Study of sexual behavior and prevalence of STIs/RTIs and HIV among female workers of textile industries in Surat city, Gujarat, India

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Abstract

Background: Surat city is vulnerable to transmission of sexually transmitted infections (STIs)/HIV due to its huge migratory population in diamond and textile industries. Females working in textile industries were not receiving focused intervention although they were at high risk of acquiring STIs/HIV. Objective: The present study was conducted to know the prevalence of various STIs and HIV among the group of female textile workers in Surat city. The findings of the study will be helpful for policy decision makers to address the issues of a specific vulnerable group. Materials and Methods: A total 257 female workers in various textile markets were enrolled in the present study. Data were collected by the help of a pre-tested questionnaire and analysis was done by using Microsoft Excel and the EPI Info software. Result: Overall prevalence of various STIs/RTIs (reproductive tract infections) was 16.73%, whereas HIV positivity was 1.17%. Bacterial vaginosis and candidiasis were the most common infections. Conclusion: Groups such as female textile workers need to be taken care of especially to enhance the HIV prevention and control activities in Surat city, which would help in breaking the chain of transmission.

Key words: Female textile workers, HIV, sexually transmitted infections

INTRODUCTION

Surat is one of the major industrial cities of India and it contributes a major share of India's exports, especially diamonds and textiles.

Cumulative data of Voluntary Counseling and Testing Center attendees at Surat city from the year 2002 to 2007 revealed an HIV positivity of 43.29% (245/566) among female textile workers, which was highest. Male textile workers showed an HIV positivity of 36.17% (502/1388). Ambikaniketan, an NGO, was carrying out targeted intervention with textile workers since 7 years in the textile markets through the Gujarat State AIDS Control Society (GSACS)-funded targeted intervention project. During 2007 they were having regular contacts with 8297 high risk behaviors. They were also providing services to more than 2000 females working in this industry through field workers and peer educators. The newer NACP III guideline suggests to intervene with a high-risk population such as female sex workers (FSWs). For the purpose of targeted interventions, an FSW is considered an adult woman who engages in consensual sex for money or payment in kind as her principal means of livelihood. Generally, fulltime
FSWs have at least one client per day, or at least 30 clients per month, and nearly 400 per year.[3] This definition is not fitting to female textile workers because of their part-time involvement in sexual activities and their primary source of income being the textile industries. Hence targeted intervention among textile workers carried out by this NGO has been stopped by Gujarat State AIDS Control Society (GSACS), but considering the vulnerability of this group and cumulative data of Voluntary Counseling and Testing Center attendees, the study is planned to determine the rate of HIV and sexually transmitted infections (STIs); understanding the risk behavior among this group in Surat will help in forming intervention efforts in the future. In India, women account for around 1 million out of the 2.5 million estimated number of people living with HIV/AIDS.[4] Their heightened vulnerability has both biological and socio-economic reasons. Early marriage, violence and sexual abuse against women are the major socio-economic reasons of their vulnerability to HIV infection. Their biological construct makes them more susceptible to HIV infection in any given heterosexual encounter. The global HIV epidemic is rapidly “feminizing.”[5,6] Increasing numbers of women are HIV-infected worldwide and within the Indian context, women account for an estimated 40% of cases among the 2.5 million people living with HIV/AIDS.[7]

Looking at the above data, the current study was undertaken with aim of knowing the HIV/STI scenario and its transmission dynamics among female textile workers of Surat city. The findings of this study may help in restructuring the current national policy for targeted intervention. The country-wide rate of STIs in India was 6%.[8] In this study, we investigated the prevalence of STIs/RTIs (reproductive tract infections) among female textile workers in Surat city – the first step toward developing intervention and prevention measures in this group.

MATERIALS AND METHODS

This cross-sectional study enrolled a sample of 257 female textile workers aged 18-49 years who work in Surat city according to the HIV Sentinel Surveillance Guideline for the high-risk group, which suggests a sample size of 250.[9] The study was conducted from October 2008 to December 2010. Participants were interviewed with quantitative questionnaires. The study protocol was approved by the Human Research Ethics Committee (HREC), Government Medical College, Surat, prior to implementation of the study. Prior to initiation, the project team contacted and met the managers and supervisors in a sample of more than 100 textile markets. During these meetings, the study was explained to the managers and supervisors who provided their consent for the study team to approach the female textile workers for participation in the study. Following these meetings with the managers and supervisors, the project team then conducted subsequent meetings with the female textile workers to explain the research and ask for their participation. Many members of the project team were familiar with the female textile workers because of their previous experience working with them on a previous health promotion intervention.

