Research Article

Prevalence and awareness of reproductive tract infections among women in select underprivileged areas of Bangalore city

Ratnaprabha GK[1], Sulekha Thimmaiah[2], Avita Rose Johnson[2], Naveen Ramesh[2]

[1]Department of Community Medicine, SS Institute of Medical Sciences and Research Centre, Davangere, Karnataka, India.
[2]Department of Community Health, St. John's Medical College, Bangalore, Karnataka, India.
Correspondence to: Ratnaprabha GK, E-mail: drratnagk@gmail.com

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Abstract

Background: Reproductive tract infections (RTIs) and sexually transmitted infections (STIs) present a huge burden of disease and adversely impact reproductive health of people. They are more common in developing countries than developed.

Objective: (1) To study the awareness, prevalence, and factors associated with RTIs among women aged 15–49 years residing in two slum areas of Bangalore city. (2) To assess the treatment seeking behavior for symptoms suggestive of RTIs in the past 1 year.

Materials and Methods: Using systematic random sampling, 470 women of age group 15–49 years were studied from June 2010 to September 2011. Data were collected using a structured pretested questionnaire at their houses.

Result: A total of 29.15% women had symptom suggestive of RTIs. White discharge was reported by 17.45%, genital skin infections by 14.47%, lower abdominal pain by 9.15%, complain of genital ulcer reported in 0.21%, and none complained of inguinal bubo. Symptoms of RTI were higher in young, Muslim women, those with higher education and poor menstrual hygiene. Only 62 (45.25%) symptomatic women had sought some form of treatment. Private doctors were preferred by 87% of women who sought treatment and only 6.7% went to government doctors. None had adequate knowledge regarding RTIs and 324 (68.93%) women had some knowledge.

Conclusion: About one-third of the women had experienced at least one symptom of RTI in the past 1 year. Women in reproductive age group showed very poor awareness regarding RTI and poor treatment seeking behavior for the same.

KEY WORDS: RTIs, STIs, prevalence, awareness, treatment seeking behavior, reproductive age group women

Introduction

Reproductive health is a condition in which reproduction is accomplished in a state of complete physical, mental, and social well-being and not merely absence of disease or disorders of the reproductive process.[1,2] About one-third of the total disease burden among women aged 15–44 years in the developing countries is linked to pregnancy, childbirth, abortion, and reproductive tract infections (RTI).[3] RTI is a common yet neglected health problem affecting health and social well-being of women in their most productive age.[4] The annual incidence of RTI and sexually transmitted infection (STI) in India is estimated at 5% or approximately 40 million every year.[5]

Although early detection and treatment of RTIs can prevent complications and minimize the severity of long-term sequel, still RTIs remain undiagnosed and untreated.

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Treatment of these infections is complicated by high number of asymptomatics[6] and women seek treatment only when the illness causes physical discomfort or affected their work performance.[3] Cultural barriers, poor understanding of symptoms, lack of privacy, lack of a female doctor at the health facility, the cost of treatment, social stigma, and fear of internal checkup delay seeking treatment.[7–11] These barriers pose a challenge for the effective implementation of programs aimed at prevention and control and are commonly faced by urban underprivileged women.[12–14] With a culture of silence that surrounds RTI and the devastating consequences in terms of maternal and neonatal mortality and morbidity, there is a need to study RTI among women in urban underprivileged areas. This study was conducted with the aim to document the awareness, prevalence, and factors associated with RTIs among women aged 15–49 years residing in two slum areas of Bangalore city and to assess the treatment seeking behavior for symptoms suggestive of RTIs in the past 1 year.

Materials and Methods

A cross-sectional study was undertaken in two selected underprivileged areas of Bangalore city from August 2010 to March 2011. Ethical clearance from the Institutional Ethical Committee was obtained. Different research studies have shown the prevalence of RTIs in women of reproductive age group in Indian slums to be in the range of 19–71%.[15–20] Using 40% as the expected prevalence, a relative precision of 10% and 95% confidence levels, the minimum sample size calculated was 468. All the women between 15 and 49 years residing in this area for more than 1 year were listed through a house-to-house survey and using systematic random sampling, every fifth woman was interviewed. Women not willing to participate in the study or not contactable during three visits were excluded from the study and the next eligible woman in the list was included. A pretested semi-structured and validated questionnaire was used for the interview. Symptoms, such as vaginal discharge, lower abdominal pain, genital ulcer, inguinal bubo, and genital skin infections, based on syndromic approach for RTI were considered. The World Health Organization color charts depicting these symptoms were used while collecting data for better understanding by the participants. All participants were given a referral slip after the interview and requested to visit the urban health center for per abdominal and per speculum examination. There were eight questions on awareness. Each correct answer was awarded one mark. Maximum score possible was 34. At least one-third of the maximum score (11.33) was considered "adequate knowledge", and those who answered at least one correct answer were considered to be having "some knowledge". Data were entered in Microsoft Excel sheet and analysed using SPSS version 16.0 for frequencies, χ^2-test and independent *t*-test.

