

Prevalence and Pattern of Sexually Transmitted Diseases in a Tertiary Care Hospital in Chamba, Himachal Pradesh

Rajni Thapar¹, Mohammad Riyaz², Navneet Kaur³

ABSTRACT

Introduction: Sexually transmitted infections (STIs) majorly affect the reproductive age group and results into dire consequences like ano-genital cancer, ectopic pregnancy, foetal wastage, infertility and premature death. Additionally, STIs are associated with increased risk of transmission of Human immunodeficiency Virus (HIV). Epidemiological study is the key to understand the prevailing disease pattern, required for better implementation of policy, and targeted intervention needed to control the progression of STIs. Present retrospective and cross-sectional study was carried out to understand the prevalence and epidemiological pattern in the region.

Material and methods: Data was procured from the case records maintained in the ICTC and STI clinic attached to the Gynaecology outpatient department (OPD) of our tertiary care centre, from January, 2013 to December, 2017. Subjects were clinically evaluated by the trained physician. All the test and treatment was done according to the WHO guidelines.

Results: The total attendance at Integrated counselling and testing centre (ICTC) and STI clinic was 31,028 and 24,657 respectively. Female ratio was in order of 1: 1.25 and 1: 1.24 in ICTC and STI clinic. Age group 22-44 year was found to have more STIs. 95.47% patients who attended STI clinic were syndromic and 4.52% were asymptomatic. Attendance at STI clinic ($r^2=0.97$) and ICTC ($r^2=0.86\%$) increased gradually by annually. Month of June to September was the months of high attendance and high disease prevalence.

Conclusion: Increased attendance at ICTC and STI clinic depicts the STI awareness and better implementation of the WHO policies in the region. However, syndromic management and asymptomatic case detection at point of care are the keys to control the STIs.

Key words: Genital ulcer, HIV, STIs, Syndromic approach, Urethral Discharge

INTRODUCTION

Sexually transmitted infections (STIs) are a loosely defined constellation of infections and syndromes that are epidemiologically heterogeneous but all of which are almost always or at least often transmitted sexually. STIs are perhaps as old as human civilization itself, clinical description of syphilis and gonorrhoea is dated back 15th century.¹

As per WHO and NACO survey global, national and state prevalence of HIV and STI ranges 0.1% to 8%. In 2016 HIV prevalence in India was 0.26% and in Himachal Pradesh it was 0.12%.² STDs that cause mucosal inflammation and ulcers contribute to the spread of HIV, by increasing infectiousness, susceptibility or both.³ STIs constitute one of the major public health issue, and continue to present major

health, social, and economic problems in the developing world, leading to considerable morbidity, mortality, stigma, major cause of infertility and foetal wastage.⁴ The prevalence rates apparently are far higher in developing countries where STI treatment is less accessible.^{5,6}

Policy and practice are not the same in the intervention of STIs, this may be because lack of education; under-reporting; syndromic management at the primary healthcare levels; different geographical conditions; socio-economic conditions; culture, tradition, mores and belief.⁷ Also, people follow the alternatives methods of treatment and practice occult science for healing.

However, the availability of baseline information on the epidemiology of STIs and other associated risk behaviours are bottleneck in the designing, implementing, and monitoring successful targeted interventions.^{8,9,10}

A number of regional studies are available from different parts of India^{11,12,13,14}, but none from the current area of study. The retrospective cross-sectional study was aimed to understand the pattern and correlation of STIs and the HIV prevalence from a tertiary care hospital in Chamba (Himachal Pradesh) which is remotely rural and tribal, over a period of 5 years (Jan 2013 to Dec 2017).

MATERIAL AND METHODS

Data was procured from the case records maintained in the ICTC and STI clinic attached to the Gynaecology outpatient department (OPD) of our tertiary care centre, from January, 2013 to December, 2017. Subjects were clinically evaluated by the trained physician. All patients were managed on the basis of algorithms of the syndromic approach as depicted by National AIDS Control Organization (NACO). The syndromes are cervical/vaginal discharge, genital ulcer disease herpetic, inguinal bubo, urethral discharge, lower abdominal pain, genital warts, and genital molluscum.

