International Journal of Reproduction, Contraception, Obstetrics and Gynecology
*Yadav A et al. Int J Reprod Contracept Obstet Gynecol. 2023 Jul;12(7):2047-2051*
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20231777

**Original Research Article**

# Sexually transmitted infections or reproductive tract infections prevalence and treatment efficacy of syndromic approach in reproductive age group women attending gynaecological out-patient department

**Amita Yadav[1], Deepshikha[2]*, Shubhangi Sonkar[2], Reena Sachan[3], Richa Singh[4]**

[1]Department of Obstetrics and Gynaecology, Rani Durgavati Medical College, Banda, Uttar Pradesh, India
[2]Department of Obstetrics and Gynaecology, [3]Department of Microbiology, MLN Medical College Prayagraj, Uttar Pradesh, India
[4]Department of Community Medicine, Moti Lal Nehru Medical College Prayagraj, Uttar Pradesh, India

**Received:** 31 May 2023
**Accepted:** 06 June 2023

***Correspondence:**
Dr. Deepshikha,
E-mail: drshikha0693@gmail.com



## ABSTRACT

**Background:** Sexually transmitted infections (STI) and reproductive tract infections (RTI) continue to be a major health, social and economic problem worldwide, especially in developing countries. The aim of this study is to determine the prevalence of STI and RTI among women of reproductive age (18-49 years) attending gynaecological consultations.
**Methods:** A cross-sectional study of 1006 women of reproductive age attending a hospital was conducted over a period of 1 year. Out of these 116 women were not followed up, so they were excluded from the study. Thus, 890 women between the ages of 18 and 49 who were fertile completed the study, whether or not they had symptoms.
**Results:** According to a laboratory test, the overall prevalence of STDs and STIs in women of childbearing age was 24.62% in symptomatic individuals and 12% in asymptomatic individuals. Vaginal discharge (61.91%) was the most common symptom
**Conclusions:** To reduce the prevalence of STIs, RTI /STI screening for women in all reproductive age groups is essential. Early detection and treatment can reduce the severity of long-term sequelae and prevent complications.

**Keywords:** RTI, STI, Syndromic management

## INTRODUCTION

Sexually transmitted infections (STI) and other infections of the reproductive system that are not transmitted through sexual activity are both referred to as RTI.[1] The most common type of RTI worldwide are endogenous reproductive system infections. These infections are the result of the overgrowth of microbes normally found in the vagina.[2] Iatrogenic infections that enter the reproductive organs through a medical procedure, such as management of menstruation, induction of abortion, insertion of an intrauterine device, or during childbirth, include bacterial vaginosis and candidiasis. Infections transmitted through sexual contact with an infected partner are called STDs.

STDs and RTI continue to be a significant health, social, and economic burden worldwide, especially in underdeveloped countries, despite medical capabilities to detect and treat them.[3] The term " STI " refers to a class of diseases caused by more than 30 micro-organisms.[4] *Neisseria gonorrhoea, Chlamydia trachomatis, Treponema pallidum, Klebsiella granulomatis, Haemophilus ducreyi*, and *Mycoplasma genitalium* are just a few examples of bacterial infections that can occur.

Viruses such as molluscum contagiosum virus, hepatitis B virus, human papillomavirus, herpes simplex virus, and human immunodeficiency virus (HIV). *Trichomonas vaginalis* and other protozoan pathogens. Failure to treat sexually transmitted diseases and RTI in women of reproductive age can lead to serious complications and consequences, such as pelvic inflammatory disease, foetal loss, ectopic pregnancy, neonatal and infant infections, and increases the risk of acquiring human immunodeficiency virus (HIV).[3] Fungal pathogens such as *Candida albicans* and parasitic pathogens such as *Phthisis pubis* and *Sarcoptes scabiei*. Obstetric, gynecologic, and contraceptive morbidity are three main categories of reproductive diseases. The most common preventable cause of infertility in the world is RTIs/STIs. The most serious consequence of misdiagnosed, untreated, or improperly treated STIs is pelvic inflammatory disease. However, active community participation at all stages of the treatment process to control STIs/RTIs is critical.[5] Information, education and communication (IEC) and counselling play a critical role in developing a strategy to control STIs and RTIs. Under the national rural health mission (NRHM), the Indian government has launched a number of initiatives to prevent and treat STI and RTI.[6] The reproductive and child health (RCH) programme emphasises maternal and child health services and the prevention, screening, and treatment of STIs and other RTI.[7] Syndromic management is a useful technique that allows health professionals to make diagnosis and treat patients based on symptoms reported by patients and signs detected during clinical diagnosis. These STI/RTI services are provided at Suraksha clinics, which are known for their syndromic approach and pre-packaged colour-coded STI/RTI treatment kits.[8] Syndromic management eliminates the need for additional clinic visits and laboratory tests that could delay treatment.[9] The aim of this study is to determine the prevalence of STI/RTI and the efficacy of treatment in women attending gynaecology consultations at tertiary centres.

