survey provides dearth of information on reproductive health which makes it possible to compare infertility rates at the state level. This study aims at elucidate the levels and trends in infertility rates within the southern states and to determine the factors influencing infertility.

2. Data and Methods

a. Data

Data from the five rounds of National Family Health Survey (NFHS) is used to understand the levels and trends in infertility in southern states of India over time. For further analysis, data from the fifth round of NFHS is used. NFHS provides information on population, health and nutrition for India across districts of states and union territories. The main objective of the survey is to provide high quality data on health and family welfare as well as on data on emerging issues. For the present analysis, individual women file is used. At first, analysis is carried out to understand the levels of primary infertility, childlessness and secondary infertility for states of India. In the next step, an attempt is made to understand the trends in primary infertility, childlessness and secondary infertility for southern states, namely, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telengana. Infertility by duration of marriage is found at the third stage. Subsequently, association between socioeconomic factors and child marriages is analysed. An attempt is also made to understand the factors contributing to the prevalence of primary infertility and childlessness for in southern states of India. Women in the age group 20-49 are excluded from the analysis in order to avoid the effect of adolescent sterility.

b. Definition of outcome variables

As discussed earlier, different definitions are used for infertility by different people. In this study, the primary infertility is defined as women who are married for more than 5 years, currently not pregnant, having no terminated pregnancy, never used contraceptives and have no children ever born.

Childlessness is measured as women who are married for more than five years, currently not pregnant, having no terminated pregnancy, never used contraceptives and have no living children.

Secondary infertility is defined as after first birth, absence of live birth for couples who are in union for at least five years, during which neither partner used contraception and female partner expresses the desire for a future child.

c. Explanatory variables used in the analyses

Explanatory variables used in the bivariate and multivariate analyses are: age of women (categorized as: 20-29, 30-39 and 40-49), Place of residence (categorized as: Urban and Rural), Religion (categorized as: Hindu, Muslim, Christian and others), Caste (categorized as: SC/ST, OBC, Others), Household wealth index (categorized as: Poorest, Poorer, Middle, Richer and Richest), Educational level of women (categorized as: Illiterates, Primary, Secondary and Higher), Body Mass Index (categorized as: Normal, underweight and overweight), Currently has diabetes (categorized as: No and Yes), Currently has

hypertension (categorized as: No and Yes), Age at marriage (categorized as: ≤ 19 , 20-24, and 25 and above), Source of drinking water (categorized as: Piped and Others), and Cooking fuel (categorized as: Unsafe and Safe).

3. Results

a. Levels of Infertility in states of India

Table 1 provides information on the levels of primary infertility, childlessness and secondary infertility for major states of India. It is evident that levels of primary infertility and childlessness is higher in some of the states viz., Andhra Pradesh, Chhattisgarh, Karnataka, Kerala, Maharashtra, Tamil Nadu and Telangana than other states. It is also observed that secondary infertility is higher in the states of Andhra Pradesh, Kerala, Tamil Nadu and Telangana. It is clearly seen that Southern region is having higher levels of infertility as compared to other regions. Therefore further analysis is focused on states in the Southern region to understand the trends, patterns and factors influencing the infertility.

Table 1: Prevalence of Primary Infertility, Childlessness and Secondary Infertility in States of India (2019-21)

State	NFHS-5					
	Primary Infertility		Childlessness		Secondary Infertility	
	No.	%	No.	%	No.	%
Andhra Pradesh	559	1.9	596	2.1	397	1.4
Arunachal Pradesh	4	0.7	4	0.7	3	0.5
Assam	177	0.9	190	1.0	94	0.5
Bihar	442	0.7	488	0.8	231	0.4
Chhattisgarh	275	1.6	310	1.8	114	0.7
Goa	18	1.7	18	1.7	2	0.2
Gujarat	424	1.3	449	1.3	135	0.4
Haryana	91	0.6	95	0.7	50	0.4
Himachal Pradesh	30	0.8	31	0.8	11	0.3
Jharkhand	213	1.1	235	1.3	110	0.6
Karnataka	653	1.7	681	1.8	284	0.7
Kerala	255	1.4	269	1.5	286	1.6
Madhya Pradesh	437	1.0	475	1.1	180	0.4
Maharashtra	936	1.4	991	1.5	469	0.7
Manipur	11	0.9	11	0.9	6	0.5
Meghalaya	12	0.7	13	0.7	25	1.4
Mizoram	7	1.2	8	1.4	9	1.5
Nagaland	7	0.9	8	1.0	2	0.3
Odisha	302	1.2	332	1.4	67	0.3
Punjab	133	0.8	143	0.9	55	0.4
Rajasthan	332	0.8	363	0.8	139	0.3
Sikkim	3	0.9	3	0.9	2	0.6
Tamil Nadu	729	1.7	772	1.8	504	1.2