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The following characteristics were used for analysis: (1) Demographic information—age and marital status; (2) Sexual orientation; and (3) Clinical information—complaints at the time of presentation, duration of complaints, and any treatment taken for the complaints.

Serological tests including HIV antibody testing were done by enzyme immuno-assay based rapid kit (Comb Aids-RS) by ARKRAY Healthcare Pvt. Ltd. and further confirmation was done with Tri-Spot rapid kit (AIDSCAN) by Bhat Bio Tech India Pvt. Ltd., positive patient were then confirmed by the western-blotting. Rapid Plasma Reigen (RPR) (Beacon Diagnostic Pvt. Ltd.) test was performed in the patient on the first clinical visit, afterward follow-up recommended. All the tests were performed as per manufactures instructions and all the kits and reagents were supplied from NACO (Ministry of Health and Welfare). The tests were performed after informed consent with the pre and post-test counselling of the patient by ICTC and STI counsellor. Partner notification and condom promotion and distribution was done. Treatment was provided to the patient as per NACO's guidelines.

STATISTICAL ANALYSIS

Trends among the various STDs were understood. Separate Time Series Regression Analysis was used to obtain an equation for the various groups of STDs. The method of least squares was used to plot straight line graphs. All statistical analysis are performed using Graph Prism Pad 5.0 (Statistical analysis software) and Microsoft excel.

RESULTS

The total number of patients referred from OPD of our tertiary health care centre to the ICTC and STI clinic were 31,028 and 24,657 respectively.

ICTC

In total attendance of five years (31,028) at ICTC clinic 13,782 (44.41%) were male and among female (17,244), 10,897(35.11%) were ANC (fig. 1). Female attendance at the ICTC laboratory was higher than that of males; male female ratio was 1:1.25. During the course of study 21 individuals were found HIV positive among them were 13 males and 08 were female, no ANC case has been found.

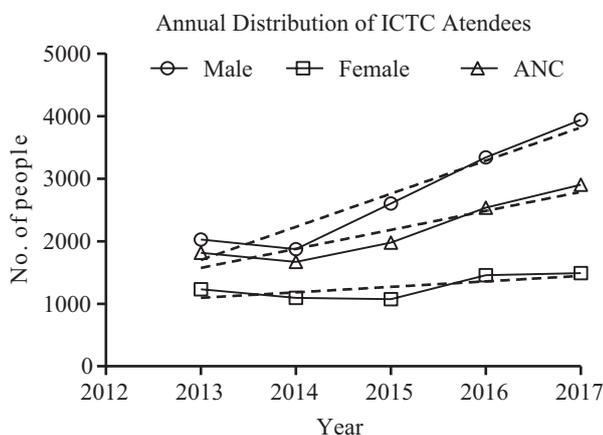


Figure-1: Annual trend of ICTC attendance

STI

Out of total 24,657 patients with STI and with no STI has attended the STI clinic on the recommendation of physicians from the OPDs. Females (13,689) among them 7,366 (29.87%) were ANCs referral cases, have attended the STI clinic more than the males 10,968 (44.48%); male to female ratio was 1: 1.24. Patients' first visit at STI clinic with no STI were 6,678 in number (2042 male and 4636 females) and patient with STI were 17,498 in number (8744 male and 8754 female) (fig. 2). Patient with repeat STI were least in number i.e. 481 (212 male and 269 female).

The age group distribution of population express the frequency of STIs among 22-44 year age group was maximum. People at the extremities of age i.e. <22 year (male 450 and female 963) and >44 year (male 667 and female 426) (fig. 3) were least commonly infected.

