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Original Research Article

Reproductive tract infections: a self-reported community based study in urban training health centre area of a tertiary care hospital in Kottayam, Kerala, India

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ABSTRACT

Background: The burden of reproductive tract infections (RTI) among urban women in the reproductive age group (15-49 years) is usually a hidden issue. Earlier studies from Kerala mainly focused on reproductive morbidity among commercial sex workers. A cross-sectional study was conducted to estimate the prevalence of RTI and its association with potential socio-demographic risk factors, based on self reported symptoms among females in the age group 15-49 years in the Urban training Health Centre field practice area of Government Medical College, Kottayam.
Methods: The study was conducted among 643 women of the reproductive age group by single stage cluster sampling technique. A pretested semi structured interview schedule was used for collecting data on the socio demographic profile, clinical symptoms and associated factors after obtaining informed consent. Univariate analysis was done to find association of RTI with various factors followed by a bivariate analysis using binary logistic regression model.
Results: The prevalence of RTI was 11.8%. RTI was significantly associated with age at marriage (p=0.02), age at first child birth (p=0.01), type of family (p=0.002), female education (p=0.001), socioeconomic status (p=0.007) and previous history of RTI in last one year (p<0.01) of which 84.1% women with symptoms of RTI had consulted a health personnel.
Conclusions: A low prevalence of self reported symptoms of RTI with a high treatment seeking behavior was observed; attributed to the high female literacy. A comparable prevalence in younger age group of 15-24 years (10.9%) and 25-39 years (12.9%) suggesting equal susceptibility of adolescents to RTI was a notable finding.

Keywords: Reproductive tract infections, Kerala, Adolescents, Self reported

INTRODUCTION

Reproductive tract infections have increased in prevalence in the past years with WHO estimates of 357 million new sexually transmitted infection in the world.[1] RTIs cause a huge morbidity whether it be in males or in females. But the major brunt of the morbidity is borne by the female population (six times), which includes women in the reproductive age group in resource poor settings where most of the cases go undiagnosed and untreated.[2] Adolescents also, due to the ignorance regarding menstrual hygiene are at a high risk for RTIs which in the long run can lead to various complications like carcinoma of cervix, pelvic inflammatory disease, infertility, spontaneous abortion and ectopic pregnancy, the latter of which may lead to maternal death.[3]

The disease prevalence of RTI is estimated to vary from 11-72% from community based studies conducted in India.[4] Studies conducted in Kerala mainly focused on the morbidity pattern among the commercial sex workers and many were clinic based studies which did not yield much insight on the sufferings of the women in the general population.[5,6] Hence the current study was conducted in an attempt to shed some light on the morbidity pattern among the women of an urban population.

METHODS

A descriptive, community based study was conducted from May 2009 to November 2010 in the field practice area of urban training health centre attached to the Government Medical College, Kottayam. Approval from the Institutional research committee and thereafter ethical clearance was obtained. The study was explained in detail to the women and a written consent was obtained from those willing to participate. Women not willing to participate and pregnant women were excluded. A pretested semi structured interview schedule was used. By using the single cluster sampling technique, three clusters (wards) were taken to cover a sample size of 606. A total of 643 women in the reproductive age group of 15-49 yrs residing in the randomly selected wards of Ettumanoor panchayat were obtained. Interview was conducted with the women individually, maintaining and assuring confidentiality throughout. They were asked regarding socio demographic background, age at marriage, age at first child birth and other factors considered as high risk for RTI. Symptoms of RTI as perceived by the women and past history of RTI in the last one year were also asked. The treatment seeking behavior for the previous episode was also assessed during the interview. Arrangements were made at the urban training health centre for treating the patients diagnosed from the field as per the National guidelines on prevention and control of RTI 2007. The data was entered into Microsoft excel worksheet and was analyzed using SPSS ver.16. Quantitative variables were summarized using mean and standard deviation and were tested for association by univariate analysis using the students t test whereas the qualitative variables were summarized in percentages and proportions and tests of significance such as $\chi 2$ test and fisher's exact test were used for testing association. The variables found to be statistically significant in univariate analysis was further subjected to bivariate analysis using binary logistic regression to predict the presence of RTI with respect to each variable after adjusting for the effects of the other variables in the equation.

