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**Original Research Article**

# Prevalence of genital infections among women in reproductive age group in a rural area in North Kerala

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## ABSTRACT

**Background:** Genital infections, a major cause of illness among women in reproductive age group, affect their quality of life and social living. Early diagnosis and treatment of STI/RTI is also an important aspect in prevention of HIV transmission. As there are only a handful of studies in Kerala and none in Kannur assessing the prevalence, associated factors of genital infections and health seeking behaviour among women in reproductive age group, this study stands important.
**Methods:** A community based descriptive study was conducted in Kulappuram area of Cheruthazham Panchayat which is the field practice area of Department of Community Medicine, Government Medical College, Kannur, Pariyaram from June, 2017 – July, 2018. A total of 404 women in reproductive a group were studied. A semi-structured, pre-tested questionnaire was used to collect relevant information. Data was analyzed using SPSS-version 19 software.
**Results:** The mean age of the study population was 32.20±10.741years. 52.7% of the study population had genital infection, with 40.6% having symptoms of Reproductive Tract Infections (RTI) and 12.1%, symptoms of Urinary tract Infections (UTI). The presence of these was significantly associated with menstrual disorders, cloth as menstrual pad users, marriage, sexual activity and absence of infertility. Only 39.0% of the women with infections had sought treatment.
**Conclusions:** Although there was high prevalence of genital infections among the study population, treatment seeking behaviour was very low. There is a need for sustained motivation and support to promote women to seek timely medical care than to suffer silently.

**Keywords:** Genital infections, Reproductive age group, Reproductive tract infection, Urinary tract infection

## INTRODUCTION

A nation's health cannot be built on without giving importance to maternal and child health (MCH). World Health Organization (WHO) and other global initiatives have given top priority to MCH, realizing its importance. The needs of women and their entitlements must be met so that they can reach their full potential, overcoming all health and social inequalities.[1] One major step towards achieving this is addressing their reproductive health problems.

Reproductive age group is generally considered from 15 to 49 years.[2] The WHO working group on Safe motherhood defined "Gynecological Morbidity" as "any condition, disease or dysfunction of the reproductive system, which is not related to pregnancy, abortion or childbirth but it may be related to sexual behavior".[3] It includes an array of health problems outside pregnancy such as menstrual problems, genital tract infections-reproductive tract infections (RTIs), urinary tract infections (UTIs), infertility, prolapses, cancers and problems related to intercourse.[4]

UTI and RTI form a vast majority of gynecological morbidity. RTIs include three types: (i) sexually transmitted diseases (STDs) - those transmitted through sexual contact- like chancroid, chlamydia, gonorrhea, Human Immunodeficiency Virus (HIV), (ii) endogenous infections like bacterial vaginosis, candidiasis and (iii) iatrogenic infections due to unsafe abortion and poor hygiene during delivery. These infections often present with irritating symptoms like abnormal vaginal discharge, itching, low backache, pain during intercourse (dyspareunia), inguinal swelling, lower abdominal pain, discomfort, tiredness or unsoundness of mind. It may even be symptomless adding to the risk of developing a chronic condition called Pelvic Inflammatory Disease (PID). Recurrent urinary tract infection may also result in PID.[5,6]

The pattern, prevalence and health seeking behavior of genital infections vary from region to region. In developing countries, STI is one among the top five causes for which sexually active adults seek treatment.[7] Women aged 15–49 years, in poor and developing countries, lose about one third of their healthy life years due to reproductive illnesses.[8] Everyday, more than a million of sexually transmitted infections (STI) occur worldwide. An estimated 357 million people are newly infected with one of the four STIs - chlamydia, gonorrhoea, syphilis and trichomoniasis, each year. Absence of symptoms or mild symptoms often hinders the recognition of STI among them.[9] More than 6% of the adults suffer from an episode of RTI/STI each year, in India. Infertility, abortions, ectopic pregnancy, genital cancer, premature death and perinatal infections are the several consequences that women face if these infections are not treated at the earliest. If one has STI/RTI, the risk of HIV acquisition from an infected sexual partner increases by 8-10 fold. Hence, early diagnosis and appropriate treatment of STI/RTI is considered as a very important and cost effective strategy for control of HIV.[7]

The stigma associated often results in suppression of genital infections among women.[2,7] These women often face serious social consequences in terms of marital conflicts and ban from social & religious life.[10] There are only a few studies in Kerala and almost none in Kannur, which tries to assess the burden of genital infections among women in reproductive age group. The purpose of the present study was to assess the prevalence of genital infections among women in reproductive age group in a rural area in Kannur district, assess its association with various socio-demographic, menstrual and obstetric factors and to assess the health seeking behavior of the study population.