On this basis of clinical findings, among all the attendees at STI clinic 95.47% (23,542) were syndromic where 4.52% (1,115) were asymptomatic (fig. 4). Female syndromic cases (13,222 i.e. 56.16%) were higher than the male syndromic cases (10,320 i.e. 43.83%). Among syndromic cases, people with other STI (not diagnosed) were maximum i.e. 37.91% followed by patient on asymptomatic STI treatment (29.55%) than vaginal/cervical discharge (13.48%); lower abdominal pain (13.48%); urethral discharge (3.88%); painful scrotal swelling (2.84%); genital ulcer herpetic (0.69%); genital

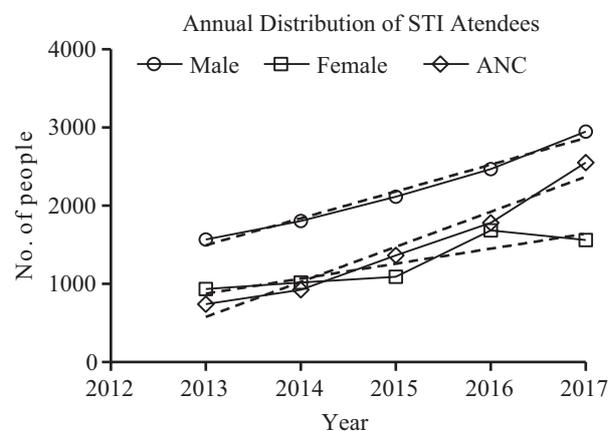


Figure-2: Annual trend of STI attendance

Age group distribution of STI attendees (2013-2017)

