

Factors associated with symptoms of reproductive tract infection/sexually transmitted infection and treatment seeking behavior among men in Tamil Nadu, India

Ramesh Chellan

State Facilitator-Demographer, UNICEF-PHDMA, Planning and Coordination Department, Government of Odisha, Bhubaneswar, Odisha, India.

Abstract

The International Conference on Population and Development (ICPD) Programme of Action paid attention to male sexual and reproductive health issues including RTI/STI as well as infertility, sexual dysfunction and sexual violence. In India, male reproductive health problems had been recognized as a public health issue. This paper is an attempt to examine the determinants of prevalence of RTI/STI and treatment seeking behavior and their socio-economic and demographic characteristics in Tamil Nadu, India by using the data of the District Level Household Survey-Reproductive and Child Health Survey, 2002-04. The logistic regression and multinomial logistic regression models were used to determine factors associated with symptoms of RTI/STI and treatment seeking behavior for RTI/STI symptoms respectively. The study results indicated that about 2.8% of respondents reported at least one symptom of RTI/STI. One-fifth (19.5%) of them had reported two or more symptoms. Among those who reported symptoms, 45.5% of men sought treatment from some sources. Multivariate analysis revealed that men residing in the Inland region, belonging to Muslim, men with high standard of living, and aware about HIV/AIDS were significantly less likely to report symptoms of RTI/STI. Men whose wife reported experience of symptoms of RTI/STI are significantly more likely to report symptom of RTI/STI. Further, men whose wife experienced symptoms of RTI/STI, and who ever discussed RTI/STI symptoms with their wife were significantly more likely to seek treatment from public as well as private health facility. The study suggests that there is an urgent need to address public health care services and a need to take necessary steps to provide quality health care and user friendly sexual and reproductive health care services.

Keywords: Sexual Health, RTI/STI, Treatment, Male, India.

Introduction

In recent years, much attention has been paid to sexual and reproductive health status of men especially after the International Conference on Population and Development (ICPD) held in Cairo in 1994.¹ However, most of the developing countries have experienced high prevalence of sexual and reproductive health problems among general population. Sexual and reproductive health problems constitute a major public health problem in many developing countries. Many countries in Asia are experiencing noticeable increase in the prevalence of reproductive tract infection (RTI) and sexually transmitted infection (STI). For instance, India has more than two million people who are living with HIV/AIDS virus.² The first HIV positive case in India was reported in 1986 from Chennai, Tamil Nadu.²⁻³ Therefore, the human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) infection is a continuously growing serious threat in most of the developing countries including India. A study by Ndubani & Hojer⁴ had shown 23% of young men were affected with sexually transmitted diseases (STD). In a developing country like India, men have a high risk of HIV/AIDS and other reproductive and sexual health problems.

Few studies have documented information about RTI/STI and treatment-seeking behavior across states in India.

Practice Points

- Men's sexual and reproductive health problems had been recognized as public health issues in India.
- This study showed less prevalence of RTI/STI among men in Tamil Nadu.
- Among those who reported symptoms, 45.5% of men had sought treatment. Higher proportion of men had treatment from the private medical sector (27.6%).
- Prevalence of RTI/STI was found to be significantly high among those who were aware of RTI/STI and men whose wife experience symptoms of RTI/STI. Men whose wife experienced symptoms of RTI/STI and discussed symptoms of RTI/STI with their wife had a positive effect on treatment seeking behavior for symptoms.
- There is an urgent need to focus on public health care services and also a need to take necessary steps to provide quality health care and user friendly sexual and reproductive health care services.

Correspondence: Dr. Ramesh Chellan, State Facilitator-Demographer, UNICEF-PHDMA, Planning and Coordination Department, Government of Odisha, Bhubaneswar, Odisha, India. Email: rameshchellan@gmail.com.

According to Narayanan's study (1996) in Uttar Pradesh, 13% of men had experienced some symptoms of genital infection.⁵ Another study conducted in Uttar Pradesh on husband's reproductive health knowledge, attitudes and behavior among married men, reported 13% of men were experiencing at least one symptom of sexual health problems before marriage; more than one-tenth of men stated that they had experienced at least one symptom after marriage and about 9% of men had reported any one symptom during the study. Out of the men who reported any one symptom, 62% of men had sought some sort of treatment before marriage, and 64% of men had sought treatment after marriage.⁶ A study in Odisha pointed out that more than half of men reported experience of discharge during night followed by itching (40%) and semen discharge (27%).⁷ Verma & Stephen⁸ studied in Mumbai about male sexual health problems in which more than two-fifths of men reported at least one non-contact sexual health problem (wet dream, weakness, white discharge, early ejaculation, burning sensation, masturbation, quantity and quality of semen, and erection problems) and about 5% of men reported contact sexual health problems (boils, sores or ulcers in the genital area, pus discharge, and gonorrhoea) during the last two months prior to the survey.

