



## A study of prevalence of Sexually Transmitted Infections & response to syndromic treatment among married women of reproductive age group in rural area of Parol Primary Health Centre under Thane district

\*Mehul T. Parmar, \*\*Harsha M. Solanki, \*\*Vibha V. Gosalia

### ABSTRACT

**Objectives** To study prevalence of Sexually Transmitted Infections (STIs - symptomatic, clinical & laboratorial) & response to syndromic treatment in among STI groups.

**Design** Community based interventional study

**Setting** Rural area-Parol Primary Health Centre (PHC), District Thane, Maharashtra state.

**Population** Women of reproductive age groups 15 -45 years

**Methods** Present Community based interventional study was conducted among representative group of 415 women of reproductive age groups who were selected by simple random sampling technique in Parol PHC, District Thane, Maharashtra state. All symptomatic & asymptomatic women were counseled for examination & investigations & given syndromic treatment. Follow-up done to assess impact of syndromic treatment.

**Main Outcome** Prevalence of STI symptomatically was 39%, clinically 32.3% & Laboratorial 26%. After syndromic treatment, prevalence of STIs was significantly reduced.

**Statistical Analysis** Z test

**Results** Of the surveyed women (415), prevalence of STI symptomatically was 39%, clinically 32.3% & Laboratorial 26%. The most common presenting symptom was vaginal discharge (36.4%) followed by Burning Micturition (24.7%), Vulval itching (17.3%), Lower abdominal pain (13%) & Genital ulcer (8.6%). Clinically, 55.2% women were diagnosed as cervicitis & 44.8% as PID. Laboratorial diagnosed STIs were - vaginal candidiasis 46.3%, Bacterial vaginosis 25%, Trichomoniasis 19.4%, Genital Herpes 7.4% & HIV 1.9%. After syndromic treatment, prevalence of STIs has statistically significantly reduced.

**Conclusion** Syndromic Rx & health education can definitely reduce STIs.

**Keywords:** Sexually Transmitted Infections, Syndromic Treatment, Rural area

### INTRODUCTION

Sexually Transmitted Infections (STIs) are major global cause of acute illness, infertility, long term disability & death with severe medical & psychological consequences for millions of men, women & infants. WHO estimated that 340 million

new cases of syphilis, gonorrhoea, chlamydia & trichomoniasis have occurred throughout the world in 1999 in men & women aged 15-49 years<sup>1</sup>.

GJMEDPH 2013; Vol. 2, issue 2

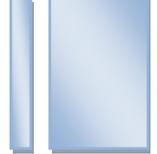
\*Assistant Professor  
Dept. Of obstetrics & gynaecology,  
Government Medical College  
Bhavnagar, Gujarat, India

\*\* Assistant Professor  
Dept. Of community medicine,  
Government Medical College  
Bhavnagar, Gujarat, India

\*Corresponding Author  
Government Medical College  
Dept. Of obstetrics & gynaecology,  
Bhavnagar, Gujarat, India  
hum\_09@yahoo.co.in

Conflict of Interest—none

Funding—none



As large numbers of STIs are asymptomatic & only part of the symptomatic population seeks health care & even a smaller number of cases are reported which can lead to the development of serious complications with severe consequences for the individuals & community. In developing countries STIs & their complications are amongst the top five disease categories for which adults seek health care<sup>2</sup>. Apart from being serious diseases in their own right, STIs enhance sexual transmission of HIV infection. The presence of untreated STIs can increase the risk of both acquisition & transmission of HIV by a factor of up to 10<sup>3</sup>.

The social stigma usually associated with STIs may result in people seeking care from alternative providers or not seeking care at all. The scale of STI problem is too great to be dealt with in specialized STI centres alone & steps must be taken to expand & integrate STI management in primary & other health facilities. But due to low literacy level, limited exposure to mass media & interpersonal communication, rural reproductive population has a very poor perception of their sexual health & sexual health needs. Absence of female service providers, lack of privacy & distance inhibit women from seeking treatment. Hence it is important to provide accessible STI services at community level.

However most of the Indian studies on reproductive health of women have been conducted at hospitals & in clinical setting such as STI or antenatal clinic. The main problem in conducting the community based study in rural India is its feasibility & accessibility to the population in need.

Similarly many low income countries, especially rural areas have adopted syndromic treatment of STIs as they have limited laboratory services. With this approach patients are treated on the basis of groups of symptoms & signs (syndromes) rather than by identifying specific STI pathogens.