## METHODS

After approval by the institutional ethics board, a cross-sectional study was conducted among 1006 women of childbearing age in the department of obstetrics and gynaecology, Swaroop Rani Nehru hospital Prayagraj (UP) over a period of 1 year (July 2021-June 2022) 116 of these women were not followed up, so they were dropped from the study. Thus, 890 women between the age of 18 and 49 years were participated in the study, whether or not they had symptoms.

Each participant was interviewed using a structured questionnaire. After participants gave informed consent, a detailed obstetric, menstrual, medical, and surgical history was obtained. Age, parity, religion, neighbourhood, social status, education, occupation, contraception, potential risky behaviour in the past, husband's occupation, education level, etc. were recorded. After sample collection, a bimanual examination was performed under privacy, confidentiality, and aseptic conditions. Physical examination included general and systemic examination, local inspection of external genitalia and examination by speculum. After syndrome management-based treatment, participants returned for follow-up one month after the end of their period, and their symptomatic improvement was assessed as complete improvement, moderate improvement and no improvement. Women of childbearing age were included in the study if they had symptoms such as vaginal discharge, lower abdominal pain, genital ulcers and lesions, redness, or itching in the perineal area. Menstruating, pregnant, and postmenopausal women, as well as women already taking medication, were not included.

Age range (18-49), marital status, number of sexual partners, sexual behaviour, and socioeconomic status of the study participants duration of menstrual cycle, menstrual flow and menstrual pain, years of marriage, time between last two births, and history of abortion, risk behaviour, knowledge of contraceptives, use of contraceptives, type of contraceptives used, occupational history, history of discharge, rashes, ulcers, and warts in the vaginal area of the woman were noted. On presentation to the gynaecology consultation, patients complained of vaginal discharge, lower back pain, genital ulcers, vaginal itching, skin rash, and warts.

Blood pressure, pulse, lymphadenopathy, icterus, physique, and pallor were examined. The respiratory organs, cardiovascular system and central neurological system were thoroughly examined. When examining the vulva, we look for rashes, vesicles, warts, ulcers and scratches.

By separating the labia with the middle and index fingers, the lower part of the vagina is examined for discharge, redness, bleeding or ulcers. The condition of the vagina and cervix, characteristics of the discharge such as colour, odour, consistency and amount of discharge, redness, ulcers and warts in the cervical and vaginal areas, and bleeding were determined during a speculum examination in which the posterior vaginal wall was retracted with a SIMS speculum and the anterior vaginal wall was retracted with an anterior vaginal wall retractor. Specimens were also collected at the same time.

Some infections can be detected clinically. For example, trichomoniasis was detected by greenish-yellow frothy discharge and a strawberry-coloured vagina. Bacterial vaginosis was identified by homogeneous white discharge and a fishy odour. With one hand over the lower abdomen and the middle and index fingers of the other hand, the location, consistency, and tenderness of the cervix are checked. Location, size of the uterus, consistency, motility, tenderness and sensitivity of the adnexa.

Assessment of vaginal flora and microbiological examinations: Two vaginal swabs, two cervical swabs, and two millilitres of venous blood are collected to establish

the diagnosis. The samples were sent immediately for further processing. All symptomatic patients received syndrome treatment after sample collection, during which abstinence was recommended. After the following menstrual cycle, the women were followed up.