RESULTS

Of the total respondents, majority 302 (47.1%) were in the age group 25-39 years, 175 (27%) belonged to the age group15-24 years, and 166 (25.8%) were in the age group of 40-49 years. The mean age of the sample was 32 years (9.6). A good proportion of adolescents 79 (12.3%) were covered in the study and major part of the study sample comprised of women in the age group of 30-34 yrs. Majority, 71.2% belonged to the Hindu religion, followed by the Christians (25.3%) and the rest (3.4%) Muslims. Most (73.7%) of the women were married, the rest (26.3%) being either unmarried, divorced or widowed. Majority (92.5%) were in a nuclear family setting, with only 7.5% being in a joint family. The socioeconomic status of the women were classified on the basis of modified Kuppuswamy's classification, according to which majority belonged to the upper middle and lower middle (Middle) category 461 (71.7%), followed by those in the upper lower (Low) 153 (23.8%) and upper lower (High) 29 (4.5%). The prevalence of reproductive tract infections was found to be 11.5% (9-14% confidence interval). For the purpose of estimating association between RTI and various risk factors, chi square test and fisher's exact test were applied, wherever appropriate and a $p<0.05$ was taken to be statistically significant. Variables found statistically significant in univariate analysis are shown in Table 1.

Table 1: Factors associated with reproductive tract infections (N=643).

Variables	RTI			X^2 value	P value
	Present (n=74)	Absent (569)	Total		
Age at marriage					
<20 yrs	23 (16.9)	113 (83.1)	136	4.757	0.02
≥20 yrs	33 (9.8)	305 (90.2)	338		
Type of family					
Nuclear	62 (10.4)	533 (89.6)	595	9.271	0.002
Joint	12 (25)	36 (75)	48		
Female literacy					
Low	41 (17.5)	193 (82.5)	234	17.794	0.001
Middle	22 (11.8)	164 (88.2)	186		
High	11 (4.9)	212 (95.1)	75		
Socio economic status					
High	1 (3.4)	28 (96.6)	29	11.976	0.007
Middle	51 (11.1)	410 (88.9)	461		
Low	22 (14.4)	131 (85.6)	153		

Variables	RTI			X^2 value	P value
	Present (n=74)	Absent (569)	Total		
Past history of RTI					
Present	28 (32.3)	59 (67.8)	87	42.232	<0.01
Absent	46 (8.3)	510 (91.7)	556		

Table 2: Predictors of reproductive tract infections.

Predictors of RTI	Odds ratio	SE	Adjusted OR (95% CI)	P value
Previous history of RTI	1.705	0.026	5.5 (2.69-11.232)	<0.01
Nuclear family	1.137	0.456	0.321 (0.131-0.785)	0.013
Age at menarche	0.3	0.114	1.35 (1.08-1.68)	0.008

One of the factors that can precipitate an episode of RTI would be inappropriate treatment of a past episode. Eighty seven (13.5%) out of 643 women gave a past history of RTI, out of which 28 (32.2%) currently had a recurrent episode at the time of the study. The treatment seeking behavior for a previous reproductive tract infection was enquired and the results have been summarized in the Figure 1.