## METHODS

This was a community based descriptive study done in Kulappuram area of Cheruthazham Panchayat in Kannur district, which is the field practice area of Department of Community Medicine, Government Medical College, Kannur, Pariyaram. It was done during June 2017 to July 2018. Women who were permanent residents of the study area (residing for 6 months or more) were included. There were a total of 458 women belonging to the reproductive age group in the area. Those who were unavailable at the time of house visit and not willing to give information were excluded. A house to house visit was done and a total of 404 women participated in the study. Information was collected by directly interviewing each woman using a pre tested, semi structured questionnaire. Morbidities within a period of two weeks were considered for genital infections. Genital infections, RTI and UTI were given operational definitions. Those women detected to have any gynecological problem were referred to the nearest health facility for further management. All were educated about menstrual and sex hygiene.

The data was entered into Microsoft Excel and analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 19 software. The descriptive statistical methods like mean, standard deviation, frequencies and proportions were used. Inferential statistics like Chi-square test, Student's t test and Fischer's exact test were used to test the significance between associated factors and gynecological morbidity. A 'p' value of less than 0.05 was taken as significant.

## RESULTS

The mean age of the study population was 32.20±10.741 years. Out of the 404 women studied, majority (70%) were Hindus, Most of them (68.8%) were married, all of them were literate and majority were unemployed (76.2%). 65.8% belonged to upper middle class of socio economic status and 53% were from nuclear families (Table 1). The mean age at marriage of the study population was 21.49 years±3.6 SD. Lowest age at marriage was 14 years and highest age was 33 years.

The prevalence of overall genital infections, UTI and RTI are shown in Table 2. A higher prevalence of RTI was observed compared to UTI. Symptoms of genital infection are shown in Table 3.

The mean age of women with genital infection (34.06±10.091 SD years) was significantly higher than that of women without any genital infection (30.68±11.036 SD years) (p=0.002). The presence of any genital infection was significantly associated with several factors as shown in Table 4.

The mean age of women with RTI (34.63±10.056 SD years) was significantly higher than that of women without any genital infection (30.54±10.897 SD years) (p<0.001). RTI was significantly associated with presence of menstrual disorders, cloth as menstrual pad users, marriage, sexual activity and absence of infertility as shown in Table 5.

**Table 1: Socio-demographic factors of the study population (n=404).**

| | Frequency | Percentage (%) |
|---|---|---|
| **Age group (in years)** | | |
| 15- 20 | 77 | 19.1 |
| 21-25 | 58 | 14.4 |
| 26-30 | 63 | 15.6 |
| 31-35 | 36 | 8.9 |
| 36-40 | 59 | 14.6 |
| 41-45 | 50 | 12.4 |
| 46-49 | 61 | 15.1 |
| **Religion** | | |
| Hindu | 283 | 70.0 |
| Christian | 53 | 13.1 |
| Muslim | 68 | 16.8 |
| **Marital status** | | |
| Married | 278 | 68.8 |
| Unmarried | 104 | 25.7 |
| Divorcee | 1 | .2 |
| Widow | 18 | 4.5 |
| Living separated | 3 | .7 |
| **Education** | | |
| Primary school certificate | 5 | 1.2 |
| Middle school certificate | 12 | 3.0 |
| High school certificate | 119 | 29.5 |
| Intermediate school certificate/ Diploma | 142 | 35.1 |
| Semi professional | 116 | 28.7 |
| Professional | 10 | 2.5 |
| **Occupation** | | |
| Unemployed work | 308 | 76.2 |
| Unskilled work | 26 | 6.4 |
| Semi-skilled worker | 1 | .2 |
| Skilled worker | 10 | 2.5 |
| Clerk, shop owner, farmer | 17 | 4.2 |
| Semi-professional work | 40 | 9.9 |
| Professional work | 2 | .5 |
| **Socioeconomic status (modified Kuppuswamy scale)** | | |
| Upper class | 20 | 5.0 |
| Upper middle class | 266 | 65.8 |
| Lower middle class | 69 | 17.1 |
| Upper lower class | 49 | 12.1 |
| **Type of family** | | |
| Nuclear family | 214 | 53.0 |
| Extended family | 70 | 17.3 |
| Joint family | 120 | 29.7 |

There was no significant association between UTI and age group of the study population. But it was significantly associated with menstrual disorder, marital status and sexual activity (Table 6).