Taking into consideration all above factors, study was conducted in rural area of Thane district to find out prevalence of STIs & response to syndromic treatment.

## METHODS

The present community based, interventional study, was carried out over duration of 12 months,

among women of reproductive age group, in rural area-Parol Primary Health Centre (PHC), District Thane, Maharashtra state, affiliated to Department of PSM of Topiwala National Medical College (TNMC) & B. Y. L. Nair Ch. Hospital, Mumbai. Verbal permission was taken from the Head of Department of Preventive & Social Medicine for conducting study. Parol PHC has 7 sub centres, 17 villages & total population of 20,586 which includes 4150 women in reproductive age group. A pilot study was carried out among 65 married women of reproductive age group (50% of eligible couple population of one of the selected village) wherein the prevalence of STI was found to be 49%. Taking into consideration the prevalence of STI obtained in the pilot study & 10% allowable error, the estimated study sample size was 416. These women were selected by stratified systematic simple random sampling method of which one woman refused for interview in spite of counselling hence constituting sample size of 415 for the study. Stratification was done at village level & women were selected from each village according to proportional allocation. For selection of household in the village, first we calculated sampling interval by dividing total population by sample size. After calculating sampling interval, first house was selected randomly & than sampling interval added to that random number to get desire number of women in each village. The verbal consent was taken before collecting data from the women who were included in the present study.

The household survey was carried out among study group to reveal their socio demographic characteristics, reproductive history, clinical symptoms regarding reproductive tract, treatment-seeking history & sexual behaviour. At the end of interview, list of symptomatic & asymptomatic women willing for syndromic treatment was given to the Auxiliary Nurse Midwife (ANM) & Anganwadi worker of respective village, so that they can bring women to sub centre on the day of examination decided for clinical examination & various investigations. The symptomatic & asymptomatic women along with their partners were then given syndromic treatment as per National AIDS Control Organization guidelines. The follow up & post test counselling was done after seven days at the respective sub centre, to see whether she has

relieved of her symptoms. If not, she was given drugs again for seven days to complete full course of 14 days.

### **Conceptual Framework**

Total population of PHC (rural area) (20,586)



Total population of women of reproductive age group – 4150



Based on STI prevalence obtained in the pilot study i.e. 4.9% & 10% allowable error- sample size calculated using  $4PQ/L^2$  i.e. 415 who were selected by stratified systematic simple random sampling



Stratification was done at village level & women were selected from each village according to proportional allocation



Sample population was then selected from each village by systematic simple random sampling method to identify women of reproductive age group to screen women for STI symptoms



Symptomatic & asymptomatic women were counselled for examination (per speculum) & investigations (Wet mount microscopy, Whiff test, Gram stain, Ph, RPR, HIV & Pap smear screening).



*\*Syndromic treatment of STI under supervision of Auxiliary Nurse Midwife.*

*\*The camps for syndromic treatment of STI were held at sub centre & PHC depending on the feasibility. In camp, woman first counselled regarding her symptoms & investigations to be done & verbal consent was obtained in all cases. With due respect & privacy, speculum examination was done & specimen collected for ph testing, saline wet mount, Whiff test, Gram stain & Pap smear & blood collection for RPR & HIV. The specimens were taken to rural hospital for testing.*

Diagnostic criteria used to define STIs were based on history along with clinical examination & laboratory investigations as mentioned in National guidelines on Prevention, Management & Control of Reproductive Tract Infections including Sexually Transmitted Infections prepared by Ministry of Health & Family Welfare, GOI, August 2007<sup>4</sup>:

| Syndromic STIs                    | History                                                                                                                            | Examination                                                                                                                                                                                                                                                        | Laboratory Investigations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Genital Ulcer</b>              | H/o Genital ulcer/vesicles<br>Burning sensations in the genital region<br>Sexual exposure of either partner to high risk practices | Painful vesicles/ulcer (single, multiple) – <b>Herpes Simplex</b><br>Painless ulcer with shotty lymph node – <b>Syphilis</b><br>Painless ulcer with inguinal lymph node- <b>Granuloma Inguinale&amp; LGV</b><br>Painful ulcer with painful bubo - <b>Chancroid</b> | <b>RPR for Syphilis Interpretation:</b><br>Non-reactive(no clumping)<br>- negative for syphilis<br>Reactive (highly visible clumping) -positive for syphilis<br>Weakly Reactive (minimal clumping) -positive for syphilis                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Vaginal Discharge</b>          | H/o vaginal discharge<br>Genital itching<br>Burning micturition<br>Low backache                                                    | <b>VAGINITIS :</b><br>Trichomoniasis – green frothy discharge<br>Candidiasis – curdy white discharge<br>Bacterial vaginosis – adherent discharge with fishy odour<br>Cervicitis: Cervical erosion with purulent discharge from cervix                              | <b><u>BACTERIAL VAGINOSIS</u></b><br>Vaginal pH > 4.5<br>Wet mount microscopy – 400X magnification examination - clue cells<br>10% KOH preparation – fishy odour - +ve whiff test<br>Gram stain of vaginal smear for clue cells<br><br><b><u>TRICHOMONAS VAGINALIS</u></b><br>Wet mount microscopy – 100X magnification examination: Jerky pear shaped flagellated protozoan<br><br><b><u>CANDIDIASIS</u></b><br>Wet mount microscopy – 400X magnification examination – ovoid cells with typical budding<br><br><b><u>GONOCOCCI</u></b><br>Gram stain of endocervical smear – Gm –vediplococci |
| <b>Lower abdominal pain (PID)</b> | LAP<br>VD<br>Fever<br>Menstrual irregularities                                                                                     | Adnexal tenderness &/or presence of tender adnexal mass on bimanual pelvic examination                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

*The data was analyzed & then compared with various studies done previously & presented in the form of tables & graphs*

**RESULTS**

The knowledge of STI was very low in all aspects while almost > 50% women had heard about HIV & nearly 50% women knew about its transmission & preventive modes. 86.7% women had knowledge

about contraceptive methods though the use of contraceptive methods was comparatively low (54.2%)(Table 1).

**Table 1 Knowledge, attitude & Practices of study group regarding STI, HIV & contraception (N=415)**

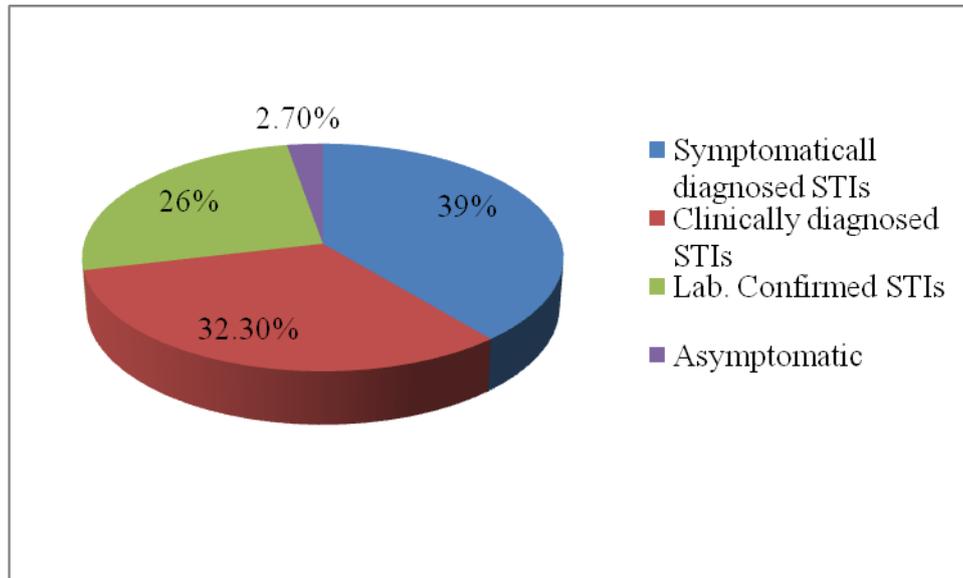
| <b>Knowledge of STI</b>             | <b>No.</b> | <b>%</b> |
|-------------------------------------|------------|----------|
| Heard                               | 114        | 27.5     |
| Mode of STI transmission            | 94         | 22.7     |
| Symptoms                            | 69         | 16.6     |
| Curable                             | 84         | 20.2     |
| Prevention Modes                    | 85         | 20.5     |
| <b>Knowledge of HIV/AIDS</b>        | <b>No.</b> | <b>%</b> |
| Heard of HIV/AIDS                   | 225        | 54.2     |
| Mode of HIV transmission            | 205        | 49.4     |
| Prevention                          | 203        | 48.9     |
| <b>Knowledge of Family Planning</b> | <b>No.</b> | <b>%</b> |
| Heard of FP Methods                 | 360        | 86.7     |
| Currently Using any method          | 225        | 54.2     |