Study area

The study was conducted in the textile markets of Surat city. The area has a highly dense population and is located in 2 km from Sahara Darwaja. Various multistory textile markets are situated in this area. The area includes more than 100 textile markets and almost 70,000 shops. The study area has a population of around 181,000, including 174,249 men and 6741 women. The Surat textile market is a warehouse where people press and pack clothes produced in Surat for shipping and distribution throughout India. Most women engage in sweeping work. A few are also involved in box making, saree cutting–folding or other labor work. The majority of women are paid daily wages through contracts and subcontracts.

Participants

The study was open to all female workers in the textile industry who were employed at the 11 randomly selected textile markets of Surat. These workers were invited to participate if they were between the ages of 18 and 49 years, the most common age group of women participating in commercial sex. To be eligible, the participants were also required to be able speak Hindi or Gujarati.

Study tool

The quantitative data collection tool was a pre-designed, pre-tested, closed-end questionnaire that included items such as socio-demographic profile, migration status and risk behavior. The questionnaire was filled up by the investigators. All participants were offered unlinked anonymous HIV testing as per the National AIDS Control Organization (NACO) guidelines for surveillance and research.[9] The participants of the study were first informed about the study through meetings at their work places that provided information about the study and that addressed potential concerns about being enrolled in the study. For literate subjects,
a written informed consent was obtained prior to enrollment. For illiterate subjects, the consent form was read to the subject, then a thumb impression of the participant was obtained along with the written signature of a witness.

**Data management and analysis**

The data of quantitative questionnaire were entered into a spreadsheet (Microsoft Excel, 2007) and statistical analyses were performed using EPI Info version 6.04. A statistical test of significance ($\chi^2$) test was applied to determine significance.

**RESULTS**

A total of 257 subjects were enrolled. The highest proportion (48%) of subjects was 26-35 years of age, whereas 17% were 18-25 years old and 35% were 36-45 years old. Mean age was 33.42 years. High positivity was observed among the age group 26-35 years.

The majority of subjects were married (79%). Almost 70% of the study participants had individual income below Rs. 1500 per month from the markets. Approximately 30% of the subjects were native to Gujarat and 70% were from other regions. Among the non-native subjects, 95% had migrated from other states and 5.3% had migrated from districts within Gujarat state. Among subjects who had migrated from other states, most (82%) were from the neighboring districts of the state of Maharashtra, followed by Uttar Pradesh (8.3%), Karnataka (3.3%), Madhya Pradesh (2.78%), Andhra Pradesh (2.8%), West Bengal (0.6%) and Tamilnadu (0.6%).

Twenty-nine percent of the subjects were symptomatic for STI; of these, the most common complaint was vaginal discharge (97%) and lower abdominal pain (2.7%) as shown in Table 1.

The overall prevalence rate of various STIs was 17% (43/257). Prevalence of bacterial vaginosis was highest, at 7%. For all other STIs, prevalence ranged from 0% for hepatitis C virus to 4.7% for *Candida*. HIV prevalence was 1.17% [Table 2].

**Table 1:** Distribution of female textile workers having symptoms of RTIs/STIs and its laboratory evidence

| Complaints (%) | STI-positive (%) | STI-negative (%) | Total (%) |
|----------------|------------------|-----------------|-----------|
| Symptomatic    | 22 (29.73)       | 52 (70.27)      | 74 (100)  |
| Asymptomatic   | 21 (11.48)       | 162 (88.52)     | 183 (100) |
| Total          | 43               | 214             | 257       |

RTI=Reproductive tract infection; STI=Sexually transmitted infection

**Table 2:** Distribution of female textile workers according to laboratory results of STIs/RTIs and HIV

| STI                  | Laboratory test | Positives | Percentage, (n=257) |
|----------------------|-----------------|-----------|---------------------|
| Bacterial vaginosis  | Wet mount       | 18        | 7.00                |
| Bacterial vaginosis  | Nugent’s criteria | 18     | 7.00                |
| *Candida*            | Gram stain      | 12        | 4.67                |
| *Candida*            | Wet mount       | 12        | 4.67                |
| *Candida*            | Culture         | 12        | 4.67                |
| *Trichomonas vaginalis* | Wet mount     | 2         | 0.78                |
| *Gonorrhea*          | Gram stain      | 1         | 0.39                |
| *Gonorrhea*          | Culture         | 0         | 0                   |
| HBsAg                | Rapid test      | 4         | 1.56                |
| HIV                  | ELISA           | 3         | 1.17                |
| Syphilis             | Rapid plasma reagin | 3     | 1.17                |
| *Treponema pallidum* | Hemagglutination test | 3 | 1.17                |
| Hepatitis C          | ELISA           | 0         | 0                   |

RTI=Reproductive tract infection; STI=Sexually transmitted infection

STI positivity was higher (29.73%) in the symptomatic group than in the asymptomatic (11.48%) group, which was statistically significant ($P < 0.05$) [Table 2]. Laboratory test-positive participants were more in the asymptomatic group for bacterial vaginosis (66.7%).