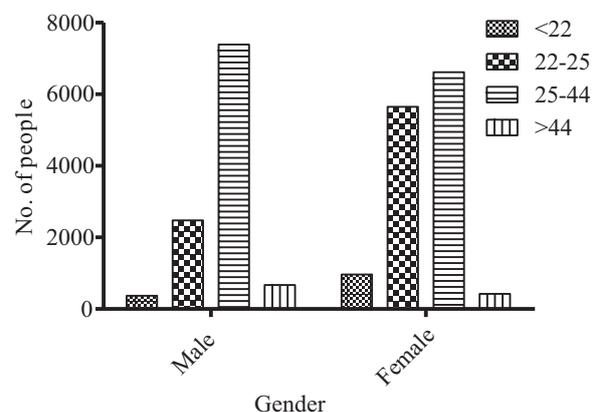


Figure-3: Age group distribution of STI attendees

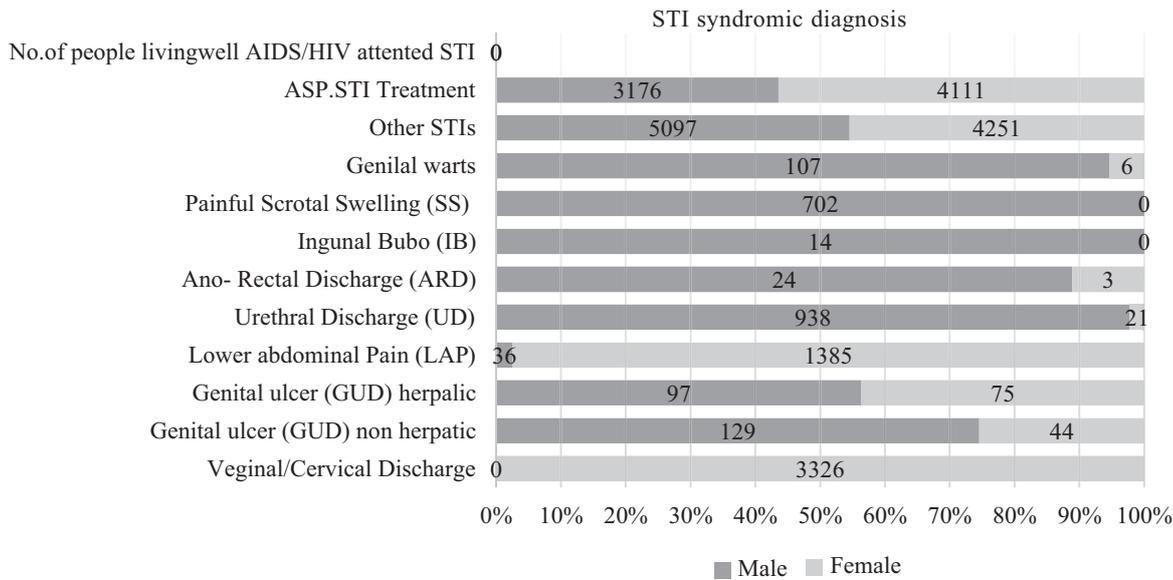


Figure-4: STI syndromic diagnosis pattern.

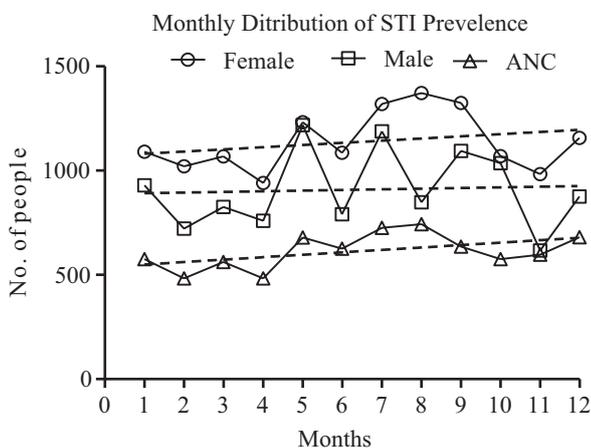


Figure-5: Monthly distribution of STI prevalence.

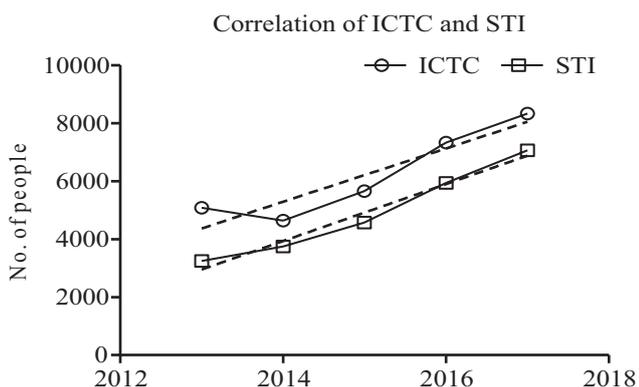


Figure-6: ICTC and STI attendance.

wart (0.45%); ano-rectal discharge (0.1%) and least were the patient of ingunal bubo (0.05%).

The trend of undiagnosed STIs and patient on asymptomatic STI treatment was same in both male and female; 49.38% and 30.77% and 37.91% and 29.55% respectively. Other syndromes diagnosed in male were in trend of urethral discharge (9.08%) followed by painful scrotal swelling (6.8%); genital ulcer non herpetic (1.25%); genital wart

(1.03%); genital ulcer herpetic (0.93%); lower abdominal pain (0.34%); ano-rectal discharge (0.23%) and ingunal bubo (0.13%). While the female trend was viz. vaginal/cervical discharge (25.15%); lower abdominal pain (10.47%); genital ulcer herpetic (0.56%); genital ulcer non herpetic (0.33%); urethral discharge (0.15%); genital warts (0.04%) and ano-rectal discharge (0.02%).

Monthly, STI attendees were maximum during the summer months (fig-5) i.e. May to September. Male attendance were maximum in month of May (1,218) where female and ANC attendance were maximum in month of August (1,372 and 743 respectively). Out of total, 3,319 couples were undertaken and managed during the time of the study. Total 438,800 condoms were distributed from the hospital during the time period of 2013-2017.