**Table 2: Prevalence of infection among the study population (n=404) [not mutually exclusive].**

| Infection | Frequency | Percentage (%) |
|---|---|---|
| **Genital infection** | 213 | 52.7 |
| **RTI** | 164 | 40.6 |
| **UTI** | 49 | 12.1 |

**Table 3: Symptoms of genital infection [not mutually exclusive].**

| Symptom | Frequency | Percentage (%) |
|---|---|---|
| **UTI (n=49)** | | |
| Fever | 2 | 4.1 |
| Burning urination | 34 | 69.4 |
| Frequent urination | 43 | 87.8 |
| **RTI *(n=164)** | | |
| Low backache | 75 | 45.7 |
| Excessive vaginal discharge | 58 | 35.4 |
| Vulval itching | 31 | 18.9 |
| Lower abdominal pain | 22 | 13.4 |
| Pain during intercourse | 22 | 13.4 |
| Foul smelling vaginal discharge | 16 | 9.7 |
| Altered consistency in vaginal discharge | 12 | 7.3 |
| Discoloured vaginal discharge | 3 | 1.8 |
| Genital ulcer | 1 | 0.6 |

*There were no women with complaints of inguinal swelling.

The present study showed that any genital infection, UTI or RTI was not significantly associated with socio-demographic factors like religion, occupation, education, socioeconomic status, type of family and family size. The presence of diabetes mellitus also did not show a significant relationship with infections. Factors related to menstrual and obstetric history like frequency of changing pad material, use of barrier methods of contraception, history of genital infection during and post pregnancy, vaginal delivery and parity were also not significantly associated with these. Women who used cloth as pad material had a higher prevalence of RTI, but this difference was not significant for overall genital infections or UTI. Women with infertility had a significantly lower prevalence of overall genital infections and RTI, but not UTI.

Out of the 182 women with any genital infection, only 39.0% of the women had sought treatment. “Mildness of symptoms” was the most common reason said for not seeking treatment (34.1%), followed by “thought it will be ok by itself” (11.2%).

**Table 4: Relationship between genital infection and other factors.**

| Factors | | Any genital infection | | Total | P value# |
|---|---|---|---|---|---|
| | | No | Yes | | |
| | | N (%) | N (%) | | |
| **Menstrual disorder(n=374)**** | Absent | 83 (71.6) | 33 (28.4) | 116 | <0.001* |
| | Present | 129 (50.0) | 129 (50.0) | 258 | |
| **Marital status** | Ever married | 145 (48.3) | 155 (51.7) | 300 | <0.001* |
| **(n=404)** | Never married | 77 (74.0) | 27 (26.0) | 104 | |
| **Sexually active** | No | 89 (70.6) | 37 (29.4) | 126 | <0.001* |
| **(n=404)** | Yes | 133 (47.8) | 145 (52.2) | 278 | |
| **Infertility** | Present | 12 (85.7) | 2 (14.3) | 14 | 0.004* |
| **(n=300)##** | Absent | 133 (46.5) | 153 (53.5) | 286 | |

#Chisquare test, * significant. ** Women who had attained menopause excluded, ##only married women are considered.

**Table 5: Relationship between RTI and other factors.**

| Factors | | RTI | | Total | P value# |
|---|---|---|---|---|---|
| | | No | Yes | | |
| | | N (%) | N (%) | | |
| **Menstrual disorder (n=374)**** | Absent | 86 (74.1) | 30 (25.9) | 116 | 0.001* |
| | Present | 144 (55.8) | 114 (44.2) | 258 | |
| **Material of choice as menstrual pad (n=370)***** | Disposable pad/ both cloth and pad | 185 (64.5) | 102 (35.5) | 287 | 0.037* |
| | Only cloth | 43 (51.8) | 40 (48.2) | 83 | |
| **Marital status (n=404)** | Ever married | 160 (53.3) | 140 (46.7) | 300 | <0.001* |
| | Never married | 80 (76.9) | 24 (23.1) | 104 | |
| **Sexually active (n=404)** | No | 92 (73.0) | 34 (27.0) | 126 | <0.001* |
| | Yes | 148 (53.2) | 130 (46.8) | 278 | |
| **Infertility (n=300)##** | Present | 12 (85.7) | 2 (14.3) | 14 | 0.013* |
| | Absent | 148 (51.7) | 138 (48.3) | 286 | |

#Chisquare test,* significant.** Women who had attained menopause excluded, ##only married women are considered, ***only currently menstruating women are considered.