## RESULTS

To determine the prevalence of RTIs/STIs in women in the reproductive age group and the efficacy of the syndromic method for treating these infections in these women. For this purpose, a cross-sectional study was conducted in 890 women divided by age, socioeconomic status, parity, and symptoms. This was followed by clinical evaluation and collection of samples for laboratory testing (including venous blood, vaginal and cervical swabs). Patients' symptoms improved in terms of complete improvement, moderate improvement, and no improvement after treatment based on the syndrome management recommendation to return after one month post menstruation. According to a laboratory test, the overall prevalence of STDs and STIs in women of childbearing age was 24.62% in symptomatic individuals and 12% in asymptomatic individuals. Vaginal discharge (61.91%) was the most common symptom, followed by lower abdominal pain (60.33%), perineal itching (28.4%), problems with urination (21.01%), and back pain (20.22%). The age group of 26 to 35 years had the highest prevalence of STI (48.88%), followed by 18 to 25 years (25.39%). In this study, candidiasis (4.72%) was the most common cause of RTI /STI, followed by bacterial vaginosis (3.13%). Syndromic RTI/STI treatment is successful in 65.39% of treated women.

**Table 1: Distribution of participants according to different age groups, socioeconomic status and parity.**

| Variables | | N | Percentages (%) |
|---|---|---|---|
| **Age (Years)** | 18-25 | 226 | 25.39 |
| | 26-35 | 435 | 48.88 |
| | 36-39 | 145 | 16.29 |
| | 40-49 | 84 | 9.44 |
| **Socio-economic status** | Lower | 468 | 52.58 |
| | Middle | 313 | 35.17 |
| | Upper | 109 | 12.25 |
| **Parity** | 0 | 67 | 7.53 |
| | 1-2 | 491 | 55.17 |
| | 2-4 | 274 | 30.78 |
| | >4 | 166 | 12.13 |

**Table 2: Distribution of participants according to different symptoms and discharge.**

| Variables | | N | Percentages (%) |
|---|---|---|---|
| **Symptoms** | Discharge per vaginum | 551 | 61.91 |
| | Lower abdominal pain | 537 | 60.33 |
| | Genital ulcer | 0 | 0.00 |
| | Lower backache | 180 | 20.22 |
| | Itching in perineum | 254 | 28.53 |
| | Dysuria | 187 | 21.01 |
| | NIL | 25 | 2.80 |
| **Discharge** | Greenish frothy | 20 | 2.25 |
| | Curdy white | 108 | 12.13 |
| | White homogenous | 556 | 68.76 |
| | Yellow mucopurulent | 105 | 11.80 |
| | White mucoid | 56 | 6.29 |

**Table 3: Distribution of participants according to the result of the vaginal swab and the cervical swab.**

| Variables | Vaginal swab | | Cervical swab | |
|---|---|---|---|---|
| | N | % | N | % |
| ***Acinetobacter*** | 7 | 0.79 | 7 | 0.79 |
| ***Bacterial vaginosis*** | 27 | 3.03 | 27 | 3.03 |
| ***Candida*** | 42 | 4.72 | 42 | 4.72 |
| ***E. coli*** | 22 | 2.47 | 22 | 2.47 |
| ***Enterococcus*** | 5 | 0.56 | 5 | 0.56 |
| ***Gonorrhoea*** | 2 | 0.22 | 2 | 0.22 |
| ***Klebsiella*** | 11 | 1.24 | 11 | 1.24 |
| ***Staphylococcal*** | 20 | 2.25 | 20 | 2.25 |
| ***Sterile*** | 725 | 81.46 | 726 | 81.46 |
| ***Streptococcus*** | 15 | 1.69 | 15 | 1.69 |
| ***Trichomonas vaginalis*** | 14 | 1.57 | 14 | 1.57 |

**Table 4: Distribution of participants according to result of blood investigation.**

| Variables | N | Percentages (%) |
|---|---|---|
| **HIV** | 32 | 3.60 |
| **Syphilis (Syph)** | 19 | 2.13 |
| **Non-reactive (NR)** | 839 | 94.27 |