A study that was conducted on sexual behavior in rural India showed that 11% of men reported experience of genital discharge during the last 12 months, whereas 5% of them reported experience of genital ulcers and sores among those who have reported genital ulcers and sores a large number of them did not seek any treatment.⁹ Verma & Collumbien¹⁰ studied the sexual health problems among men in north-eastern part of Mumbai. Nearly one-third of those men reported experience of semen-related problem, sexual performance-related problems (13%) and symptom of STI (8%). Another study in Mumbai slums had reported that half of men were experienced with at least one sexual health problem. Among those who reported sexual health problems, a little more than one-fourth of them had taken some treatments.¹¹ A number of socio-economic, demographic characteristics might be directly or indirectly associated with RTI/STI and treatment-seeking behavior. Few studies indicated high prevalence of RTI/STI and low tendency to seek care for RTI/STI among people in lower socio-economic status.¹⁰⁻¹³

In India, reproductive and sexual health care services for men were largely ignored by the public health programs in the initial phase. However, the Reproductive and Child Health (RCH) programme now includes reproductive health care services for men especially treatment for reproductive tract infection/sexually transmitted infection. Efforts have therefore been made to assess the need for such services.

In this paper, we examined the prevalence of RTI/STI and treatment seeking behavior among currently married men in Tamil Nadu, India and analyzed the determinants of prevalence of RTI/STI and seeking health care and their socio-economic, and demographic characteristics in Tamil Nadu, India.

Materials and Methods

The data for this study was extracted from the District Level Household Survey-Reproductive and Child Health Survey (DLHS-RCH-2), 2002-04, conducted by International Institute for Population Sciences, Mumbai, India.¹⁴ Data was collected from a probability sample of 23,751 currently married men residing in 32,685 households which covered 30 districts of Tamil Nadu, India and the sample represented about 99% of Tamil Nadu's population. The survey broadly collected information on maternal and child health, family planning, utilization of public health services and reproductive health problems. However, we focused on the symptoms of RTI/STI and treatment seeking behavior for symptoms in Tamil Nadu for the present study.

The second round of DLHS-RCH survey measured the prevalence of RTI/STI on the basis of self-reported symptoms occurring within three months prior to the survey and RTI/STI symptoms such as any discharge from penis, any sore/rash/redness on genital or anal area, difficulty/pain while urinating or very frequent urination, swelling of testes or in groin area (penis), and itching/irritation around genital. Further, the survey also took the treatment-seeking behavior and source of treatment for symptoms of RTI/STI into account.

This paper is based on self-reported RTI/STI symptoms rather than those clinically diagnosed. The self-reported symptom depends upon perceptions regarding symptoms. The prevalence of reproductive health problems are either directly or indirectly influenced by lack of knowledge about reproductive and sexual health, unprotected sex, low self-perceived vulnerability, and lack of access to health care services. Previous literature suggested that prevalence of RTI/STI symptoms which might possibly be associated with a number of socio-economic factors such as place of residence, education, and household standard of living. In addition, the decision to seek care for reproductive health problems might also get influenced by many factors including perception of personal health risk, educational attainment, and socio-economic status. Twelve explanatory variables were considered for analysis. All explanatory variables were categorical. The explanatory variables were: region (coastal-northern, coastal, southern, inland); religion (Hindu, Muslim, others); caste (OBC, SC/ST, others); education (non-literate, 0-5 years of schooling, 6-10 years of schooling, 11 and above years of schooling); standard of living (low, medium, high); age of men (15-24, 25-29, 30-34, 35-39, 40-44, 45+); condom use (non-user, user); aware of RTI/STI (not aware, aware); aware of HIV/AIDS (not aware, aware); wife experienced any symptom of RTI/STI (no, yes); ever discussed RTI/STI symptom with wife (no, yes); and health facility in the village/residence (no health facility, with health facility, urban area). These variables were considered for analysis because they were likely to be associated with prevalence of RTI/STI and health seeking behavior.

First, the descriptive analyses were performed. Then binary logistic regression analysis was used in order to

estimate the pure effect of each predictor variable on the probability of reporting symptoms of RTI/STI. Since our response variable on experience or reporting any symptom of RTI/STI was dichotomous (experience any symptoms of RTI/STI or not) the binary logistic regression model had been carried out as an alternative of multiple linear regression.¹⁵ For predictor variables in a categorized form, a category was designated as 'reference' and if B_k would be the binary logistic regression for category k, then exp (B_k) the odds ratio, that is, the ratio of odds for the category k to the odds for the reference category. Further, since the variable on health seeking had three categories (no treatment, public health facility, private health facility); the multinomial logistic regression model was adopted to examine persuade of the various factors on this. In this model, two sets of coefficients (and odds ratios) were estimated: for the probability of seeking treatment from public health facility vis-à-vis no treatment, and for the probability of seeking treatment from private health facility vis-à-vis no treatment.