**Table 6: Relationship between UTI and other factors.**

| Factors | | UTI | | Total (n=404) | P value# |
|---|---|---|---|---|---|
| | | No | Yes | | |
| | | N (%) | N (%) | | |
| **Menstrual disorder (n=374)**** | Absent | 109 (94.0) | 7 (6.0) | 116 | 0.017* |
| | Present | 220 (55.3) | 38 (14.7) | 258 | |
| **Marital status (n=404)** | Ever married | 257 (85.7) | 43 (14.3) | 300 | 0.021* |
| | Never married | 98 (94.2) | 6 (5.8) | 104 | |
| **Sexually active (n=404)** | No | 120 (95.2) | 6 (4.8) | 126 | 0.002* |
| | Yes | 235 (84.5) | 43 (15.5) | 278 | |

#Chisquare test, * significant.** Women who had attained menopause excluded.

## DISCUSSION

Genital infections can be really troublesome for any woman. The overall prevalence in our study was 52.7% of which 12.1% had UTI and 40.6% had RTI.

This RTI prevalence was lower than studies done among rural women in Western China (70.3%), Belgaum (70.5%) and Mohali (45.0%).[11-13] But studies from Rajasthan (22.3%), Tamil Nadu (14.5%) and Lebanon (9.3%) reported a lower prevalence.[14-16] Studies done in the rural panchayat of Vakkom in Trivandrum district (7.22%) and Mavoor grama panchayat in Calicut (10.5%) also showed lower prevalence of RTIs. In these studies, the prevalence of UTI was 5.7% and 8.2% respectively, which was almost similar to our study.[17,18] District Level House hold Facility survey- 4 (DLHS-4) (2012-2013) showed that 1.5% women had problems of abnormal vaginal discharge and 10.5% had symptoms suggestive of RTI/STI.[19] This difference in prevalence may be

attributed to the difference in perception of symptoms, selection criteria and regional variations. In certain diseases, the "concept of normalcy" might play an important role as women would not complain of those considering it as normal, unless specifically asked for. This point was highlighted in the Gadchiroli study which also showed a higher prevalence of gynecological morbidity (92%) where genital infections formed 50% of the burden. 62.1% of women in their study had bacterial vaginitis alone.[20]

Low back ache (18.6%), abnormal vaginal discharge (14.4%) were the most common complaints of RTI, similar to studies in India and worldwide by, Rong Yang et al, Mamta et al, Kambo et al and Rehnuma et al.[11,13,21,22] According to estimates of the 2010 Global Burden of Disease Study, low back ache is in the top ten list of diseases that account for highest number of DALYs in the world.[23] Itching/irritation over vulva, abnormal vaginal discharge and dysuria were the most commonly experienced symptoms of genital infections in a study conducted among women in rural areas of Thiruvarur district of Tamil Nadu state.[14] Mani et al in their study also revealed that abnormal vaginal discharge was the commonest symptom among women with RTI.[24]

Advanced age, had a positive association with overall genital infections, RTI and UTI, in this study. The mean age of women without genital infections was lower (30.68 years) than others with genital infections (34.06 years) (p=0.002).A similar finding was obtained in a study from Bikaner, Rajasthan.[15] In the present study, 51.7% of married women and 52.2% of sexually active women had genital infections as against 26.0% and 29.4% in their respective counterparts (p<0.001 for all). A study in Bhavnagar city by Gosalia et al also showed a significant association between marital status and vaginal discharge.[25] Lack of hygiene before and after intercourse, trauma and inflammation during penetrative sex and deliveries might contribute to this observation. 50% of women with menstrual disorders complained of symptoms of UTI/RTI. Genital infections are a known cause of many menstrual disorders like menorrhagia.[5]

It was noted that 53.5% of women without infertility problems had genital infections whereas only 14.3% of women with infertility had the same (p=0.004). When association with RTI was looked for, lower proportion (14.3%) of women with infertility had RTI compared to others (48.3%). This association was found to be significant (p=0.013). This was in contrast to the existing knowledge that infections in the lower genital tract could cause infertility.[5] This could be because majority (71.4%) of the women who had infertility had sought treatment and they had either taken treatment or took precautions to avoid infections.

