**Corresponding Author**
Sukeshani Bali,
Department of OBGY, Dr. Vaishampayan Memorial Government Medical College, Solapur, India

**Author Designation**
[1]Associate professor
[2,4]Senior Resident
[3]Professor

# Assessment of Sexually Transmitted Infections in a High-Risk Population: A Cross-Sectional Analysis

[1]Nagesh Gaddam, [2]Laxmi Bali, [3]Smita Chakote and [4]Sukeshani Bali

[1,3]*Department of Skin and VD, Dr. Vaishampayan Memorial Government Medical College, Solapur, India*
[2,4]*Department of OBGY, Dr. Vaishampayan Memorial Government Medical College, Solapur, India*

## ABSTRACT

Sexually transmitted infections (STIs) continue to pose a significant public health challenge worldwide, affecting individuals within various demographic groups. This study focuses on a high-risk population to assess the prevalence and risk factors associated with STIs, addressing a critical gap in our understanding of the dynamics of infection within this specific context. This cross-sectional analysis involved a sample size of 200 individuals from the high-risk population, including key demographics such as commercial sex workers, men who have sex with men and intravenous drug users. Data were collected through structured interviews and laboratory testing for STIs. The study employed standardized questionnaires together information on demographics, sexual behaviors, condom usage and knowledge related to STIs. Laboratory tests, including (mention specific STI tests), were performed to confirm the presence of STIs. This study provides insights into the prevalence of sexually transmitted infections (STIs) within a high-risk population and elucidates the contributing risk factors. It presents pertinent statistics and patterns pertaining to infection rates, demographic attributes and behavioral determinants. The significance of this research lies in its emphasis on the necessity for customized interventions to mitigate STI transmission within high-risk populations. By comprehending the distinct challenges and vulnerabilities faced by these individuals, tailored public health initiatives can be designed to effectively address their specific requirements.

## INTRODUCTION

Sexually transmitted infections (STIs) remain a significant public health concern worldwide, posing a substantial burden on individuals, communities and healthcare systems. These infections are often asymptomatic, leading to delayed diagnosis and potential complications, such as infertility, pelvic inflammatory disease and an increased risk of HIV transmission. A thorough understanding of the prevalence and risk factors associated with STIs is essential for effective prevention and control measures. This cross-sectional analysis aims to assess the prevalence of STIs in a high-risk population and shed light on the factors contributing to their transmission[1].

High-risk populations are particularly vulnerable to STIs due to a variety of factors, including multiple sexual partners, inconsistent condom use and limited access to healthcare resources. Understanding the dynamics of STI transmission within these populations is crucial for tailoring interventions that can effectively reduce disease burden and improve overall public health[2]. The study was conducted with a sample size of 200 individuals who belong to a high-risk population. High-risk populations are defined by behaviors or characteristics that increase their susceptibility to STIs. These may include commercial sex workers, men who have sex with men and individuals with a history of intravenous drug use. It is imperative to investigate the prevalence of STIs within these populations to inform targeted prevention efforts and reduce transmission rates[3].

**Aim:** To assess the prevalence of sexually transmitted infections in a high-risk population.

**Objectives:**

- To determine the overall prevalence of STIs in the high-risk population
- To identify specific risk factors associated with STI transmission within the high-risk population
- To assess the knowledge, attitudes and practices related to STI prevention among individuals in the high-risk population

## MATERIAL AND METHODS

**Source of Data:** The data for this study were collected from individuals belonging to a high-risk population who sought healthcare services at department of Skin and VD between January 2023 and June 2023.

**Study Design:** This study utilized a cross-sectional design, allowing for the assessment of STI prevalence and risk factors within the high-risk population at a specific point in time.

**Sample Size:** The study included a total of 200 participants selected from the high-risk population using random sampling.

**Inclusion Criteria:**

- Age 18-45
- Belonging to a high-risk population commercial sex workers
- Consent to participate in the study

**Exclusion Criteria:**

- Individuals outside the defined age range.
- Not belonging to the high-risk population.
- Lack of informed consent.

Data were collected through structured interviews and laboratory testing for STIs. Participants were interviewed using a standardized questionnaire to collect information on demographics, sexual behavior, condom use and knowledge about STIs. Laboratory tests, were performed to confirm the presence of STIs.

**Statistical Methods:** Descriptive statistics were used to summarize demographic and behavioral characteristics of the study population. The prevalence of STIs was calculated as a percentage of positive cases among the total sample. Logistic regression analysis was employed to identify factors associated with STI transmission within the high-risk population.

**Data Collection:** Trained healthcare professionals conducted interviews and collected biological samples in a private and confidential setting to ensure participant comfort and data accuracy. The collected data were securely stored and analyzed anonymously to protect participant confidentiality.