Results and Discussion

Symptoms of RTI/STI

The prevalence of various symptoms of RTI/STI among currently married men in Tamil Nadu is presented in Table 1. The prevalence (actually period prevalence for a period of three months) was low as reported earlier. Only 2.8% of men in Tamil Nadu reported that they were experiencing some symptoms of RTI/STI during the reference period of three months prior to the survey. Among all symptoms, difficulty/pain while urinating or frequent urination (1.1%), itching/irritation around genital (1.2%) were the most commonly reported ones

by the respondents. In addition, less than one % of men reported any sore/rash/redness on genital or anal area, any discharge from penis and swelling of testes or in groin area (penis). The severity of symptoms of RTI/STI is indicated in Table 2, which gives the distribution of symptomatic men by number of symptoms. About 4% reported three or more symptoms of RTI/STI and nearly one-fifth (19%) reported two or more symptoms of RTI/STI.

Source of Treatment for RTI/STI Symptoms

Not all the men with RTI/STI would seek treatment for it; while some might not felt that the symptoms were serious enough to warrant treatment and some others perhaps too shy to do so and for some they might not aware or could not access to treatment. Therefore, it is important to see the extent of treatment seeking. Besides we had also seen whether public health facilities were utilized or men obtained treatment from the private health facility. The DLHS survey data allowed doing an examination of these aspects. About half (45.5%) of men who had reported any symptom of RTI/STI sought treatment (Table 3); private health facility (27.6%) was accessed more than public health facility (16.0%), and other facility (3.0%). Men had sought treatment generally from non-governmental organization/trust hospital/clinic (12.9%), chemist/medical shop (8.4%) among private medical facility and from government/municipal hospital (7.6%), community health centre/rural hospital (5.5%) among public health facility for symptom of RTI/STI. Table 3 shows that the majority of men who reported any one symptom of RTI/STI had sought treatment from doctors (33.1%) followed by chemist/medical shop (9.1%) and home remedy (2.4%).

Table 1: Prevalence of various symptoms of RTI/STI among men

Types of RTI/STI symptom	Respondents (%)
Any discharge from penis	87 (0.4%)
Any sore/rash/redness on genital or anal area	134 (0.4%)
Difficulty/pain while urinating or very frequent urination	218 (1.1%)
Swelling of testes or in groin area (penis)	69 (0.3%)
Itching/irritation around genital	266 (1.2%)
Any one symptom of RTI/STI	607 (2.8%)
Number of men interviewed	23,751

Source: Computed from DLHS-RCH, 2002-04 data file.

Note: Based on self-reported symptoms during three months prior to the survey. The percentages are computed after applying survey sample weights and the number of men given is unweighted. The percentages for different symptoms do not add up to the percentage for any symptoms due to multiple responses.

Table 2: Married men who reported symptom of RTI/STI

Number of symptoms reported	Respondents (%)
One symptom	483 (80.5%)
Two symptoms	99 (15.9%)
Three symptoms	14 (2.2%)
Four symptoms	4 (0.5%)
Five symptoms	7 (0.9%)
At least one symptom	607 (100.0%)
Average number of symptoms*	1.3
Number of men interviewed	23,751

Source: Computed from DLHS-RCH, 2002-04 data file. *Among those men who reported any symptom of RTI/STI.

Note: Based on self-reported symptoms during three months prior to the survey. The percentages are computed after applying survey sample weights and the number of men given was unweighted.