**Table 2 Different STIs diagnosed symptomatically, clinically & by laboratory**

| <b>Total Surveyed women = 415</b>             |            |             |
|-----------------------------------------------|------------|-------------|
| <b>SYMPTOMATICALLY DIAGNOSED STIs (N=162)</b> |            |             |
|                                               | <b>No.</b> | <b>%</b>    |
| Vaginal Discharge (VD)                        | 59         | 36.4%       |
| Burning Micturition (BM)                      | 40         | 24.7%       |
| Vulval itching (VI)                           | 28         | 17.3%       |
| Lower abdominal pain (LAP)                    | 21         | 13.0%       |
| Genital ulcer (GU)                            | 14         | 08.6%       |
| Total                                         | <b>162</b> | <b>100%</b> |
| <b>CLINICALLY DIAGNOSED STIs (N=134)</b>      |            |             |
|                                               | <b>No.</b> | <b>%</b>    |
| Cervicitis                                    | 74         | 55.2%       |
| PID                                           | 60         | 44.8%       |
| Total                                         | <b>134</b> | <b>100%</b> |
| <b>LAB. DIAGNOSED STIs (N=108)</b>            |            |             |
|                                               | <b>No.</b> | <b>%</b>    |
| Syphilis                                      | 00         | 0%          |
| Gonorrhea                                     | 00         | 0%          |
| Vaginal candidiasis                           | 50         | 46.3%       |
| Bacterial vaginosis                           | 27         | 25.0%       |
| Trichomoniasis                                | 21         | 19.4%       |
| Genital Herpes                                | 08         | 07.4%       |
| HIV                                           | 02         | 01.9%       |
| Total                                         | <b>108</b> | <b>100%</b> |
| <b>OTHER GYNEC. CONDITIONS</b>                |            |             |
|                                               | <b>No.</b> | <b>%</b>    |
| Infertility                                   | 17         | 4.1%        |

The prevalence of STI symptomatically, clinically & by laboratorial method was 39%, 32.3%, & 26% respectively (Graph 1). Among the women who were presenting symptomatically, the most common presenting symptom was vaginal discharge (36.4%), followed by burning micturition (24.7%), vulval itching (17.3%), lower abdominal

pain (13.0%)& least common was genital ulcer (8.6%). Clinically cervicitis was present in 55.2% & Pelvic Inflammatory Disease in 44.8%.The most common laboratorial STI was vaginal candidiasis in 46.3% women & least common HIV in 1.9%. (Table 3)



Graph 1 Prevalence of Symptomatic, clinical & lab Confirmed STIs (N=415)

Table 3 Outcome assessment of STIs

| STIs              | Cured                                                                                  | Improved                                          | Rx failure                                      |
|-------------------|----------------------------------------------------------------------------------------|---------------------------------------------------|-------------------------------------------------|
| GU                | size reduction of 90% / >                                                              | 50–90% reduction                                  | Still 50% / > in size than it was at enrolment. |
| Genital Discharge | no symptoms / discharge                                                                | reduction in symptoms & discharge                 | No improvement                                  |
| BM, VI, LAP       | no symptoms                                                                            | reduction in symptoms                             | No improvement                                  |
| Cervicitis        | size reduction of 90% / >& no discharge                                                | 50–90% reduction in size & reduction in discharge | No improvement                                  |
| PID               | adnexal tenderness &/or presence of tender adnexal mass on bimanual pelvic examination | -                                                 | No improvement                                  |

**Treatment & follow up**

Table 4 gives assessment criteria for STIs after treatment: Those who were diagnosed as STI

(symptomatically, clinically & by laboratory method), treatment was provided to them according to national guidelines for STI treatment.<sup>15</sup> After one week, follow up questionnaire was administered asking participants about any current symptoms followed by clinical examination done to look for further signs of ulcers & discharge. Outcome assessment of STIs was made by clinician (Table 4). In cases of treatment failure second line treatment was given

after seven days. Participants not returning for FU were visited at home. A field worker administered a questionnaire, but did not perform a clinical examination. The field worker recorded patient's self assessment of cure, whether they had fully complied with the medication, any current symptoms & reasons for not returning for their FU visit.