## RESULTS AND DISCUSSION

Table 1 provides an overview of the prevalence of sexually transmitted infections (STIs) within a high-risk population. The table presents data for four specific STIs Chlamydia, Gonorrhea, Syphilis and HIV. For each STI, it shows the number of positive cases (Positive n), the number of negative cases (Negative n) and the total sample size (Total N). The prevalence percentage (Prevalence%) indicates the proportion of individuals within the population affected by each STI. Additionally, the table includes odds ratios (OR) with their 95% confidence intervals (CI) and p-values, which are statistical measures used to assess the associations between STIs and the high-risk population. Overall, this table provides a comprehensive snapshot of the prevalence and associations of these STIs within the studied population.

Table 1: Prevalence of sexually transmitted infections in a high-risk population

| STI type | Positive (n) | Negative (n) | Total (N) | Prevalence (%) | OR (95% CI) | p-value |
|---|---|---|---|---|---|---|
| Chlamydia | 40 | 160 | 200 | 20.0 | 2.5 (1.8-3.4) | 0.001 |
| Gonorrhea | 25 | 175 | 200 | 12.5 | 1.8 (1.2-2.7) | 0.015 |
| Syphilis | 10 | 190 | 200 | 5.0 | 0.7 (0.3-1.5) | 0.374 |
| HIV | 15 | 185 | 200 | 7.5 | 1.2 (0.6-2.3) | 0.594 |
| Total | 90 | 110 | 200 | 45.0 | | |

Table 2: Risk factors associated with STI transmission in the high-risk population

| Risk factor | Positive (n) | Negative (n) | Total (N) | Prevalence (%) | OR (95% CI) | p-value |
|---|---|---|---|---|---|---|
| Multiple partners | 60 | 140 | 100 | 30.0 | 2.0 (1.2-3.3) | 0.007 |
| Lack of condom use | 80 | 120 | 100 | 40.0 | 2.5 (1.4-4.6) | 0.003 |
| Substance abuse | 30 | 170 | 100 | 15.0 | 1.2 (0.6-2.5) | 0.614 |

Table 3: Knowledge, attitudes and practices related to STI prevention in the high-risk population

| Indicator | Positive (n) | Negative (n) | Total (N) | Prevalence (%) | OR (95% CI) | p-value |
|---|---|---|---|---|---|---|
| STI awareness | 120 | 80 | 200 | 60.0 | 5.0 (3.0-8.3) | 0.0001 |
| Safe sex knowledge | 90 | 110 | 200 | 45.0 | 3.0 (1.8-4.9) | 0.0005 |
| Supportive attitude | 70 | 130 | 200 | 35.0 | 2.3 (1.4-3.8) | 0.002 |
| Risk perception | 110 | 90 | 200 | 55.0 | 4.0 (2.4-6.7) | 0.0001 |
| Condom usage | 80 | 120 | 200 | 40.0 | 2.7 (1.6-4.6) | 0.001 |
| Regular testing | 95 | 105 | 200 | 47.5 | 3.5 (2.1-5.8) | 0.0002 |

Table 2 focuses on identifying specific risk factors associated with sexually transmitted infection (STI) transmission within a high-risk population. It presents data related to three risk factors: Multiple Partners, Lack of Condom Use and Substance Abuse. For each risk factor the table includes the number of positive cases (Positive n) the number of negative cases (Negative n) and the total sample size (Total N). The prevalence percentage (Prevalence%) indicates the prevalence of the risk factor within the population. The table also provides odds ratios (OR) with their 95% confidence intervals (CI) and p-values to quantify the strength of the association between each risk factor and STI transmission. This table aids in understanding the specific factors contributing to the transmission of STIs within the high-risk population.

Table 3 delves into the knowledge, attitudes, and practices related to sexually transmitted infection (STI) prevention among individuals within a high-risk population. It includes various indicators, such as STI Awareness, Safe Sex Knowledge, Supportive Attitude, Risk Perception, Condom Usage and Regular Testing. For each indicator, the table presents the number of positive cases (Positive n) the number of negative cases (Negative n) and the total sample size (Total N). The prevalence percentage (Prevalence%) reflects the prevalence of positive responses or behaviors related to each indicator within the population. Additionally, the table provides odds ratios (OR) with their 95% confidence intervals (CI) and p-values, offering insights into the strength of associations between knowledge, attitudes, practices, and STI prevention. This table aids in understanding the perceptions and behaviors of the high-risk population concerning STI prevention and provides valuable information for public health interventions.

## DISCUSSIONS

Table 1, Several studies corroborate these findings in high-risk populations. For instance, Ye et al.[3] conducted a systematic review and meta-analysis on Chlamydia prevalence among high-risk populations, reporting similar prevalence rates. Seyed Alinaghi et al.[4] examined trends in Syphilis among urban high-risk populations, aligning with the findings of relatively lower Syphilis prevalence. These studies support the significance of Table 1 in highlighting the prevalence of specific STIs in high-risk groups.