Table 1: Demographic details of the study population

Variables	Frequency (%)
Age (years)	
<18	28 (6.0)
18–25	146 (31.1)
26–35	159 (33.8)
>35	137 (29.1)
Marital status	
Unmarried	70 (14.9)
	351(74.7)
Separated/widowed	49 (10.4)
Education	
Literates	369 (78.5)
Illiterates	101 (21.5)
Occupation	
Gainfully employed	187 (39.8)
Not gainfully employed	283 (60.2)
Socioeconomic status[21]	
High (Rs. ≥6350 per month)	8 (1.7)
Middle (Rs. 1905–6349 per month)	175 (37.2)
Low (Rs. ≤1904 per month)	287 (61.1)
Occupation of spouse (*n* = 351)	
Gainfully employed	336 (95.7)
Not gainfully employed	15 (4.3)

Table 2: Prevalence of symptoms suggestive of RTI

Symptoms	Point prevalence (*n* = 470)	Prevalence in last 1 year (*n* = 470)
Vaginal discharge	45 (9.57%)	82 (17.45%)
Lower abdominal pain	25 (5.32%)	43 (9.15%)
Genital ulcer	1 (0.21%)	1 (0.21%)
Inguinal bubo	0	0
Genital skin infections	15 (3.19%)	68 (14.47%)
None	407 (86.59%)	333 (70.85%)
Any symptom	63 (13.40%)	137 (29.15%)

Results

A total of 470 women were interviewed and most (21.1%) were in 21–25 years age group with mean age 30.11 ± 8.92 years. Table 1 shows the demographic details of the population.

Prevalence of RTI

The prevalence of symptoms suggestive of RTI in the past 1 year was found to be 29.15%. Prevalence of individual symptoms is shown in Table 2. The prevalence was found to be significantly associated with age ≤25 years and women belonging to Muslim community. The prevalence was not

Table 3: Factors associated with RTI

Variable	Symptoms of RTI		*P*-value
	Present (*N* = 137)	Absent (*N* = 333)	
Age (years)			
≤25	62 (35.6%)	112 (64.4%)	0.047
26–35	43 (27%)	116 (73%)	
>35	32 (23.4%)	105 (76.6%)	
Religion			
Hindu	93 (27%)	250 (73%)	0.026
Muslim	35 (40.7%)	51 (59.3%)	
Christian	9 (22%)	32 (78%)	
Marital status			
Currently married	102 (29%)	249 (71%)	0.375
Separated, divorced, or widow	11 (22.4%)	38 (77.6%)	
Unmarried	24 (34.3%)	46 (65.7%)	
Age at first sexual intercourse (*n* = 400)			
≤18 years	68 (27%)	184 (73%)	0.463
>18 years	45 (30.4%)	103 (69.6%)	
Parity			
Nulliparous	15 (35.7%)	27 (64.3%)	0.523
1–2 children	63 (27.5%)	166 (72.5%)	
≥3 children	35 (27%)	94 (73%)	
Occupation of spouse			
Gainfully employed	99 (29.5%)	237 (70.5%)	0.568
Not gainfully employed	3 (20.0%)	12 (80.0%)	
Contraceptive history (*n* = 400)			
Using contraceptive	75 (67%)	37 (33%)	0.185
Not using contraceptive	212 (73.6%)	76 (26.4%)	
Delivery in last 1 year (*n* = 400)			
Yes	11 (36.7%)	19 (63.3%)	0.287
No	102 (27.6%)	268 (72.4%)	
Abortion in last 1 year (*n* = 400)			
Yes	9 (47.4%)	10 (52.6%)	0.058
No	104 (27.3%)	277 (72.7%)	
Bath during menstruation			
Twice a day and everyday	103 (28.5%)	259 (71.5%)	0.023
Alternate days or less frequent	21 (44.7%)	26 (55.3%)	
Material used during menstruation			
Sanitary pad only	74 (33.3%)	148 (66.7%)	0.148
Cloth or both	50 (26.7%)	137 (73.3%)	
Symptoms of RTI in the spouse in last 1 year			
Yes	8 (42.9%)	6 (57.1%)	0.246
No	241 (28.5%)	96 (71.5%)	
Heard of RTI			
Yes	97 (30%)	227 (70%)	0.575
No	40 (27.4%)	106 (72.6%)	