DISCUSSION

STI prevalence in any society is directly related to the extent of awareness, level of education, socio-economic status, appropriate diagnosis and rational medication, and importantly the policy making and implementation. Epidemiological studies are being published from different region of India but there remain a great paucity of information because of the stigma associated to STIs which leads to the poor attendance at STI clinics. Other factors like lack of resources for the study and diagnosis at institutions (medical and academic) and lack of interdepartmental collaboration contribute significantly.^{15,16,17} The current study is aimed to analyse the aforementioned on the basis of demographic and socio-economic data collected and laboratory investigations at STI clinic.

There is gradual increase in the attendance at the ICTC ($r^2=0.86$) ($p < 0.05$) and STI clinics ($r^2=0.97$) ($p < 0.001$) (fig-5) annually which contribute to fact that the awareness, education and the basic medical facility has been improved in the region, this contributes to the successful implementation of WHO policy.^{18,19} HIV positive patient (38%) were infected while working outside their hometown, the fact that migration for job opportunities in big cities²⁰, while 85.71%

cases were infected by casual sex. This is a fact that in India maximum transmission of HIV is through heterosexual contact.^{21,22}

The female outnumber the male at ICTC and STI clinic where male female ratio is 1:1.25 at ICTC (fig-1) and 1:1.24 at STI (fig-2) clinic, while in most studies male outnumber the female.^{11,12,13,14} More female in the current study might be because of more ANC referrals and better follow-up.

In the age group of 22-25 year females are more infected than the male (fig. 3), this might be because this age group is sexually active and high risk of being behaviourally more vulnerable to STI acquisition as they generally have more number of sexual partners and does not have the knowledge and understanding of the sex related consequences.²³ While in the age group of 25-44 year male outnumber the female, this might be because the promiscuous behaviour of the adult male.²⁴ The most provocative factors in pre-marital exposures are viz. sexual urges, love affairs, influence of friends, curiosity, monetary gain and sexual assault.^{25,26} While in married cases extramarital contact and visit to the commercial sex worker are the important factors in dispose of the STIs.¹⁴ Additionally, other disposing factors in general spread of STIs are distinct behavior of society, socio demography, economy, geography and ethnicity.^{24,27}

Interestingly our data also showed an increase in the total clinic attendances in June to September (fig-5). These findings may relate to hormonal changes causing more sexual activity during summer months, less use of antibiotics for respiratory infections in summer, or more social events during the summer months.^{28,29,30}

No patient were found positive for the bacterial STI (syphilis) in the region during the time period of the study but viral STI (HIV) cases has been found similar to other studies from India.^{11,12,13,14} This is because empirical treatment by general practitioners and irrational use of new antibiotics including quinolones and the new macrolides, for the treatment of other diseases.^{32,33} This can result in partial treatment or modified course of the bacterial STDs, thereby leading to apparent reduction in the proportion of bacterial to viral STDs. This is a fact of great concern because they serve as a reservoir to the STIs and keep on shedding the infection in community.¹⁴ A large population (29.55%) attending the STI clinic were asymptomatic as in accordance with M. Mudau et.al.¹⁶ widespread use of antibacterials,

HIV positive patient (38%) were infected while working outside their hometown, the fact that migration for job opportunities in big cities¹⁷, while 85.71% cases were infected by casual sex.

Condom distribution and partner management is done very often at the clinic to educate the masses and clear the stigmatized minds for STIs prevention. As a result the reporting to medical faculty for proper diagnosis is improving gradually per year, this corroborate the L. Ramakrishnan et.al. study.³¹ Partner management aims to reduce the prevalence of asymptomatic infection, and to shorten the average period of infectiousness. This in turn is expected to reduce disease transmission.³⁴

There are great paucity of epidemiological information is because dynamic profile of STIs; cluster of pathogens, variable incubation period, diverse genome and hereditarily resistant social behaviour. Education, technical facility and political will are the keys to improve the STI situation. The following key management steps can improve the situation: i) improved management of patient who seek treatment; early diagnosis and partner management ii) more symptomatic patient who seek care, including care group, iii) development mass screening strategies to cover the asymptomatic cases.