Out of 74 study participants who had reported STI symptoms, the majority (72/74) reported vaginal discharge as a symptom of STI followed by lower abdominal pain (2/74). In the current study, 9 (3.5%) female textile workers disclosed that they had multiple partners.

STI positivity was 11.11% among those who disclosed as having multiple-partner sexual relationships and 20.39% among those who did not disclose as having multiple sexual partners. In spite of denial of having multiple sexual partners, high STI positivity (20.39%) was reported among this group, which might have been due to fear of disclosure and the associated stigma, preventing many of the female textile workers to disclose their multiple-partner sexual relationships.
DISCUSSION

As sexual activities are more prevalent in the younger age groups, STI positivity was higher among the age groups 18-25 years (18.60%) and 26-35 years (19.35%) as compared with the age group 36-45 years (12.22%) [Table 3]. In a study conducted by Pant et al., among married women in the rural area of Meerut, prevalence of STIs was found to be maximum (46%) in the 25-29-year age group.[10] In a community-based study by Kosambiya et al., at Surat, prevalence of trichomoniasis was found to be 41% by culture, 22% by wet mount and 16% by Gram staining among urban women.[11] HIV Sentinel Surveillance round 2012 also revealed 1.2% HIV positivity among male migrants of Surat city.[12] The adult prevalence of STIs in India is 6% as stated by the NACO RTI/STI Guideline.[2] The prevalence of STIs in the present study was 9.72% (excluding bacterial vaginosis), which is high as compared with national data. This key finding of almost double positivity than national prevalence revealed that the study group may be indulging in various high-risk behaviors for STIs and HIV.

The likely reasons behind this higher positivity than national data may be that the females working in the textile markets may be indulging in high-risk activities for HIV/STIs. Although only 9 out of the 257 (3.5%) participants in this study disclosed that they had multiple sexual partners, the actual figure may be high considering the reported high STI positivity. They might not want to disclose their high-risk behaviors because of fear of loss of work or stigma at their work places. The other reason could be that their husbands might have multiple sexual partners and are already infected, and would transmit the infections to their wives, which reflects higher STI positivity.

Driven by economic instability, work-related migration and mobility within as well as between the states of India has become a risk factor for HIV transmission. In spite of denial of multiple sexual partners, high STI positivity (20.39%) was seen among females who denied having multiple sexual partners. This might be due to fear of disclosure and the associated stigma, which prevented many of the female textile workers to disclose their multiple-partner sexual relationships.

RECOMMENDATION

NACP III is mainly targeted on core groups, which include FSWs, males having sex with male and intra venous drug users only. Due to this policy guideline, many NGOs working for targeted intervention in migrant populations were closed. As this study revealed high RTI/STI positivity (16.73%) among one of these groups, the group requires urgent attention for any suitable intervention by restructuring targeted interventions at work place for female textile workers. Currently there are two main service providers for HIV and STIs in Surat city: First is a targeted intervention project. As the study group is not fitting by definition among the core groups, targeted intervention service providers cannot offer services to them because it is beyond their programme boundaries. The second is, public health systems providing services to the general population through urban health centers and hospitals run by Surat Municipal Corporation and New Civil Hospital run by Government of Gujarat. These facilities have trained doctors and a full-time counselor for management of sexually transmitted diseases. Groups such as female textile workers may not appear to utilize these services because of fear of discloser of their high-risk sexual behavior, stigma related to HIV/STIs and may be due to lack of awareness. It may be possible that due to long duty hours and busy schedule they cannot utilize these services, which are mainly available during routine office hours; hence a special group is required that can win their confidence and work with them. NACO is at the verge of introducing NACP IV at the national level. So this is high time to take decisions for special group intervention.

ACKNOWLEDGEMENTS

The authors acknowledge Gujarat State AIDS Control Society (GSACS) for technical and financial support, and the PARAS-PSN NACP III Targeted Intervention Project running for HIV prevention and control in Surat city for their field-level support.

We are very much thankful to Dr. Kristein Wells, Assistant Professor, EBM, University of South Florida, USA, for help with the write-up.

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Source of Support: Gujarat State AIDS Control Society provided technical and financial support. Conflict of Interest: None declared.

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