TEMPORAL CHANGES IN SYPHILIS PREVALENCE AND POPULATION CHARACTERISTICS AMONG MSM IN INDIA

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BACKGROUND

- Men who have sex with men (MSM) are at higher risk of syphilis infection compared to heterosexual men.
- Since 2018, syphilis prevalence has been increasing in high income countries, with limited data from low-and middle-income countries.
- We previously observed a 3-fold increase in syphilis prevalence between 2012 and 2017 among MSM in India.

OBJECTIVE

- We aimed to assess further changes in syphilis prevalence and population characteristics between 2017 and 2024.

METHODS

- Respondent driven sampling (RDS) was used to accrue cisgender MSM in Bhopal, Delhi, and Hyderabad, India, for cross-sectional surveys in 2016-2017 and 2023-2024.
- Participants were tested for syphilis using the rapid plasma reagin (RPR) test. RPR+ samples were tested using *Treponema pallidum* hemagglutination assay (TPHA). Syphilis infection was defined as both RPR+ and TPHA+.
- We examined trends of syphilis prevalence, demographics, and sexual risk behaviors by survey cycle and city.
- To assess whether changes in the 2023-2024 population vs 2016-2017 could explain changes in syphilis prevalence, we used propensity scores (generated from multilevel logistic regression models using correlates of syphilis infection - *age, sexual orientation, HIV prevalence, recent condomless anal intercourse (CAI), recent sex work, and recent number of male/transgender partners*) to indirectly standardize the 2023-2024 population and re-estimate syphilis prevalence. Analyses incorporated RDS-II weights.
- A lower re-estimate of syphilis prevalence similar to 2016-2017 survey cycle would indicate that the increase in syphilis prevalence observed in 2023-2024 may have been due to changes in the population.

A 140% increase in syphilis prevalence from 2017 to 2024 among MSM across 3 Indian cities highlights the urgent need for interventions (e.g., DoxyPEP) tailored towards key populations in low-and middle-income countries.

RESULTS

Figure 1. Change in population characteristics between 2016-2017 and 2023-2024

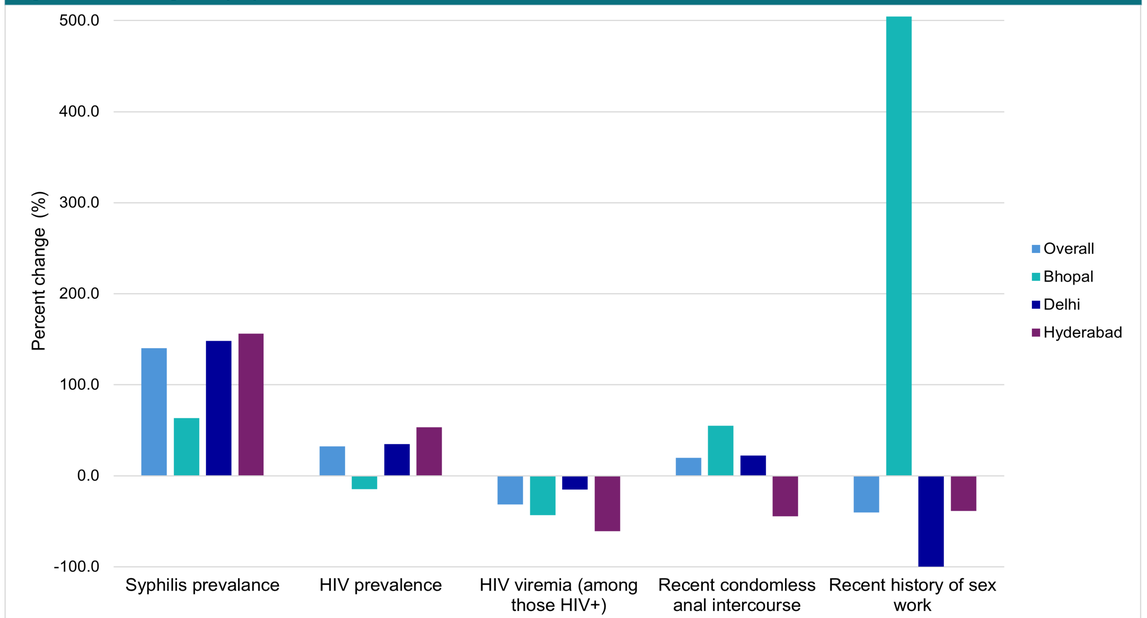


Figure 2. Site level syphilis prevalence among MSM in India between 2016-2017 and 2023-2024

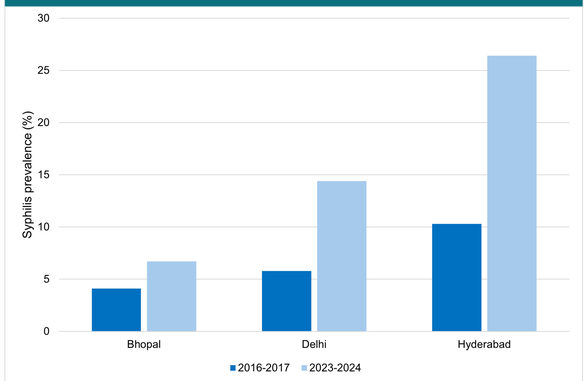


Figure 3. Overall and propensity score weighted syphilis prevalence among MSM in India between 2016-2017 and 2023-2024

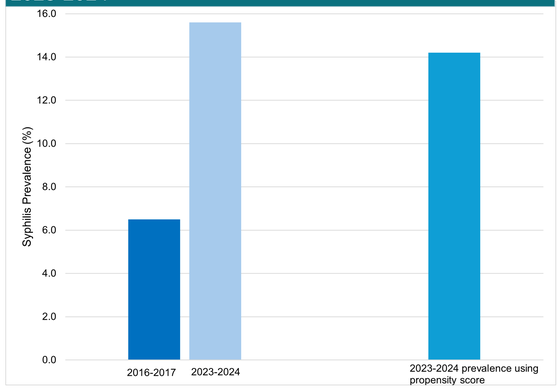


Table 1. Study population characteristics , n(weighted %)	2016-2017 (n=3001)	2023-2024 (n=2249)
Age (median(IQR))	27 (22, 35)	28 (24, 35)
Sexual orientation		
Panthi (prefer penetrative anal intercourse)	1604 (51.0)	425 (7.3)
Kothi (prefer receptive anal intercourse)	614 (20.6)	540 (8.9)
Double-decker (engage in both penetrative and receptive intercourse)	623 (18.2)	137 (3.2)
Gay/MSM	21 (0.4)	401 (25.7)
Bisexual	138 (9.9)	746 (54.8)
HIV prevalence	565 (15.1)	399 (20.0)
HIV viremia (among people living with HIV), >150 copies/ml	264 (36.7)	107 (25.2)
Recent condomless anal intercourse, prior 6 months	1374 (39.2)	1163 (47.0)
Number of male/transgender sexual partners, prior 6 months		
Less than 2	1497 (49.9)	490 (16.2)
More than or equal to 2	1504 (50.1)	1759 (83.8)
Recent history of sex work, prior 6 months	577 (12.2)	578 (7.3)

CONCLUSIONS

- We observed substantial recent increases in syphilis prevalence among MSM.
- Syphilis prevalence remained high after accounting for changes in population characteristics, including risk behaviors such as CAI.
- These data highlight the urgent need to test interventions (e.g., DoxyPEP) to address the rising burden of syphilis and potentially other STIs in low-and middle-income countries.

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