Telangana	390	2.0	416	2.2	232	1.2
Tripura	16	0.7	17	0.8	5	0.2
Uttar Pradesh	821	0.7	893	0.7	291	0.2
Uttarakhand	33	0.5	34	0.6	16	0.3
West Bengal	562	0.9	602	1.0	209	0.3
Delhi	66	0.6	70	0.6	40	0.4

b. Trends in Primary Infertility, Childlessness and Secondary Infertility (1992-93 to 2019-21)

Information on primary infertility from the five rounds of NFHS is provided in table 2. The table clearly shows that though there was a decreasing trend noticed in the case of primary infertility in southern states from 1992-93 to 2015-16, increasing trend is noticed in all the southern states between 2015-06 and 2019-21 except Karnataka. There is notable increase in primary infertility in the states of Andhra Pradesh and Telangana. Similar pattern is observed in the case of childlessness in all the southern states (Table 3).

Table 2: Trends in Primary Infertility for Southern States of India

State	Primary infertility									
	NFHS-5		NFHS-4		NFHS-3		NFHS-2		NFHS-1	
	No.	%	No.	%	No.	%	No.	%	No.	%
Andhra Pradesh	559	2.7	444	2.3	255	3.8	232	3.6	253	4.6
Karnataka	653	2.7	662	3.3	122	2.6	89	2.3	107	2.9
Kerala	255	2.1	234	2.0	57	2.6	58	2.3	55	2.3
Tamil Nadu	729	2.6	842	2.8	141	3.1	140	3.0	129	2.9
Telangana	390	3.0	264	2.0	0	0.0	0	0.0	0	0.0
Total	2586	2.6	2446	2.6	575	3.2	519	3.0	544	3.4

Table 3: Trends in Childlessness for Southern States of India

State	Childlessness									
	NFHS-5		NFHS-4		NFHS-3		NFHS-2		NFHS-1	
	No.	%	No.	%	No.	%	No.	%	No.	%
Andhra Pradesh	596	2.9	484	2.5	287	4.3	252	3.9	304	5.5
Karnataka	681	2.8	692	3.5	138	3.0	106	2.8	128	3.5
Kerala	269	2.3	237	2.0	58	2.6	66	2.7	57	2.4
Tamil Nadu	772	2.8	895	3.0	146	3.2	156	3.3	161	3.6
Telangana	416	3.2	289	2.2	0	0	0	0	0	0.0
Total	2734	3.2	2597	2.8	629	3.5	580	3.3	650	4.0

Table 4 provides information on secondary infertility in southern states of India. It is found that secondary infertility levels do not change much between 1992-93 and 2019-21 in southern states except Kerala. In Kerala secondary fertility level has increased from 0.9 to 1.6. It is also noted that between NFHS 4 and 5, the state of Andhra Pradesh shows an increasing trend in secondary infertility.

Table 4: Trends in Secondary Infertility for Southern States of India

State	Secondary infertility									
	NFHS-5		NFHS-4		NFHS-3		NFHS-2		NFHS-1	
	No.	%	No.	%	No.	%	No.	%	No.	%
Andhra Pradesh	397	1.4	304	1.0	119	1.2	130	1.6	118	1.7
Karnataka	284	0.7	549	1.6	65	0.9	52	1.1	42	0.9
Kerala	286	1.6	449	2.3	26	0.7	43	1.4	22	0.7
Tamil Nadu	504	1.2	771	1.5	79	1.1	96	1.6	64	1.1
Telangana	232	1.2	262	1.2	0	0	0	0	0	0
Total	1703	1.2	2335	1.5	289	1.0	321	1.4	246	1.2

c. Levels of Infertility by Duration of Marriage

As discussed earlier, duration of marriage is an important factor as different persons use different reference period. Also, to understand the pattern of infertility variation according to the duration of marriage, an attempt is made to understand the variations in infertility by duration of marriage. The following table (Table 5) presents the primary infertility levels when the duration of marriage is more than one year, two years, three years, four years and five years. Data clearly exhibited that the burden of primary infertility significantly reduced within the first three years of marriage. However, the decline in primary infertility is very minimal after three years of duration of marriage for all the southern states. Similar pattern is observed for childlessness by duration of marriage (Table 6).