**Table 4 Proportion of pre-syndromic & post-syndromic treatment groups**

| Groups of STIs | Pre-syndromic Rx % (No.) | Post-syndromic Rx % (No.) | S.E. | Z   | significance |
|----------------|--------------------------|---------------------------|------|-----|--------------|
| Symptomatic    | 39% (162)                | 14% (58)                  | 3.0  | 8.3 | S            |
| Clinical       | 32.3% (134)              | 9.4% (39)                 | 2.7  | 8.5 | S            |
| Lab.           | 26% (108)                | 9.6% (40)                 | 2.6  | 6.3 | S            |

It was observed that after syndromic treatment- Symptomatic, clinical & lab. Prevalence of STIs has statistically significantly reduced from 39% to 14%, 32.3% to 9.4%, and 26% to 9.6% respectively.

#### DISCUSSION

In the present study, knowledge of STI was very low in all aspects compared to HIV knowledge (mode of transmission & preventive measures). The present study reveals that in spite of significant awareness about family planning methods i.e. 86.7% only few women were (54.2%) using contraception. Similar findings were observed by Nihillesh Parchure, wherein knowledge about STI was low compared HIV/AIDS<sup>11</sup>. The prevalence of STI symptomatically was 39%, those who diagnosed as STI clinically was 32.3% & those confirmed on laboratory was 26%. In a study done by Monika Rathore, prevalence of STIs symptomatically was 55% & clinically 61%<sup>5</sup>. Among symptomatically diagnosed STIs, most common presenting symptom was vaginal discharge (36.4%) & least common was Genital Ulcer (8.6%). Those who were diagnosed by

Clinically STI - Cervicitis was present in 55.2% & Pelvic Inflammatory Disease in 44.8%. The most common laboratorial STI was vaginal candidiasis in 46.3% women & least common HIV in 1.9%. In a study by S C Panda et al, prevalence of STI was 39.2% {rural (44%); urban (32%)}. The commonest STI symptom was vaginal discharge (91%) followed by lower abdominal pain (64%), backache (76%), vulval itching (51%) & burning micturition (34%)<sup>6</sup>. In a study done by Singh MM, prevalence of specific infections were: vaginitis - 52.1%, trichomoniasis (29.2%), candidiasis (22.9%), cervicitis -20.8%, PID (14.6%), combined Urinary Tract Infections & Pelvic Inflammatory Disease (4.2%)<sup>7</sup>.

#### CONCLUSION

Prevalence of symptomatic, clinical & laboratorial diagnosed STIs was quite high in the present study. This was significantly reduced by syndromic treatment of STIs as per NACO guidelines. Hence to reduce STIs adoption of NACO guidelines for syndromic Rx along with health education to create awareness of STIs & to motivate rural women in treatment seeking should be done consistently.

#### REFERENCES

1. WHO. Global prevalence & incidence of selected curable sexually transmitted diseases: overview and estimates. World Health Organization, Geneva 2001.
2. World Bank. World Development report: Investing in Health Washington. 1993.

3. Gilson L, Mkanje R, Grosskurth H, Mosha F, et al. Cost-effectiveness of improved treatment services for sexually transmitted diseases in preventing HIV-1 infection in Mwanza Region, Tanzania. *Lancet* 1997;350:1805-09.
4. Ministry of health Welfare, GOI, NACO, NRHM. National Guidelines on prevention, management & control of RTIs including STIs. August 2007; 22-37&58-67.
5. Monika Rathore, LeelaVyas, A K Bhardwaj. Prevalence of Reproductive Tract Infections amongst ever Married Women & Sociocultural Factors Associated with. *Journal of Indian Medical Association* 2007;105:71- 78.
6. S C Panda, L Sarangi, D Bebartta, S Parida, O P Panigrahi. Prevalence of RTI/STI among Women of Reproductive Age in District Sundergarh (Orissa). *Indian Journal for the Practising Doctor.* 2007; 4(1); 03 -04. ISSN: 0973-516X.
7. Singh MM, Devi R, Garg S, Mehra M. Effectiveness of syndromic approach in management of reproductive tract infections in women. *Indian Journal Medical Science* 2001; 55(4): 209-214.