Table 3: Source of treatment for RTI/STI among men

Source of treatment	Respondents (%)	
	Reported symptom	Sought treatment
<i>Public Health Facility</i>	103 (16.0%)	103 (35%)
Government/municipal hospital	49 (7.6%)	49 (16.7%)
Government dispensary	4 (0.5%)	4 (1.1%)
UHC/UHP/UFWC	4 (0.6%)	4 (1.3%)
CHC/rural hospital	32 (5.5%)	32 (12.2%)
Primary health centre	3 (0.3%)	3 (0.7%)
Health sub-centre	13 (2.0%)	13 (4.3%)
Government ISM hospital/clinic	4 (0.4%)	4 (0.8%)
<i>Private Health Facility</i>	174 (27.6%)	174 (60.6%)
NGO/trust hospital/clinic	85 (12.9%)	85 (28.3%)
Private hospital/clinic	14 (2.5%)	14 (5.4%)
Private ISM hospital/clinic	29 (4.5%)	29 (9.8%)
Chemist/medical shop	50 (8.4%)	50 (18.5%)
<i>Others</i>	18 (3.0%)	18 (6.6%)
<i>Person Providing Treatment</i>		
Doctor	209 (33.1%)	209 (72.7%)
Male health worker	3 (0.3%)	3 (0.7%)
Traditional healer	4 (0.4%)	4 (0.8%)
Relatives/friends	5 (0.6%)	5 (1.4%)
ISM practitioner	3 (0.3%)	3 (0.6%)
Home remedy	15 (2.4%)	15 (5.4%)
Chemist/medical shop	55 (9.1%)	55 (20.1%)
Other	4 (0.7%)	4 (1.5%)
<i>Sought treatment</i>	286 (45.5%)	286 (100.0%)
<i>Did not seek any treatment</i>	320 (54.2%)	NA
<i>Missing</i>	1 (0.3%)	NA
Number of men interviewed	607	286

Source: Computed from DLHS-RCH, 2002-04 data file. **UHC**= Urban Health Centre; **UHP**= Urban Health Post; **UFWC**= Urban Family Welfare Centre; **CHC**= Community Health Centre; **ISM**= Indian System of Medicine; **NGO**= Nongovernmental Organization; **NA**= Not Applicable.

Note: The percentages are computed after applying survey sample weights and the number of men given is unweighted. Total number and percentages might add to more than 100.0 because of multiple responses.

Overall in Tamil Nadu, the prevalence of reproductive tract infection/sexually transmitted infection among men was low (2.8%). Variations across regions of Tamil Nadu in the prevalence rate were low in absolute terms but notable in relative terms; the prevalence of symptoms of RTI/STI was ranging from 3.7% in the Southern region and 1.7% in the Inland region. The prevalence of RTI/STI varied across the socio-economic background of men. Table 4 clearly demonstrates that the prevalence rates were highest among the men residing in rural areas, belonging to the Hindu religion, belonging to Scheduled Castes (SC)/Scheduled Tribes (ST), those with low level of education, with low household standard of living, and young men (15-24 years). The prevalence could conceivably vary by awareness of sexual health matters (since it is based on self-reports) and also by condom usage and availability of health facility in the community (as this could lead to greater awareness and better reporting). In order to see this, special tabulations were made (Table 4). The prevalence of RTI/STI was relatively low among condom users. There is considerable evidence that the prevalence of RTI/STI would be relatively high among men who were not aware of HIV/AIDS (5.1%) and men whose wife reported experience of RTI/STI (7.3%).

Among those who reported some symptoms, more than two-fifths sought treatment from any source. As noted earlier, 103

took treatment from the public health facility, 174 from private health facility, and 18 from other facility. Some took treatment from both public and private health facilities, but the number was very small, eight. For the purpose of further analysis, they were included only in the category of private health facility. Similarly, those who did not specify the type of facility (others) were also included in the private category. As the number of such persons were very small, this re-classification made very little difference but it simplified the analysis, with only three categories: public health facility, private health facility, and no treatment. There are considerable differences in treatment seeking behavior for their symptoms according to socio-economic background. In treatment seeking from the public health facility large differentials were observed by region, education, household standard of living, age of men, and awareness of HIV/AIDS (Table 5). Illiterate men and those in the age group of 40-44 years have had a high tendency to seek treatment from the public health facility for RTI/STI. Besides, men residing in the southern region, those belonging to the other backward castes, men ≥ 11 years of schooling, high household standard of living, in the age of 45 and above years, users of condom, and aware of HIV/AIDS were more likely to seek treatment from the private health facility.

Table 4: Socio-economic characteristics of married men who reported any symptom of RTI/STI