Table 5: Levels of Primary Infertility by Duration of Marriage for Southern States of India

State	Infertility (NFHS-5)									
	>=1Yr		>=2 Yr		>=3 Yr		>=4 Yr		>=5 Yr	
	No.	%	No.	%	No.	%	No.	%	No.	%
Andhra Pradesh	985	3.4	810	2.8	720	2.5	661	2.3	608	2.1
Karnataka	1201	3.2	979	2.6	872	2.3	792	2.1	718	1.9
Kerala	512	2.8	434	2.4	366	2.0	314	1.7	283	1.6
Tamil Nadu	1379	3.2	1134	2.6	969	2.2	878	2.0	783	1.8
Telangana	679	3.5	580	3.0	503	2.6	460	2.4	431	2.3
Total	4756	3.2	3937	2.7	3430	2.3	3105	2.1	2823	1.9

Table 6: Levels of Childlessness by Duration of Marriage for Southern States of India

State	Childlessness (NFHS-5)									
	>=1Yr		>=2 Yr		>=3 Yr		>=4 Yr		>=5 Yr	
	No.	%	No.	%	No.	%	No.	%	No.	%
Andhra Pradesh	1048	3.7	867	3.0	777	2.7	709	2.9	653	2.3
Karnataka	1242	3.3	1020	2.7	909	2.4	823	2.2	748	2.0
Kerala	526	2.9	449	2.5	380	2.1	329	1.8	298	1.6
Tamil Nadu	1431	3.3	1183	2.7	1015	2.3	924	2.1	826	1.9
Telangana	714	3.7	613	3.2	536	2.8	489	2.6	458	2.4
Total	4961	3.4	4132	2.8	3617	2.5	3274	2.2	2983	2.0

d. Profile of Sample Women

In table 7, percentage distribution of sample women by their background characteristics is given. Table shows that one-third of sample women belong to each age group category i.e., age groups 20-29, 30-39 and 40-49. It is also noticed that 42 percent of women lived in urban areas and the remaining in rural areas. It is found that 83 percent of women belonged to Hindu religion and 60 percent belong to Other Backward Caste (OBC) group. Four percent of women belong to poorest wealth quintile, 15 percent belong to poor wealth quintile, 27 percent belong to middle wealth quintile, followed by 30 percent in richer wealth quintile and almost one-fourth belong to richest wealth quintile. High percentage of sample women had secondary level education. It is shocking to note that almost 40 percent are overweight/Obese and 59 percent are married before the age of 19. Percentage of women who suffer from diabetes and hypertension is 3 and 5 respectively. 97 percent of sample women' households have piped water and 82 percent have safe cooking fuel.

Table 7: Percentage Distribution of Women by their Background Characteristics

Respondent age	Number of Women	Percent
Age 20 to 29	43465	34.1
Age 30 to 39	43745	34.3
Age 40 to 49	40386	31.7
Type of place of residence		
Urban	53211	41.7
Rural	74385	58.3
Religion		
Hindu	106004	83.1
Muslim	13202	10.3
Christian and others	8390	6.6
Caste		
SC / ST	35316	28.2
OBC	75533	60.2
Others	14540	11.6
Wealth Index		
Poorest	5273	4.1
Poorer	18720	14.7
Middle	34739	27.2
Richer	38769	30.4
Richest	30094	23.6
Highest educational level		
No education	25451	19.9
Primary	14458	11.3
Secondary	59872	45.9
Higher	27815	21.8
BMI		