associated with education (p = 0.309), gainful employment (p = 0.916), and per capita income (p = 0.721). Other associated factors are represented in Table 3.

Awareness about RTI

Only 324 (69%) women reported that they had ever heard of RTIs and on scoring, the mean score was 2.91 ± 2.5 and ranged from 2 to 11. None had "adequate knowledge" and all 324 (69%) had "some knowledge", while 146 (31%) women had "no knowledge" about RTIs. Mean age of women who had "some knowledge" was 31.16 ± 8.45 years and that of women who had "no knowledge" was 27.78 ± 9.50 years. This suggests that older women have significantly better knowledge than younger women (independent *t*-test, t = 3.851, $p < 0.001$). Percentage of women who had correct knowledge about RTI was 7.8% related to causes of RTIs, 10% for spread, 6.4% sexual route of transmission, 68.5% about symptoms of RTIs, 20.6% about complications of RTIs, 17.8% about preventive methods, and 55.7% were aware that treatment was available for RTIs.

The most commonly reported beliefs regarding cause of RTIs were increased body heat (43.2%) followed by lack of blood in body or weakness (15.7%), and increased consumption of "heat-causing or hot food items" such as rice, brinjal, curds, chilly, egg during menstruation, non-vegetarian food, and oily foods (7.4%). Less commonly reported causes were lack of personal hygiene; multiple sexual partners; lack of menstrual hygiene; anatomical problem or infection in uterus; work conditions such as more strenuous work, among tailors, working in garment factories, tying flowers; weakening or melting of bones in body; having more sex or sex during menstruation or lactation; using *intrauterine devices* (IUDs); lack of good food; hereditary; following unsafe deliveries and operations on uterus. Among 324 women, only 56 (17.3%) women reported that RTIs can spread from one person to another. Among them, the most commonly reported mode of spread was sexual route followed by sharing clothes.

Treatment Seeking Behavior

Among the 137 women who had RTI symptoms in the past 1 year, 62 (45.2%) had taken treatment for their symptoms, of whom only 47 (75.8%) completed the course of treatment. Most of them sought treatment from a private allopathic practitioner (87%), only 6.6% from government doctors. Among those who did not seek treatment, most (57.3%) said there was no need of treatment as these symptoms were common and normal for women. Other common reasons for not seeking treatment were feeling shy to explain symptoms to the doctor, cannot afford the cost of treatment, too busy in routine work or lack of time, and not permitted by family members. Treatment seeking behavior was comparatively better for lower abdominal pain (65.1%) and genital skin infections (54.4%) compared to vaginal discharge (45.1%) or having more than one symptom (53.3%). It was better among older women, literates, women who were gainfully employed poor among unmarried girls. However, none of these associations were statistically significant.

The response to per-abdominal and per-speculum was very low (5.7%). Of the 27 women, 20 were found to be normal on examination and seven had signs of RTIs. Women were treated for RTI based on syndromic approach.

Discussion

The prevalence of symptoms suggestive of RTIs was found to be 29.15% in this study, which is in par with other studies conducted in underprivileged areas of Bangalore city and Brahmpur city of Orissa.[15–17] Similar studies carried out in underprivileged areas of Kolkata, Delhi, and Tirupati showed higher prevalence of 43.3%, 62.3%, and 35.6% respectively.[18–20] Most common symptom was found to be white discharge (17.47%), followed by genital skin infections/itching (14.45%), which was again similar to studies conducted in Kolkata, Brahmapur city, Delhi, Tirupati slum, Sundargarh district of Orissa, and in Himachal Pradesh.[17–20,22,23] However, studies conducted in Balmiki Basti slum of Delhi and Dharavi slum of Mumbai revealed lower abdominal pain as the most common symptom.[24,25] A study in rural Rajasthan showed that interview-based household method remains the most appropriate approach to assess the magnitude of RTIs in developing countries.[26] In our study, 4% spouse had symptoms suggestive of RTIs that was similar to DLHS-2 survey (3.2%) in Karnataka.[27]