Background characteristics	Men interviewed	Men who reported any symptom of RTI/STI (%)
<i>Region</i>		
Coastal-northern	5,641	168 (2.7%)
Coastal	6,076	218 (4.0%)
Southern	7,257	150 (3.1%)
Inland	4,777	71 (1.7%)
<i>Residence</i>		
Rural	13,338	444 (3.6%)
Urban	10,413	163 (1.7%)
<i>Religion</i>		
Hindu	21,132	566 (2.9%)
Muslim	1,272	16 (1.2%)
Others (Christian)	1,347	25 (2.1%)
<i>Caste</i>		
OBC	16,902	391 (2.5%)
SC/ST	6,431	214 (3.6%)
Others	417	2 (0.2%)
<i>Education</i>		
Non-literate	4,340	150 (3.6%)
0-5 years of schooling [†]	4,321	150 (3.8%)
6-10 years of schooling	9,777	232 (2.6%)
11 and above years of schooling	5,313	75 (1.5%)
<i>Standard of living</i>		
Low	6,888	232 (3.7%)
Medium	9,812	276 (3.1%)
High	7,051	99 (1.4%)
<i>Age of men (Years)</i>		
15-24	809	39 (4.9%)
25-29	3,317	96 (3.4%)
30-34	4,807	107 (2.6%)
35-39	5,053	128 (2.7%)
40-44	4,059	106 (2.6%)
45 +	5,706	131 (2.3%)
<i>Condom use</i>		
Non-user	23,252	600 (2.8%)
User	499	7 (1.4%)
<i>Aware of RTI/STI</i>		
Not aware	5,719	146 (2.9%)
Aware	18,030	461 (2.7%)
<i>Aware of HIV/AIDS</i>		
Not aware	484	27 (5.1%)
Aware	23,267	580 (2.7%)
<i>Wife experienced any symptom of RTI/STI</i>		
No	19,630	328 (1.8%)
Yes	4,121	279 (7.3%)
<i>Health facility in the village</i>		
No health facility	6,118	190 (3.4%)
With health facility	7,220	254 (3.7%)
Urban area	10,413	163 (1.7%)
All Men	23,751	607 (2.8%)

Source: Computed from DLHS-RCH, 2002-04 data file. †= Literate men with no years of schooling are included.

Note: Based on self-reported symptoms during three months prior to the survey. The percentages are computed after applying survey sample weights and the number of men given is unweighted. Total number of men may not add to n due to missing cases.

Factors affecting symptoms of RTI/STI

In the analysis of prevalence of symptom of RTI/STI, the binary logistic regression model had been used because the dependent variable was dichotomous: reported symptom and not reported symptom. Table 6 presents regression coefficients, standard errors along with odds ratios for

selected variables from the logistic regression analysis of prevalence of RTI/STI. The influences of various variables as seen in this analysis are 'net' of the influences of other variables included in the regression. Men belonging to the coastal region were significantly

Table 5: Treatment seeking behavior of men with symptoms of RTI/STI

Background characteristics	Men who reported any symptom	Respondents (%)		
		No treatment	Public healthcare	Private healthcare
<i>Region</i>				
Coastal-northern	168	95 (55.7%)	23 (15.7%)	50 (28.6%)
Coastal	218	113 (51.6%)	41 (18.2%)	64 (30.2%)
Southern	150	67 (45.4%)	21 (13.7%)	62 (41.0%)
Inland	71	47 (73.8%)	10 (10.7%)	14 (15.5%)
<i>Residence</i>				
Rural	444	232 (53.4%)	73 (15.4%)	139 (31.2%)
Urban	163	90 (58.0%)	22 (13.8%)	51 (28.2%)
<i>Religion</i>				
Hindu	566	301 (54.9%)	89 (15.2%)	176 (29.8%)
Non-Hindu	41	21 (50.0%)	6 (12.5%)	14 (37.5%)
<i>Caste</i>				
SC/ST	214	112 (57.3%)	38 (18.8%)	54 (23.9%)
Non-SC/ST	393	200 (53.2%)	57 (13.0%)	136 (33.8%)
<i>Education</i>				
Non-literate	150	90 (58.6%)	28 (21.0%)	32 (20.4%)
0-5 years of schooling [†]	150	85 (60.7%)	22 (13.5%)	43 (25.8%)
6-10 years of schooling	232	110 (49.2%)	40 (15.2%)	82 (35.5%)
11 and above years of schooling	75	37 (52.0%)	5 (4.0%)	33 (44.0%)
<i>Standard of living</i>				
Low	232	130 (58.8%)	39 (16.0%)	63 (25.1%)
Medium	276	149 (54.8%)	48 (16.3%)	79 (28.8%)
High	99	43 (44.6%)	8 (7.9%)	48 (47.5%)
<i>Age of men (Years)</i>				
15-24	39	25 (60.5%)	3 (11.6%)	11 (27.9%)
25-29	96	57 (60.0%)	12 (13.9%)	27 (26.1%)
30-34	107	66 (63.0%)	12 (8.7%)	29 (28.3%)
35-39	128	64 (54.3%)	21 (13.8%)	43 (31.9%)
40-44	106	50 (46.7%)	24 (23.8%)	32 (29.5%)
45 +	131	60 (46.5%)	23 (17.8%)	48 (35.7%)
<i>Condom use</i>				
Not-user	600	319 (54.8%)	95 (15.2%)	186 (30.0%)
User	7	3 (42.9%)	0 (0.0%)	4 (57.1%)
<i>Aware of RTI/STI</i>				
Not aware	146	85 (60.5%)	22 (15.0%)	39 (24.6%)
Aware	461	237 (52.8%)	73 (15.1%)	151 (32.1%)
<i>Aware of HIV/AIDS</i>				
Not aware	27	22 (83.3%)	1 (3.3%)	4 (13.3%)
Aware	580	300 (53.3%)	94 (15.6%)	186 (31.1%)
<i>Wife experienced any symptom of RTI/STI</i>				
No	328	192 (60.7%)	47 (12.5%)	89 (26.9%)
Yes	279	130 (47.4%)	48 (18.1%)	101 (34.5%)
<i>Ever discussed RTI/STI problem with wife</i>				
No	386	252 (66.6%)	42 (10.0%)	92 (23.4%)
Yes	217	66 (31.9%)	53 (24.6%)	98 (43.5%)
<i>Health facility in the village</i>				
No health facility	190	107 (57.8%)	27 (12.7%)	56 (29.4%)
With health facility	254	125 (50.0%)	46 (17.6%)	83 (32.4%)
Urban area	163	90 (58.0%)	22 (13.8%)	51 (28.2%)
All Men	607	322 (54.7%)	95 (15.0%)	190 (30.3%)