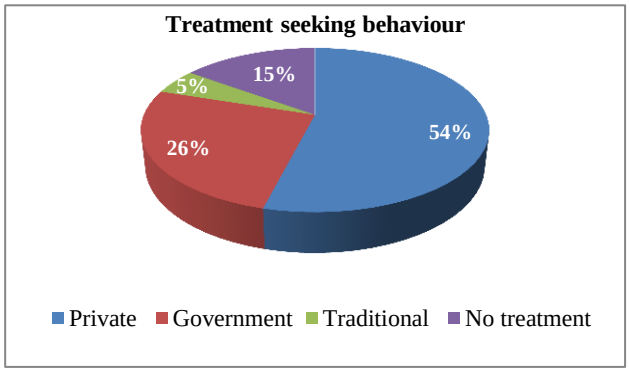

Figure 1: Treatment seeking behavior of the study sample.

To find out the predictors for reproductive tract infections, the above factors that were found to be statistically significant ($p<0.05$), were analyzed using multivariate binary logistic regression and the final predictors are depicted in Table 2. The R^2 value obtained was moderate (0.22).

DISCUSSION

The prevalence of RTI as per the present study was found to be 11.5% (CI 9%-14%), N= 643.This was comparable to a study conducted by Vaz et al.[8] Other studies from South India revealed a much higher prevalence, the plausible reason behind this finding could be the urban setting whereas most of the other studies were conducted in the rural setting.[9,10] The commonest symptom reported by the women was vaginal discharge (70.3%), followed by low back ache (27%). The age specific prevalence was maximum in the 25-39 yrs (12.9%), followed by the younger population of 15-24 yrs (10.9%). Bhawna et al also obtained a higher prevalence in this age group.[11] Hindus in this study showed a proportionately higher prevalence of RTI, (81%) n=458 as compared to the Christians, (17.6%) n=163, and the Muslims (1.3%) n=22.

The mean age at marriage was 22.78 yrs. Early age at marriage showed a higher prevalence of RTI (16.9%) when compared to those who got married after 20 yrs (9.8%). Early sexual activities and trauma to the young cervix render a platform for future infections. A study among 314 females by Ram et al also revealed similar findings.[12] The proportion of females with RTI living in a nuclear family was lesser (10.4%) in contrast to those living in a joint family, showing a higher proportion of 25%, the reason could be that females in joint families have less time to tend to their personal needs leading to lower levels of personal hygiene. A disturbing factor arising out of concealment of such health issues is the increasing chances of complications arising due to RTIs. Bhawna et al in their study also came with similar results with a significantly higher prevalence (49.1%) in women belonging to joint families.[11]

The female literacy rate in the study sample was 99.1%. The high female literacy could be one of the factors contributing to the low prevalence among the subjects. There was a significant decrease in prevalence of RTI with increased literacy rate in the current study. Ram et al also found similar finding where a higher prevalence was seen among illiterate girls.[12] 4.5% of the women in the study belonged to upper socioeconomic class (Kuppuswamy's classification), 71.6% belonged to the middle (upper middle and lower middle) class and 23.7% belonged to the upper lower socioeconomic class. Similar to other studies, there was a significant decrease in the prevalence of RTI with improved socioeconomic status of the families.

85% of the women had taken treatment from a health facility showing a preferably good health seeking behavior. This is in contrast to a study conducted by Abraham et al who observed that only 35% of women with any symptoms had ever sought treatment and most women who sought treatment tried out home remedies or

sought help from traditional medicines or unqualified private practitioners.[14]

Of the 474 married women 51.3% (n=243) utilized modern methods of contraception which is comparable to the NFHS III data for Kerala according to which the couple protection rate was 57.9%. Majority, 44.7% had undergone terminal methods of contraception, condom users -6%, intra uterine device users- 1.5% and NSV users 0.5%. These facts were in concordance with NFHS III data.[15]

The present study had a few limitations. Causal relationships between reproductive tract infections and various risk factors could not be established with the current study design. Speculum examination and lab confirmation could have yielded a more accurate prevalence. In the current study a chance for over estimation of the prevalence is hence evident.