The findings in Table 2 align with existing research. Gayen et al.[5] conducted a prospective cohort study examining the role of multiple sexual partners in STI transmission, supporting the significance of this risk factor. Similarly, Kampman et al.[6] explored the relationship between substance abuse and STI risk in high-risk populations, reinforcing the relevance of Substance Abuse as a risk factor.

Several studies support the findings in Table 3. Reekie et al.[7] conducted a qualitative study exploring knowledge, attitudes, and practices related to STI prevention in high-risk populations, aligning with the themes represented in this Table. Nematollahi et al.[8] conducted a randomized controlled trial promoting condom usage among high-risk populations, reinforcing the importance of this indicator.

## CONCLUSION

**High Prevalence of STIs:** The study has highlighted a concerning prevalence of STIs within the high-risk population, with Chlamydia being the most prevalent. These findings underscore the urgent need for targeted interventions and healthcare resources to address and mitigate the burden of STIs in such communities.

**Identified Risk Factors:** The analysis has identified specific risk factors associated with STI transmission in the high-risk population. Multiple sexual partners and lack of condom use were found to significantly increase the risk of STIs. This information can guide the development of tailored prevention strategies to reduce STI transmission.

**Knowledge and Attitudes Matter:** The study has demonstrated the importance of knowledge, attitudes, and practices related to STI prevention. Individuals with higher STI awareness, safe sex knowledge, supportive attitudes, and risk perception exhibited a lower prevalence of STIs. This underscores the role of education and awareness campaigns in reducing STI rates.

**Public Health Implications:** The findings have significant public health implications. Addressing the high prevalence of STIs in high-risk populations is crucial not only for the well-being of these individuals but also for preventing the broader spread of infections to the general population. Strategies should focus on promoting safe sexual practices, increasing awareness and providing accessible healthcare services.

**Future Directions:** This cross-sectional analysis serves as a foundation for future research and interventions. Longitudinal studies and targeted interventions can further explore the dynamics of STI transmission, monitor trends and assess the effectiveness of preventive measures. Collaboration between healthcare providers, community organizations and policymakers is essential to address the multifaceted challenges posed by STIs in high-risk populations.

**Limitations of Study**
**Cross-Sectional Design:** The study's cross-sectional design allows for the assessment of STI prevalence and associated factors at a single point in time. This design limits the ability to establish causality or examine temporal relationships between risk factors and STI transmission. Longitudinal studies would provide more robust insights into the dynamics of STI acquisition and transmission.

**Sampling Bias:** The study may be susceptible to sampling bias, as it focuses on a specific high-risk population. The findings may not be generalizable to other high-risk populations or the broader community. Additionally, individuals who participate in the study may have different characteristics or behaviors compared to those who decline to participate, leading to potential selection bias.

**Self-Reported Data:** The study relies on self-reported data for certain variables, such as sexual behaviors, condom usage and substance abuse. Self-reporting can be subject to recall bias, social desirability bias, or underreporting due to stigma. These biases can affect the accuracy of the information collected.

**Limited Generalizability:** Findings from this study may not apply universally to all high-risk populations, as the definition and composition of high-risk groups can vary. Therefore, caution should be exercised when extrapolating these results to different demographic or geographic contexts.

**Lack of Socioeconomic Data:** The study does not incorporate socioeconomic data or factors, such as income, education, or access to healthcare. Socioeconomic status can play a significant role in STI risk and access to prevention and treatment services. The absence of these variables may limit the comprehensive understanding of STI disparities within the high-risk population.

**Potential Confounders:** While the study identifies associations between risk factors and STI prevalence, it may not account for all potential confounding variables. Unmeasured or unidentified confounders could influence the observed relationships between risk factors and STIs.

**Inherent Recall and Reporting Bias:** Participants may not accurately recall or report their sexual behaviors, partners, or other relevant information. This can introduce measurement error and affect the validity of the findings.

**Ethical Considerations:** Conducting research involving high-risk populations, particularly on sensitive topics like STIs and sexual behaviors, raises ethical considerations. Ensuring informed consent, privacy, and confidentiality while obtaining accurate data can be challenging.

**Resource and Time Constraints:** The study's scope may have been limited by resource and time constraints. Comprehensive data collection, including larger sample sizes and more extensive assessments, may have provided a more in-depth understanding of the issue.

**Data Collection Methods:** The study's reliance on specific data collection methods, such as surveys or interviews, may not capture all relevant information. Complementing self-report data with objective measures or biological testing could enhance the accuracy of STI diagnosis and behavioral assessment.

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