Source: Computed from DLHS-RCH, 2002-04 data file. † = Literate men with no years of schooling are included.

more likely, but those from the Inland region less likely to have RTI/STI compared to men belonging to the southern region. The probability of prevalence of RTI/STI was found to be significantly low among Muslim men than among Hindu men. Men with six and above years of schooling and men who belong to high standard of living were found to be significantly less likely to be affected by RTI/STI than illiterate and those with low standard of living respectively. The prevalence of RTI/STI was

significantly less likely in the age group of 45 and above years than men in the age groups of 25-29 years. The reported prevalence of RTI/STI was significantly higher among those who were aware of RTI/STI compared to men who were not aware. But this could be reciprocal effect as well, since prevalence of symptoms could influence awareness. On the other hand, the prevalence of RTI/STI was observed to be significantly low among men aware of HIV/AIDS than

Table 6: Logistic regression analysis of the prevalence of RTI/STI by background characteristics among men

Background characteristics	Prevalence of RTI/STI		
	B	S.E.	Odds Ratio
<i>Region</i>			
Southern (RC)			
Coastal-northern	-0.171	0.106	0.843
Coastal	0.310	0.114	1.363**
Inland	-0.509	0.127	0.601**
<i>Religion</i>			
Hindu (RC)			
Muslim	-0.598	0.268	0.550*
Others (Christian)	-0.283	0.212	0.753
<i>Caste</i>			
OBC (RC)			
SC/ST	0.113	0.089	1.120
Others	-1.507	0.851	0.222
<i>Education</i>			
Non-literate (RC)			
0-5 years of schooling	0.130	0.118	1.139
6-10 years of schooling	-0.234	0.113	0.791*
11 and above years of schooling	-0.454	0.162	0.635**
<i>Standard of living</i>			
Low (RC)			
Medium	0.044	0.094	1.045
High	-0.306	0.147	0.737*
<i>Age of men (Years)</i>			
25-29 (RC)			
15-24	0.332	0.186	1.394
30-34	-0.223	0.133	0.800
35-39	-0.229	0.131	0.795
40-44	-0.237	0.140	0.789
45 +	-0.451	0.134	0.637**
<i>Condom use</i>			
No (RC)			
Yes	-0.251	0.391	0.778
<i>Aware of RTI/STI</i>			
No (RC)			
Yes	0.235	0.099	1.265*
<i>Aware of HIV/AIDS</i>			
No (RC)			
Yes	-0.693	0.204	0.500**
<i>Wife experienced symptom of RTI/STI</i>			
No (RC)			
Yes	1.326	0.082	3.765**
<i>Health provider in the village</i>			
No health provider in the village (RC)			
With health provider in the village	0.179	0.096	1.196
Urban area	-0.200	0.114	0.819
Constant	-2.933	0.253	0.053**
Number of women		23,748	
-2log likelihood		5,535.65	
Pseudo R Square (Nagelkerke)		0.09	

RC= Reference Category; * = Indicates significant level at 0.05; ** = Indicates significant level at 0.01.

men not aware of HIV/AIDS. Men whose wife reported experience of symptom of RTI/STI were significantly more likely to report symptom of RTI/STI compared to men whose wife did not report symptom of RTI/STI when other variables were controlled.