Under Weight	12891	10.7
Over Weight	47846	39.6
Normal Weight	60178	49.8
Currently has diabetes		
No	123477	96.8
Yes	4118	3.2
Currently has Hypertension		
No	121462	95.2
Yes	6134	4.8
Age at Marriage		
age < 19	67337	58.5
age 20 to 24	36056	31.3
age 25 and above	9883	10.2
Source of Drinking Water		
Piped water	120495	97.0
Others	3764	3.0
Cooking Fuel		
Safe	104416	81.8
Unsafe	19811	15.6
Total	127595	100.0

e. Association between Background Characteristics and Primary Infertility, Childlessness and Secondary Infertility

It is evident from table 8 that as age increases primary infertility, childlessness increases while secondary infertility is higher in the age group 30-39 as compared to 20-29 and 40-49. Higher percent of rural women, belong to SC/ST, belong to Christianity, belong to poorest and poorer wealth quintiles and illiterate and women who have primary education have primary infertility and childlessness. Reverse trend is observed in the case of secondary infertility. Percent of women who are overweight/obese have higher risk of primary infertility, childlessness and secondary infertility whereas women who are underweight have lower risk for all the forms of infertility than women who have normal weight. Higher percentage of women who have hypertension and diabetes are infertile than their counterparts. Higher the age higher is the percentage of infertility irrespective of the form of infertility. Percentage of infertility is higher among women who have other than piped water as a source of drinking water and use unsafe fuel than women who use piped water and safe fuel.

Table 8: Percentage Distribution of Primary Infertility, Childlessness and Secondary Infertility by Background Characteristics

Background Characteristics	Primary Infertility	Childlessness	Secondary Infertility
Respondent age			
age 20 to 29	3.1	3.3	1.4

age 30 to 39	2.3	2.5	2.1
age 40 to 49	2.8	2.9	0.4
Type of place of residence			
Urban	2.4	2.5	1.2
Rural	2.8	3.0	1.1
Religion			
Hindu	2.7	2.8	1.2
Muslim	2.1	2.2	1.2
Christian and others	3.4	3.5	1.0
Caste			
SC / ST	3.1	3.2	1.1
OBC	2.5	2.6	1.2
Others	2.6	2.7	1.2
Wealth Index			
Poorest	4.5	4.8	1.0
Poorer	3.4	3.7	1.1
Middle	2.7	2.9	1.0
Richer	2.6	2.7	1.3
Richest	1.7	1.9	1.2
Highest educational level			
No education	3.2	3.4	0.8
Primary	3.1	3.3	0.9
Secondary	2.3	2.4	1.2
Higher	2.5	2.5	1.4
BMI			
Under Weight	3.0	3.3	0.8
Over Weight	2.5	2.7	1.4
Normal Weight	2.6	2.8	1.1
Currently has diabetes			
No	2.6	2.8	1.2
Yes	2.7	3.0	1.2
Total	2.6	2.8	1.2

f. Multivariate Results

The previous section brought out the association between different background characteristics and primary infertility, childlessness and secondary infertility. However, these are gross associations. In order to understand the effect of a particular factor, there is a need to use multivariate technique. In the present study, all three dimensions of infertility variables are dichotomous and therefore logistic regression technique is used to understand the magnitude of influence of each explanatory variable on different forms of infertility.

In table 9, results of logistic regression for primary infertility, childlessness and secondary infertility is provided. Logistic regression results show that age as a significant predictor for all three forms of infertility

under consideration. Women in the age group 40-49 have higher likelihood for primary infertility, childlessness and secondary infertility than women in the age group 20-29. Women belonging to “Christian and others” religion have higher risk of primary infertility and childlessness as compared to Hindu women. It is found that every increase in household wealth quintile and educational level of women decreased the likelihood of primary infertility and childlessness. It is interesting to note that odds of being infertile are higher among women who are overweight/ obese then among women have normal weight. Prevalence of diabetes appears to be a significant predictor for secondary infertility. Women who got married in the age group 20-24 and 25 and above found to have high risk for all forms of infertility. Using unsafe cooking fuel too showed a significant effect on the infertility.

4. Discussion

The present study clearly exhibited that infertility is on the rise in South Indian states. It is possible that other states might also follow the same pattern in the near future given the reduction in fertility all over India. It necessitates the need for interventions and policies to manage the infertility issues in the concerned states. Understanding the burden of infertility is crucial to manage and prevent the issue of infertility. The analysis of infertility by duration of marriage indicates that burden of infertility reduced considerably within the first three years of marriage. Therefore, appropriate interventions on time may help reduce the risk of infertility.