CONCLUSION

Increased attendance at ICTC and STI clinic depicts the STI awareness and better implementation of the WHO policies in the region. However, syndromic management and asymptomatic case detection at point of care are remains the need of time especially in developing and resource limited countries like India. Therefore, a combined approach of mass screening with syndromic management and including behavioural changes through education of population can impede the increasing threat of association and spread of STIs and HIV rapidly.

REFERENCES

1. Tampa, M., Sarbu, I., Matei, C., Benea, V., and Georgescu, S. Brief History of Syphilis. *Journal of Medicine and Life* 2014;7: 4–10.
2. NACO annual report 2015-2016 [http://naco.gov.in/sites/default/files/Annual %20Report%202015-16_NACO.pdf](http://naco.gov.in/sites/default/files/Annual%20Report%202015-16_NACO.pdf)
3. Galvin, S. R., and Cohen, M. S. The role of sexually transmitted diseases in HIV transmission. *Nature Reviews Microbiology* 2004;2:33.
4. World Health Organization. Sexually transmitted infections factsheet. Available from: <http://www.who.int/mediacentre/factsheets/fs110/en/>
5. World Health Organization. Global health sector strategy on sexually transmitted infections, 2016–2021. [Cited 2017 May 18]. Available from: <http://www.who.int/reproductivehealth/publications/rtis/ghss-stis/en/>
6. Peeling, R. W., Mabey, D., and Ballard, R. C. Introducing new diagnostics into STI control programmes: the importance of programme science. *Sex Transm Infect* 2013;89:115-119.
7. Low, N., Broutet, N., Adu-Sarkodie, Y., Barton, P., Hossain, M., and Hawkes, S. Global control of sexually transmitted infections. *The Lancet* 2006;368: 2001-2016.
8. Seale A, Broutet N, Narasimhan M. Assessing process, content, and politics in developing the global health sector strategy on sexually transmitted infections 2016–2021: Implementation opportunities for policymakers. *PLoS Med* 2017;14(6).
9. Risbud A. Human immunodeficiency virus (HIV) and sexually transmitted diseases (STDs) *Indian J Med Res*. 2005;121:369–76. [PubMed]
10. World Health Organization. A new approach to STD control and AIDS prevention. *Glob AIDSnews*. 1994;4:13–5.
11. Hassan, Iffat, Parvaiz Anwar, Shagufta Rather,