Treatment seeking behavior for RTI/STI

In the analysis of health seeking behavior for RTI/STI, the present study had used multinomial logistic regression model because the response variable was having more than two categories: no treatment, treatment from public health facility, and treatment from private health facility. It is important to see both whether men

seek treatment for RTI/STI but also whether they do so from the public sector or the private sector. In addition, those who took treatment from both public and private health facilities and those who did not specify the sector were deemed to have taken treatment from the private health facility for the purpose of analysis; such cases were very few. Besides, religion, use of condom, and awareness of HIV/AIDS variables were excluded from the multivariate analysis because many categories of these have had less than 50 unweighted cases. Table 7 presents summary results of two sets of coefficients, standard errors and odds ratios, for treatment from the public health facility vis-à-vis no

Table 7: Multinomial logistic regression analysis of treatment-seeking behavior by background characteristics among men

Background characteristics	Public health facilities/ No treatment			Private health facilities/ No treatment		
	B	S.E.	Odds Ratio	B	S.E.	Odds Ratio
<i>Region</i>						
Southern (RC)						
Coastal-northern	-0.104	0.331	0.902	-0.361	0.251	0.697
Coastal	0.329	0.350	1.390	-0.396	0.273	0.673
Inland	-0.753	0.424	0.471	-1.484	0.349	0.227**
<i>Caste</i>						
Non-SC/ST (RC)						
SC/ST	0.328	0.270	1.388	-0.242	0.226	0.785
<i>Education</i>						
Non-literate (RC)						
0-5 years of schooling	-0.443	0.339	0.642	0.041	0.303	1.042
6-10 years of schooling	-0.018	0.316	0.982	0.590	0.281	1.804*
11 and above years of schooling	-1.015	0.647	0.362	0.855	0.370	2.351*
<i>Standard of living</i>						
Low (RC)						
Medium	0.258	0.273	1.295	0.207	0.227	1.230
High	-0.037	0.497	0.964	0.751	0.339	2.120*
<i>Age of men (Years)</i>						
15-29 (RC)						
30-34	-0.621	0.436	0.537	-0.209	0.315	0.811
35-39	-0.001	0.379	0.999	0.103	0.300	1.109
40-44	0.519	0.387	1.680	0.091	0.337	1.096
45 +	0.338	0.383	1.403	0.388	0.311	1.475
<i>Aware of RTI/STI</i>						
No (RC)						
Yes	0.161	0.294	1.174	0.140	0.239	1.151
<i>Wife experienced symptom of RTI/STI</i>						
No (RC)						
Yes	0.556	0.257	1.743*	0.546	0.206	1.727**
<i>Ever discussed RTI/STI symptom with wife</i>						
No (RC)						
Yes	1.673	0.256	5.327**	1.427	0.210	4.165**
<i>Health facility in the village/Residence</i>						
Rural area: No health facility (RC)						
Rural area: With health facility	0.360	0.300	1.433	0.090	0.235	1.095
Urban area	0.394	0.356	1.483	-0.210	0.280	0.811
<i>Intercept</i>	-2.627	0.534		-1.575	0.427	
<i>Number of cases</i>	607					
<i>-2log likelihood</i>	1,056.95					
<i>Pseudo R Square (Nagelkerke)</i>	0.27					

RC= Reference Category. *Indicates significant level at 0.05. **Indicates significant level at 0.01.

treatment, and treatment from the private health facility vis-à-vis no treatment. Men living in the Inland region were significantly less likely to seek care for RTI/STI from the private health facility compared to men living in the southern region. Caste did not show any significant effect on treatment seeking behavior when other variables were controlled. Men with high school or higher education were significantly more likely to seek care from the private health facility than illiterate men. As expected, men with high standard of living were significantly more likely to seek care for RTI/STI from the private health facility compared to men with low standard of living. Men who ever discussed RTI/STI symptom with their wife were statistically significantly more likely to seek care for symptom of RTI/STI from the public health as well as private health facilities compared to other men. Again, there could be reciprocal effect, taking treatment leading to discussion with wife.

Conclusion

This study showed very low prevalence of RTI/STI among currently married men in Tamil Nadu, 2.8%, as reported by the respondents themselves during 2002-2004. It is possible that many men did not report symptoms due to shyness and the actual prevalence may be higher, but this is a limitation of a large survey especially about sexual health. More than two-fifth of the respondent had taken treatment from some source among those who had reported symptoms of RTI/STI. The higher proportion of men had treatment from the private medical sector (27.6%) than the public medical sector (16.0%). This could be due to poor access to public health care facilities for reproductive health problems. Additional private health care services may be easily access in the community. However, the prevalence of RTI/STI and health seeking behavior varies across the socio-economic conditions of the respondent. The multivariate logistic regression analysis