CONCLUSION

Reproductive tract infections pose a serious and continuing threat to the health status of women in the reproductive age group. Moreover, the trend of not revealing various symptoms related to RTI as evident from various studies, will only add on to the burden of complications such as cancer of cervix, pelvic inflammatory disease, infertility, ectopic pregnancy, the latter being a cause for maternal deaths. Presence of RTI also brings about an increased susceptibility to develop HIV. The present study highlights another important factor that is female education. A high female literacy has shown to decrease the disease burden in communities as evident from other community based studies. In our study the high treatment seeking behavior of the women could also be attributed to the high female literacy. The study points towards a new area for further research regarding the menstrual hygiene practices among the adolescent girls, as the prevalence among this young age group was comparable to the prevalence among women in the age group of 25-39 yrs, showing almost equal susceptibility among the adolescents. School intervention programs to increase the awareness regarding reproductive tract infections and their long term sequelae along with sessions on menstrual hygiene need to be given more emphasis in the current scenario.

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REFERENCES

1. WHO. Sexually transmitted infections (STIs). Available at: http://www.who.int/mediacentre/factsheets/fs110/en/index.html. Accessed on 18 November 2017.
2. Ibid, Gregson S, Garnett G. Contrasting gender differentials in HIV-1 prevalence and associated mortality increase in eastern and southern Africa: artifact of data or natural course of epidemics? AIDS. 2000;14(3):85–99.
3. Cates W Jr, Rolfs RJ Jr, Aral SO. Sexually transmitted diseases, pelvic inflammatory disease, and infertility: an epidemiologic update. Epidemiol Rev. 1990;12:199–220.
4. Nagarkar A, Mhaskar P. A systematic review on the prevalence and utilization of health care services for Reproductive tract infections/sexually transmitted infections: Evidence from India. Indian J Sex Transm Dis. 2015;36(1):18-25.
5. Chathukulam J, John MS. Syndromic Management of Sexually Transmitted Diseases and Prevention of HIV/AIDS among Female Commercial Sex Workers in Kerala. J Development Alternatives Area Studies. 2001;20:1-2
6. Thappa DM, Kaimal S. Sexually transmitted infections in India: Current status (except human immunodeficiency virus/acquired immune-deficiency syndrome). Indian J Dermatol. 2007;52(2):78-82.
7. Latha K, Kanani SJ, Maitra N, Bhattacharya RV. Prevalence of clinically detectable gynaecological morbidity in India: Results of four community based studies. Family Welfare. 1997;43(4):8-16.
8. Vaz FS, Ferreira AM, Montghere DD, Kulkarni MS, Velip AP. Reproductive tract infections in rural community in Goa. Indian J Sexually Transmitted Diseases. 2005;26(2):57-9.
9. Chellan R. Gynaecological morbidity and treatment seeking behaviour in South India: Evidence from reproductive and child health survey 1998-1999. J Health Population Developing Countries. 2007;53(2):7-25.
10. Helan Prasad J, Abraham S, Kurz K, George V, Lalitha MK, John R, et al. Int Family Planning Perspectives. 2005;31(2):73-82.
11. Pant B, Singh JV, Bhatnagar N, Gargh SK, Chopra H, Bajpal SK. Social correlates in Reproductive tract infections among married women in rural area of Meerut. Indian J Community Med. 2008;33(1):52-3.
12. Ram R, Bahttacharya SK, Baukar B, Sarkar T, Bhattacharya A, Gupta D. Reproductive tract infections in female adolescents. Indian J Community Med. 2006;31(1):32-3.
13. Parashar A, Gupta BP, Bharadwaj AK, Sarin R. Prevalence of RTI among women of reproductive age group in Shimla city. Indian J Community Med. 2006;31(1):15-7.

14. Joseph A, Prasad J, Abraham S. Gynacological problems among young married women in Tamil Nadu, India, Towards Adulthood- World Health Organization, Geneva. 2005:138-141.
15. International Institute for population sciences (IIPS) and Macro International, 2007.National Family Health survey III (NFHS 3), 2005-06 India :Volume I, Mumbai : IIPS.

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