**Table 5: Distribution of different colour coded kits for treatment of different symptoms in participants.**

| Symptoms | KIT/ colour | N | Percentages (%) |
|---|---|---|---|
| **Vaginal discharge** | 2/ green | 77 | 8.65 |
| **Vaginal discharge +lower abdominal pain+ lower backache+ itching in perineal region** | 6/ yellow+ 2/ green | 618 | 69.83 |
| **Dysuria** | 1/ grey | 3 | 0.33 |
| **Lower abdominal pain+ dysuria** | 1/grey+ 6/yellow | 169 | 18.98 |
| **Vaginal discharge+ lower abdominal pain** | 3/white +6/yellow | 18 | 2.03 |

**Table 6: Distribution of participants according to symptomatic improvement.**

| Improvement | N | Percentages (%) |
|---|---|---|
| **Complete improvement** | 582 | 65.39 |
| **Some improvement** | 286 | 32.13 |
| **No improvement** | 22 | 2.47 |

**Table 7: Prevalence of STI/RTI in symptomatic and asymptomatic women on laboratory diagnosis.**

| Variables | N | Percentages (%) |
|---|---|---|
| **Symptomatic women** | 213 | 24.62 |
| **Asymptomatic women** | 3 | 12 |
| **Overall** | 216 | 24.26 |

## DISCUSSION

Infections of the sexual and reproductive tracts are common but inadequately treated health problems in women of childbearing age. The present study was conducted from this point of view. According to a laboratory test, 24.26% of women in the reproductive age group (18-49 years) who visited a gynaecological consultation had STIs or RTIs. In a study by Kushwah et al in Rewa, MP, 26% of women in the reproductive age group had STIs.[9] Patients initially complained of vaginal discharge, lower abdominal pain, lower back pain, symptoms of urination, and perineal itching. Vaginal discharge (61.91%) was the most common symptom, followed by lower abdominal pain (60.33%), perineal itching (28.4%), problems with urination (21.01%), and lower back pain (20.22%). In other studies, including that of Singh et al the most common symptom reported was vaginal discharge.[1] While study by Phillip et al showed most common symptom was dysuria.[3] In the current study, 68.76% of women who presented with STI/RTI symptoms also had white homogeneous discharge. Nimisha et al found a similar result.[12] The 26- to 35-year-old age group had the highest prevalence of STI (48.88%), followed by the 18-to 25-year-old age group (25.39%). According to Kosambiya et al and Sharma et al and Gawande et al women aged 25 to 34 years had the highest prevalence of STIs.[10,11,13] Due to increased sexual activity and longer duration of unprotected intercourse as couples try to become pregnant, this age group has the highest incidence of STIs and RTIs. In the present study maximum prevalence reported in women belongs to lower socioeconomic status (52.58%) because of poor hygiene, lack of awareness and traditional taboos. Singh et al and Nayyar et al reported maximum prevalence in illiterate women belong to lower socioeconomic status.[1,14] Fearing that men or other family members may notice them, many of the women in this study, who belonged to lower socioeconomic classes, were observed to reuse shared clothing after washing. As a result, they are never dried completely, leading to repeated use of the same contaminated fabric. In the present study most common cause of STI was candidiasis (4.43%) followed by bacterial vaginosis (3.15%). Chaudhari et al reported most common cause of RTI was candidiasis whereas Agrawal et al detected bacterial vaginosis as a most common cause of STI.[15,16] In this study syndromic management effective in 65.39% women of reproductive age group. Chauhan et al and Singh et al showed syndromic management effective in relieving symptoms in most of the cases which is comparable to this study.[1,17]

### *Limitation*

This study conducted in tertiary centre where the number of participation of women those having symptoms and expecting treatment is higher compared to asymptomatic women. So, this study does not represent prevalence of whole population.

## CONCLUSION

There is a need to educate women about the symptoms of RTI/STI, their prevention and importance of timely diagnosis and treatment. Screening of RTI/STI in all the reproductive age group women are necessary to decrease

the burden of STDs, early detection and treatment can prevent complications and minimize the severity of long-term sequelae. Syndromic management is a best tool used for early detection and treatment of STI/RTI.