- Farah Sameem, Imran Majid, Yasmeen Jabeen, Syed Mubashir, Nuzhatun Nisa, and Qazi Masood. "Pattern of sexually transmitted infections in a Muslim majority region of North India." *Indian journal of sexually transmitted diseases* 2015;36: 30.
12. Choudhry, Shilpee, V. G. Ramachandran, Shukla Das, S. N. Bhattacharya, and Narendra Singh Mogha. "Pattern of sexually transmitted infections and performance of syndromic management against etiological diagnosis in patients attending the sexually transmitted infection clinic of a tertiary care hospital." *Indian journal of sexually transmitted diseases* 2010;31: 104.
 13. Sharma, S., Tiwari, S., Paliwal, V., Mathur, D. K., and Bhargava, P. Study of patterns of sexually transmitted diseases using a syndromic approach in the era of human immunodeficiency virus from a tertiary care hospital of the Northern India. *Indian journal of sexually transmitted diseases* 2015;36: 158.
 14. Sharma, V. K., and Khandpur, S. Changing patterns of sexually transmitted infections in India. *Natl Med J India* 2004;17: 310-9.
 15. Adimora, A. A., and Schoenbach, V. J. Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *The Journal of infectious diseases* 2005;191: S115-S122.
 16. Mudau, M., Peters, R. P., De Vos, L., Olivier, D. H., J Davey, D., Mkwanazi, E. S., et.al. (2017;). High prevalence of asymptomatic sexually transmitted infections among human immunodeficiency virus-infected pregnant women in a low-income South African community. *International journal of STD and AIDS*, 0956462417724908.
 17. Ranjan, A., Bhatnagar, T., Babu, G. R., and Detels, R. Sexual behavior, HIV prevalence and awareness among wives of migrant workers: results from cross-sectional survey in rural North India. *Indian journal of community medicine: official publication of Indian Association of Preventive and Social Medicine* 2017;42:24.
 18. Adimora, A. A., and Schoenbach, V. J. Social context, sexual networks, and racial disparities in rates of sexually transmitted infections. *The Journal of infectious diseases* 2005;191: S115-S122.
 19. Aral, S. O., Over, M., Manhart, L., and Holmes, K. K. (2006). Sexually transmitted infections.
 20. Panchoad, C., Singh, S., Feivelson, D., and Darroch, J. E. Sexually transmitted diseases among adolescents in developed countries. *Family Planning Perspectives* 2000;24-45.
 21. Ray, K., Bala, M., Gupta, S. M., and Khunger, N. Changing trends in sexually transmitted infections at a Regional STD Centre in north India. *Indian journal of medical research* 2006;124:559.
 22. Wellings, K., Nanchahal, K., Macdowall, W., McManus, S., Erens, B., Mercer, et.al. Sexual behaviour in Britain: early heterosexual experience. *The Lancet* 2001;358:1843-1850.
 23. Kalichman, S. C., and Simbayi, L. C. HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. *Sexually transmitted infections* 2003;79: 442-447.
 24. Kumar, D., Goel, N. K., Bakshi, R. K., Sharma, M. K., and Ghosh, A. K. Sexual behavior of adolescent students in Chandigarh and their perceptions regarding family life education. *Journal of family medicine and primary care* 2017;6: 399.
 25. Unemo, M., Bradshaw, C. S., Hocking, J. S., de Vries, H. J., Francis, S. C., Mabey et.al. Sexually transmitted infections: challenges ahead. *The Lancet infectious diseases* 2017;17: e235-e279.
 26. Marrazzo, J. M., Dombrowski, J. C., and Mayer, K. H. Sexually transmitted infections in the era of antiretroviral-based HIV prevention: Priorities for discovery research, implementation science, and community involvement. *PLoS medicine* 2018;15: e1002485.
 27. World Health Organization. (2016). Global health sector strategy on sexually transmitted infections 2016-2021: toward ending STIs.
 28. Cornelisse, V. J., Chow, E. P., Chen, M. Y., Bradshaw, C. S., and Fairley, C. K. (2015). Summer heat: a cross-sectional analysis of seasonal differences in sexual behaviour and sexually transmissible diseases in Melbourne, Australia. *Sex Transm Infect*, sextrans-2015.
 29. Kakran, M., Bala, M., and Singh, V. An analysis of underlying factors for seasonal variation in gonorrhoea in India: A 6-year statistical assessment. *Indian journal of medical microbiology* 2015;33: 215.
 30. Li, B., Bi, P., Chow, E. P., Donovan, B., McNulty, A., Ward, A et.al. Seasonal variation in gonorrhoea incidence among men who have sex with men. *Sexual health* 2016;13:589-592.
 31. Ramakrishnan, L., Ramanathan, S., Chakrapani, V., Goswami, P., Deshpande, S., Yadav, D et.al. Comparison of sexual risk, HIV/STI prevalence and intervention exposure among men who have sex with men and women (MSMW) and men who have sex with men only (MSMO) in India: Implications for HIV prevention. *AIDS and Behavior*, 2015;19:2255-2269.
 32. <http://www.worldbank.org/en/news/feature/2012/07/10/hiv-aids-india>
 33. Thappa, D. M., and Kaimal, S. Sexually transmitted infections in India: Current status (except human immunodeficiency virus/acquired immunodeficiency syndrome). *Indian Journal of Dermatology* 2007;52:78.
 34. Mayaud, P., and Mabey, D. Approaches to the control of sexually transmitted infections in developing countries: old problems and modern challenges. *Sexually transmitted infections* 2004;80:174-182.

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