clearly explained that men belonging to the coastal region, men belonging to the SC/ST, in the age group of 15-24 years, aware of RTI/STI, and whose wife experienced symptom of RTI/STI were significantly more likely to report symptom of RTI/STI compared to the corresponding reference category. In addition, among those who experienced symptoms of RTI/STI, men aware of HIV/AIDS, men whose wife experienced symptoms and who ever discussed about RTI/STI symptom with their wife were more intended to seek treatment from the public health facility. Similarly, young men (15-24 years) were significantly less likely to seek treatment than men in the age group of 25-29 years. On the other hand, men who belong to the Inland region, men with 6-10 and 11 and above years of schooling, high standard of living, aware of HIV/AIDS, whose wife experienced symptom of RTI/STI, and who ever discussed RTI/STI symptom with their wife were more likely to seek treatment for symptoms from private health facility compared to reference category.

The symptoms of RTI/STI are a very sensitive and public health concern. The lack of awareness of sexual and reproductive health problems may lead to high prevalence rate. In addition, the lack of health care services from the public health sector can also lead men towards the end when it may be fatal. Therefore, public health care services need to take necessary steps to provide quality health care and user friendly reproductive health care services. There are some evidence highlighting the reproductive health problems among male population. But they have not drawn enough attention from a public health perspective. Therefore, public health related programs and policymakers should focus more on male reproductive health issues and introduce reproductive and sexual health education, information and services to improve reproductive health and also promote family reproductive health status. It is thus necessary to improve the health infrastructure and make them more people oriented. This may help the younger generation to overcome the lack of awareness of reproductive and sexual health and further, to reduce the threat of chronic and fatal diseases like HIV/AIDS in the country.

Acknowledgement

The author is indebted to the International Institute for Population Sciences, Mumbai, for providing him with the raw data from DLHS-2. The earlier version of the paper was presented at the First Asian Population Association Conference on November 16–20, 2010 at the Vigyan Bhawan, New Delhi, India. The author is solely responsible for the interpretations or any error in the analysis.

Conflict of interest

The author has declared that there is no competing interest.

References

1. United Nations. Programme of Action Adopted at the International Conference on Population and Development, Cairo, 5-13 September 1994. New York: United Nations, 1994.
2. John T, Jacob P, Babu G, Jaykumari H, Simoes EAF. Prevalence of HIV infection in risk groups in Tamil Nadu, India. *Lancet* 1987;1:160-1.
3. UNAIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic 2013, Geneva: UNAIDS, 2013.
4. Ndubani P, Hojer B. Sexual behaviour and sexually transmitted diseases among young men in Zambia. *Health Policy Plann* 2001;16(1):107-12.
5. Narayana G. Family violence, sex and reproductive health behaviour among men in Uttar Pradesh, India, 1996 (Unpublished).
6. Singh KK, Bloom SS, Tsui AO. Husband's reproductive health knowledge, attitudes, and behaviour in Uttar Pradesh, India. *Stud Family Plann* 1998;29(4): 388-99.
7. Collumbien M, Bohidar N, Das R, Das B, Pelto P. Male sexual health concerns in Orissa: An emic perspective. IUSSP working paper for the seminar on Social Categories in Population Health, Cairo, Egypt, 15-18 September 1999.
8. Verma RK, Schensul SL. Male Sexual health problems in Mumbai: Cultural constructs that present opportunities for HIV/AIDS risk education. In: Verma RK, Pelto PJ, Schensul SL, Joshi A (Eds). *Sexuality in the Time of AIDS: Contemporary Perspectives from Communities in India*. New Delhi: Sage Publications, 2004.
9. UNFPA. Rural Sexual Behaviour in India. New Delhi: UNFPA, 2003.
10. Verma RK, Collumbien M. Wife Beating and the Link with Poor Sexual Health and Risk Behaviour among Men in Urban Slums in India. *J Comp Family Stud* 2003;34(1):61-75.
11. Verma, RK, Sharma S, Singh R, Rangaiyan G, Pelto PJ. Beliefs Concerning Sexual Health Problems and Treatment Seeking among Men in an Indian Slum Community. *Cult Health Sex* 2003;5(3):265-76.
12. Desai GS, Patel RM. Incidence of Reproductive Tract Infections and sexually transmitted diseases in India: Levels and Differentials. *J Fam Welfare* 2011;57(2):48-60.
13. Das NP, Shah U. A Study of reproductive health problems among men and women in urban slums with special reference to sexually transmitted infections. A Project Report prepared for ICMR, New Delhi. Population Research Centre, M.S. University of Baroda, Baroda, 2007.
14. International Institute for Population Sciences (IIPS). District Level Household Survey - Reproductive and Child Health, 2002-04, India. Mumbai: IIPS, 2006.