## ACKNOWLEDGEMENTS

Authors would like to thank the department of obstetrics and gynaecology, MLN medical college, Prayagraj, Uttar Pradesh, India, for their support and guidance.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Singh A, Srivastava R, Tiwari HC. To study prevalence, performance of syndromic diagnosis against aetiological diagnosis and treatment efficacy of sexually transmitted diseases in patients attending gynaecology outpatient department of tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. 2016;5:3353-6.
2. Rabiu KA, Adewunmi AA, Akinlusi FM, Akinola OI. Female reproductive tract infections: understandings and care seeking behaviour among women of reproductive age in Logos, Nigeria. BMC Women Health. 2010;10:8.
3. Philip PS, Benjamin AI, Sengupta P. Prevalence of symptoms suggestive of reproductive tract infections/sexually transmitted infections in women in an urban area of Ludhiana. Indian J Sex Transm Dis AIDS. 2013;34(2):83-8.
4. Global incidence and prevalence of selected curable sexually transmitted infections. World Health Organization. World Health Organization. 2014;2008.
5. Aggarwal P, Kandpal SD, Negi KS, Gupta P. Health seeking Behaviour for RTIs/ STIs of a rural community. Health Popul Prospect Issues. 2009;32(2):66-72.
6. 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 AIDS. 2015;36(1):18-25.
7. Flow charts on the syndromic management. Sex Transm Infect. 2004.
8. International Institute for Population Sciences (IIPS), ICF. National Family Health survey, 2019-21. 2021. Available at: http://rchiips.org/nfhs/NFHS-5Reports/NFHS-5_INDIA_REPORT.pdf. Accessed on May 24 2022.
9. Kushwah B, Kushwah DS. Efficacy of conventional pharmacotherapy of syndromic management of STIs: a two-year cross-sectional prospective study. Int J Basic Clin Pharmacol. 2018;7(7):1415-2.
10. Kosambiya JK, Desai VK, Bhardwaj P, Chakraborty T. RTI/STI prevalence among urban and rural women of Surat: A community-based study. Indian J Sex Transm Dis AIDS. 2009;30:89-93.
11. Sharma S, Gupta B. The prevalence of reproductive tract infections and sexually transmitted diseases among married women in the reproductive age group in a rural area. Indian J Community Med. 2009;34:62
12. Shethwala N, Mulla S. Study on Reproductive tract infection among the female patients attending the Gynaecology OPD in one of the teaching hospitals of Gujarat-India. Int J Med Sci Public Health. 2014;3:123-5.
13. Gawande KB, Srivastava AS, Kumar P. Reproductive tract infection and health seeking behaviour: a cross sectional community-based study. Int J Community Med Public Health. 2018;5:1524-8.
14. Nayyar C, Chander R, Gupta P, Sherwal BL. Evaluation of risk factors in patients attending STI clinic in a tertiary care hospital in north India. Sex Transm Dis AIDS. 2015;36:48-52.
15. Chaudhary N, Kalyan R, Singh M, Agarwal J, Qureshi S. Prevalence of reproductive tract infections in women attending a tertiary care center in Northern India with special focus on associated risk factors. Indian J Sex Transm Dis AIDS. 2019;40(2):113-9.
16. Agarwal S, Sharma V, Sarin R. Reproductive tract infections in women-prevalence, HIV seropositivity and role of conventional methods in diagnosis. Indian J Sexually Transmitted Dis. 2005;26:72-7.
17. Chauhan V, Shah MC, Patel SV, Marfatia YS, Zalavadiya D. Efficacy of syndromic management measured as symptomatic improvement in females with vaginal discharge syndrome. Indian J Sex Transm Dis. 2016;37:28-32.

**Cite this article as:** Yadav A, Deepshikha, Sonkar S, Sachan R, Singh R. Sexually transmitted infections or reproductive tract infections prevalence and treatment efficacy of syndromic approach in reproductive age group women attending gynaecological out-patient department. Int J Reprod Contracept Obstet Gynecol 2023;12:2047-51.