Further, an attempt is made to understand the factors influencing fertility. Women in the age group 40-49 have higher likelihood for primary infertility, childlessness and secondary infertility than women in the age group 20-29. Increase in household wealth status and educational level of women decreased the risk of primary infertility and childlessness. It could be possible that educated women are aware of infertility issues and wealthy households can afford the infertility treatment. It is also found that overweight/ obese women and women who married after 20 years of age are at higher risk of infertility than other women. Diabetes appears to be a significant predictor for secondary infertility.

5. Conclusions

Despite the magnitude of the issue of infertility, solutions for the prevention, diagnosis and treatment of fertility including Assisted Reproductive Technology (ART) such as Invitro Fertilization (IVF) remain underfunded and inaccessible due to high cost, social stigma and availability of the treatment. India being most populous country, much attention is given for fertility measures. Literature reveals that significant proportion of childless couples had not sought any treatment for their infertility. Further, infertility treatments are expensive (15). Under the present circumstances, the focus should be shifted to infertility. Access to infertility can only be achieved by providing good quality and affordable care is linked to family welfare programmes. At present infertility management is weak in the public sector (16). Evidences show that certain initiatives from some of the state governments (17) are taken from the government side to provide infertility services through public health facilities, yet these are few in numbers and at the initial stage of establishment. Given the rise of infertility, there is an urgent need to strengthen infertility services at the public health facilities.

Table 9: Logistic Regression Results of Primary Infertility, Childlessness and Secondary Infertility

Logistic Regression	Primary Infertility		Childlessness		Secondary Infertility	
	B	Exp (B)	B	Exp (B)	B	Exp (B)
Respondent age						
Age 20 to 29		1.000		1.000		1.000
Age 30 to 39	0.074	1.077	0.071	1.073	-0.033	0.967
Age 40 to 49	0.192	1.212**	0.197	1.218**	-1.636	0.195** *
Type of place of residence						
Urban		1.000		1.000		1.000
Rural	0.043	1.044	0.037	1.038	-0.059	0.943
Religion						
Hindu		1.000		1.000		1.000
Muslim	-0.096	0.908	-0.072	0.931	-0.011	0.999
Christian and others	0.213	1.237**	0.170	1.185*	-0.197	0.821
Caste						
SC / ST		1.000		1.000		1.000
OBC	-0.029	0.971	-0.036	0.964	0.042	1.043
Others	0.092	1.096	0.078	1.081	0.025	1.026
Wealth Index						
Poorest		1.000		1.000		1.000
Poorer	-0.280	0.756**	-0.280	0.756**	0.164	1.178
Middle	-0.585	0.557** *	-0.606	0.545***	-0.096	0.908
Richer	-0.628	0.533** *	-0.669	0.512***	0.155	1.168
Richest	-1.058	0.347** *	-1.042	0.353***	0.015	1.015
Highest educational level						
No education		1.000		1.000		1.000
Primary	0.019	1.019	0.012	1.013	-0.027	0.973
Secondary	-0.382	0.682** *	-0.413	0.662***	0.304	1.356** *
Higher	-0.826	0.438** *	-0.904	0.405***	0.333	1.395**
BMI						
Normal Weight		1.000		1.000		1.000
Over Weight	0.107	1.112*	0.092	1.096*	0.156	1.169**
Under Weight	0.004	1.004	0.028	1.028	-0.008	0.992
Currently has diabetes						

No		1.000		1.000		1.000
Yes	0.154	1.166	0.212	1.236*	0.505	1.657**
						*
Currently has hypertension						
No		1.000		1.000		1.000
Yes	-0.112	0.894	-0.049	0.952	-0.187	0.829
Age at marriage						
age < 19		1.000		1.000		1.000
age 20 to 24	0.351	1.420**	0.359	1.432***	0.129	1.138*
		*				
age 25 and above	1.222	3.394**	1.238	3.448***	0.692	1.998**
		*				*
Piped Water						
Others		1.000				
Piped water	0.003	1.003	-0.017	0.983	-0.199	0.819

6. Significance of the Study

In developing country like India, women suffering from infertility face different kinds of psychological, social issues. Further, out of pocket expenditure is very high in the case of infertility treatment. Therefore, increasing infertility levels may have detrimental impact on the social, psychological and economic development of the society.

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