Interestingly, it was observed that people who used sanitary pad (35.5%) had a lower rate of RTI than those who used cloth (48.2%) (p=0.037). Many factors like method of cleaning cloth, drying it under shade or in sunlight, reusing the cloth might play an important role in the pathology of genital infections.

In several other studies there seemed to be a higher risk for infections in women with increased parity, history of gynecological surgery, invasive contraception, prolapse religion, age at marriage[3] and poor education.[15,23,25-27] However, we did not find the relationship between infections and religion, education, occupation, socioeconomic status, presence of diabetes, frequency of changing pad, barrier methods of contraception or prior delivery, significant.

Out of the 182 women with genital infections, only 71 (39.0%) had consulted a health facility for treatment. The major reasons given by women were mildness of symptoms (34.1%), thought it would be ok by itself (11.2%), did not feel treatment was necessary (9.4%), time constraints (8.6%) etc. Shyness, embarrassment, financial constraints, considering symptoms as an age related problem were the other reasons said to us. There still exists a wide gap between diseases perceived and health seeking behaviour. Proper health education and constant motivation to take treatment and become symptom free is required to improve quality of life of women.

Any STD facilitates the transmission of HIV. Grosskurth H et al, in their randomized control trial, have provided evidence to support the role of early diagnosis and treatment of STI/RTI in prevention of HIV.[28] National AIDS control Organisation (NACO) has clearly stated the need for control of STI/RTI if AIDS epidemic has to be curbed.[7] Department of Family welfare and NACO have taken steps to integrate services for treatment of these infections at all levels of health care. They have started a network of 1160 designated STI/RTI clinics ("Suraksha clinics") to promote sexual and reproductive health through syndromic case management approach.[7] But effective communication and interventions to generate demand for these services should be brought about. Only then, it can remove the stigma associated and make women access these.

This study had a few limitations. As assessment was only based on questionnaire and symptoms perceived and not on clinical examination, some asymptomatic cases might have been missed. This can result in underestimation of the prevalence. There can be recall bias regarding information on obstetric history. Results cannot be generalized to Kerala, since it is a small study.