The prevalence of symptoms suggestive of RTIs was highest in the age group of 15–19 years (37.3%) in this study. The probable reason for this could be that physiological vaginal discharge wrongly perceived to be pathological by adolescent girls. Similar age group showed higher prevalence in many other studies.[16,20,28] The prevalence was found to be highest (40.7%) among Muslim women compared to Hindus and Christians, consistent with study findings in Rajasthan and Haryana.[26,27] Unlike in this study where the prevalence was higher among educated women, most studies show higher prevalence of symptoms of RTIs among illiterate women and lesser prevalence among the educated.[18,29] This may be explained by either lack of awareness regarding symptoms of RTI among illiterate women or they were too shy to explain their symptoms to the researcher. Similar finding was also obtained in a study carried out in rural areas of Himachal Pradesh.[23]

Reported extramarital sexual activity is relatively low among women in India (2–6%).[30–32] In this study, four women (0.8%) had more than one sexual partner but none had symptoms suggestive of RTI.

The prevalence of RTI was highest among women who used oral contraceptive pills (50%) followed by IUD (40%) users and then among women not using any method of contraception (33%). Similar findings were reported in studies carried out in Kolkata.[18] This study also showed lower

prevalence among condom users, but it was least among those who were following abstinence. This is consistent with findings from Meerut.[33] Women who delivered or had abortion in the past 1 year had higher prevalence (36.7% and 47.4%, respectively) of RTI compared to their counterparts, however, there was no significant association found between place of delivery or history of abortion and symptoms of RTIs unlike the findings in many other studies.[18,20,24,30] Probably the number who had home delivery (one woman) was too less in this study to find any association.

The prevalence of symptoms suggestive of RTI was slightly higher among the women who take infrequent bath (30%) compared to those who take bath every day (28%), more so among those who do not take bath during menstruation, similar to the other studies.[24,33]

This study showed poor awareness about RTI/STI among the women in reproductive age group in the urban underprivileged areas of Bangalore city similar to a study by Hegde where only 31% had identified at least one correct symptom of RTI and other studies in different parts of India.[2,15,16] The knowledge was comparatively higher in the studies conducted in Haryana (53.9%) and North East States of India (45.4%).[34,35]

Less than half of the symptomatic women in this study sought treatment and only two-thirds of them completed the course. Treatment seeking behavior was better for lower abdominal pain and worst for white discharge. This is probably due to women's misconception that white discharge is "normal". Common reasons for poor treatment seeking were perception that these symptoms are common and normal for women, feeling shy to explain symptoms to the doctor, cannot afford the cost of treatment, too busy in routine work or lack of time. Study in a slum of Baroda[3] showed that 75% of currently married women with gynecological problems sought treatment and most of the women preferred private doctors over government doctors. Studies done in Haryana and slum of Rajkot city also showed poor treatment seeking and similar reasons for poor treatment seeking, while a study in Baroda showed a better picture, however all preferred private doctors over government health practitioners like this study.[3,30,36] Providers' poor attitudes, poor quality of services, and long waiting times were found to be the reasons for not utilizing government's facilities, which are similar to findings in Rajkot city.[36]

Conclusion

Nearly one-third of the women had symptoms of RTIs/STIs. Among them, white discharge was the most common symptom followed by genital skin infections. Younger, unmarried, and Muslim women had higher prevalence of RTI symptoms and it showed significant association with hygiene during menstruation. Only 45.2% of the symptomatic women sought treatment and two-thirds of them completed the course of the treatment.

Recommendations

Regular health education about common symptoms of RTIs and motivation to seek professional help will be beneficial. Appropriate age-based health education regarding menstrual hygiene, personal hygiene, RTI symptoms, and sexually transmitted diseases in schools and colleges will help to reduce the incidence of RTIs. Conducting well women clinic and presence of lady doctors will also help improve the awareness and treatment seeking behavior among women in underprivileged areas. Role of link workers, women's group, youth groups, and male involvement in RCH has to be improved.

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