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## REFERENCES

1. WHO D of RH& R. Women and Health : Today's Evidence Tomorrow's Agenda. World Health Organization; 2009. Available at: http://www.who.int/gender-equity-rights/knowledge/9789241563-857/en/. Accessed on 3 January 2019.
2. Park K. K P. Park's Textbook of preventive and social medicine. 23rd ed. Banarsidas Bhanot; 2019: 471-539.
3. World health Organisation. Measuring reproductive morbidity: Report of a techical working group. 1989. Available at: http://apps.who.int/iris/bitstream/10665/61306/1/WHO_MCH_90.4.pdfhttp://apps.who.int/iris/bitstream/handle/10665/61306/WHO_MCH_90.4.pdf?sequence=1&isAllowed=y. Accessed on 13 November 2016.
4. Singh SK, Singh S. Reproductive morbididty among the rural women in Maharashtra. MPS Semin Pap. 2006: 1–206.
5. Howkins B. Shaw's textbook of Gynaecology. 16th ed. Padubidri VG, ed. Reed Elsevier India pvt Limited; 2015: 321-423.
6. Centre for Disease Control & prevention (CDC) NC for HS (NCHS). Health United States, 2015 with special feature on racial and ethnic health disparities. 2015. Available at: https://www.cdc.gov/nchs/data/hus/hus15.pdf#071. Accessed on 13 March 2017.
7. NACO. STI / RTI Services | National AIDS Control Organization | MoHFW | GoI. 2018. Available from: http://naco.gov.in/sti-rti-services. Accessed on 7 March 2019.
8. WHO. General Assembly Special Session on ICPD+5, Address of Director- General, WHO. 1999. Available at: http://www.who.int/director-general/speeches/1999/english/19990630_icpd+5. Html. Accessed on 13 March 2017.
9. WHO. Sexually transmitted and reproductive tract infections. WHO. World Health Organization; 2019. Available at: https://www.who.int/reproductive health/topics/rtis/en/ Accessed on 6 March 2019.
10. Dheresa M, Assefa N, Berhane Y, Worku A, Mingiste B, Dessie Y. Gynecological Morbidity among Women in Reproductive Age: A Systematic Review and Meta-Analysis. J Womens Heal Care. 2017;6(3):1–11.
11. Mamta, Kaur N. Reproductive Tract Infections: Prevalence and Health Seeking Behaviour among Women of Reproductive Age Group. Int J Sci Res. 2014;3(4):138–42.
12. Poornima S, Katti SM, Mallapur MDVM, Vinay M. Gynecological problems of married women in the reproductive age group of urban Belgaum, Karnataka. Al Ameen J Med Sci. 2013;6(3):226–30.
13. Rong Yang L, Zhao H, Ping Wang H, Ping Niu J, Jian KS, Qing Mao H, et al. Improving Ability of Married Women to Prevent Reproductive Tract Infections in Rural Western China. Environ Health Prev Med. 2006;11:233–40.
14. Ravi RP, Kulasekaran RA. Prevalence of sexually transmitted infections among young married women in Thiruvarur district of Tamil Nadu state in India. Indian J Community Heal. 2014;26(1):82–7.
15. Rathore M, Swami SS, Gupta BL, Sen V, Vyas BL, Bhargav VR. Community based study of self reported morbidity of reproductive tract infections among women of reproductive age in rural area of Rajasthan. Indian J Community Med. 2003;28(3):117–21.
16. Deeb M, Awwad J, Yeretzian JKH. Ethical approval and statistical analysis. Bull World Health Organ. 2003;81(9):639–45.
17. Sajna MV, Bina Thomas RL. Prevalence of reproductive morbidity and its determinants among ever married women of reproductive age group (15-45 years) in a rural area of Kozhikode | M V | Public Health Review: International Journal of Public Health Research. Public Heal Rev Int J Public Heal Res. 2017;4(2):57–64.
18. Abraham A, Varghese S, Satheesh M, Vijayakumar K, Gopakumar S, Mendez A. Pattern of gynecological morbidity, its factors and Health seeking behavior among reproductive age group women in a rural community of Thiruvananthapuram district, South Kerala. Indian J Community Heal. 2014;26(3):230–7.
19. Ministry of Health and Family Welfare. State Fact Sheet Kerala District Level Household and Facility survey-4. 2012 [cited 2018 Oct 18]. Available from: http://rchiips.org/pdf/dlhs4/report/KE.pdf
20. Bang A. Womens perceptions of white vaginal discharge: ethnographic data from rural Maharashtra. New Delhi: New Delhi India Har-Anand Publications. 1994;1994:79–94.
21. Parvez R, Sugunan AP, Saha MK, Muruganandam N, Thamizhmani R. Gynecological Morbidity among the Rural women of Andaman Islands-Community Based Study. Int J Curr Microbiol App Sci. 2016;5(4):28–31.
22. Kambo IP, Dhillon B, Singh P, Saxena B, Saxena N. Self reported gynaecological problems from twenty three districts of India (an ICMR task force study). Indian J Community Med. 2003;28(2):67–73.
23. Al Mazroa MA. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2163–96.
24. Mani G, Annadurai K, Danasekaran R. Healthcare Seeking Behaviour for Symptoms of Reproductive Tract Infections among Rural Married Women in Tamil Nadu -A Community Based Study. Online J Heal Allied Scs. 2013;12(3):1.

25. Gosalia VV, Verma PB, Doshi VG, Singh M, Rathod SK, Parmar MT, et al. Gynecological morbidities in women of reproductive age group in urban slums of Bhavnagar city. Natl J Communoity Med. 2012;3(4):657–60.
26. Sowmini CV, Sarma S, Nair S. Reproductive morbidity among contraceptive users: need for quality services. J Fam Welf. 2004;50(1):31–5.
27. Younis N, Khattab H, Zurayk H, el-Mouelhy M, Amin MF, Farag AM. A community study of gynecological and related morbidities in rural Egypt. Stud Fam Plann. 1993;24(3):175–86.
28. Grosskurth H, Mosha F, Todd J, Mwijarubi E, Klokke A, Senkoro K, et al. Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomised controlled trial. Lancet (London, England). 1995;346(8974): 530–6.

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