Published in final edited form as:

AIDS Care. 2017 June ; 29(6): 746–750. doi:10.1080/09540121.2016.1231887.

Prevalence and correlates of psychosocial conditions among people living with HIV in southern India

Brian T. Chan^{a,b,*}, Amrose Pradeep^c, Lakshmi Prasad^c, Vinothini Murugesan^c, Ezhilarasi Chandrasekaran^c, Nagalingeswaran Kumarasamy^c, and Kenneth H. Mayer^{b,d,e}

^aDivision of Infectious Diseases, Brigham and Women's Hospital, Boston, MA, USA

^bHarvard Medical School, Boston, MA, USA

^cY. R. Gaitonde Centre for AIDS Research and Education, Chennai, India

^dDivision of Infectious Diseases, Beth Israel Deaconess Medical Center, Boston, MA, USA

^eFenway Health, Boston, MA, USA

Abstract

Psychosocial conditions such as depression, intimate partner violence (IPV), and history of childhood sexual abuse (CSA) have been associated with poor HIV-related outcomes. In India, which has the third-largest HIV epidemic in the world, little is understood about the impact of psychosocial conditions on people living with HIV (PLHIV). We aimed to understand the prevalence and correlates of psychosocial conditions among PLHIV entering into HIV care at the Y.R. Gaitonde Centre for AIDS Research and Education in Chennai, India. Thirteen questions were added to the standard voluntary counseling and testing questionnaire, including the Patient Health Questionnaire-9 (a depression scale) and questions assessing for childhood sexual abuse (CSA) and intimate partner violence (IPV). We fitted logistic regression models, stratified by gender, with psychosocial condition as the outcome of interest and substance use variables and socio-demographic variables as the correlates of interest. 383 persons were enrolled into the study; of these, 253 (66%) tested positive for HIV, including 149 men and 104 women, and were included in the models. More than one-quarter (28%) of the men and 19% of the women reported at least one psychosocial condition (probable depression, CSA, or IPV). In adjusted analysis, current alcohol use was associated with greater than two times higher odds of a psychosocial condition (AOR=2.24, 95% CI, 1.04-4.85) among men. In conclusion, we estimated the prevalence of probable depression, CSA, and IPV among PLHIV presenting for HIV care in southern India and found that, among male PLHIV, alcohol use was associated with a markedly higher odds of reporting a psychosocial condition. Further study is needed to characterize alcohol use among male PLHIV and the possible deleterious impact of psychosocial conditions and alcohol use on HIV-related outcomes in India.

*Corresponding author: Brian T. Chan, MD, MPH; Brigham and Women's Hospital, 15 Francis Street, PBBA-4; Boston, MA 02115; Phone: 617-732-8881; Fax: 617-732-6829; bchan@partners.org.

Keywords

Psychosocial conditions; depression; violence; alcohol; India

Introduction

India, which has the third largest HIV epidemic in the world with 2.4 million people living with HIV (PLHIV) (World Bank, 2012), has dramatically expanded access to anti-retroviral therapy (Srikantiah et al., 2010). Unfortunately, India continues to suffer from suboptimal HIV-related outcomes, including low rates of retention in care (Blutinger et al., 2014) and virologic suppression (Alvarez-Uria, Pakam, Midde, & Naik, 2013; Mehta et al., 2015). Psychosocial conditions such as depression, intimate partner violence (IPV), and history of childhood sexual abuse (CSA) may be important contributors to poor HIV-related outcomes (Mayston, Kinyanda, Chishinga, Prince, & Patel, 2012). However, little is known about the prevalence or correlates of psychosocial conditions among Indian PLHIV, other than several widely-varying estimates of the prevalence of depression (Khan & Sehgal, 2010; Nebhinani, Mattoo, & Wanchu, 2011; Talukdar et al., 2012). To address this gap, we conducted a study of adults presenting to a large HIV care center in southern India. The aim of this study was to understand the prevalence and correlates of psychosocial conditions among Indian PLHIV entering into HIV care.

Methods

Study setting and procedures

The study was conducted at the Y.R. Gaitonde Centre for AIDS Research and Education (YRG CARE) in Chennai, the capital of Tamil Nadu. The HIV epidemic in Tamil Nadu is concentrated, with an overall prevalence of 0.28% but a relatively high prevalence among female sex workers, men who have sex with men, and injection drug users (National AIDS Control Organization, 2012). Historically, most patients at YRG CARE have self-identified as heterosexual. Patients were eligible for participation in the study if they were at least 18 years of age and presented for Voluntary Counseling and Testing (VCT) between February 2014 and January 2015. Interviews were conducted in the patient's preferred language (Tamil, Telugu, or English). All study materials were written in English and professionally translated and back-translated. Written consent was obtained from all study participants; in cases of illiteracy, participants were allowed to sign consent forms with a thumbprint. Ethical approval was obtained from the Institutional Review Boards of Fenway Health (Boston, Massachusetts, USA) and YRG CARE.

Measures

The primary outcome of interest was the presence of a psychosocial condition, defined as a positive screen for probable depression, CSA, or IPV. We added thirteen questions to the standard VCT questionnaire administered to all new patients. To assess for probable depression, we included the Patient Health Questionnaire-9 (PHQ-9), which has been previously translated into Tamil and Telugu and validated in India (Ganguly et al., 2013; Kochhar, Rajadhyaksha, & Suvama, 2007). We defined a positive screen for probable

depression as a PHQ-9 score ≥ 10 and/or admitting to “thoughts that [one] would be better off dead or of hurting [one]self in some way” (Kroenke & Spitzer, 2002). The estimated scale reliability coefficient was 0.85.

To assess for IPV, we adapted three questions from Feldhaus *et al.* (1997) (Table 1). A participant was considered to screen positive if any of the answers indicated a history of recent violence or lack of safety related to a person from a current or previous relationship. To assess for CSA, we used a one-question screener from the Childhood Trauma Questionnaire—Short Form that has been found to have greater than 86% sensitivity in community-based samples in high-income countries (Thombs, Bernstein, Ziegelstein, Bennett, & Walker, 2007): “When you were growing up, did someone try to touch you or try to make you touch them in a sexual way?” Although a retrospective measure unlike the depression and IPV measures, we included this measure given potential life-long impacts of CSA and its strong association with poor HIV-related outcomes (Leserman, 2008; Markowitz *et al.*, 2011).

Other correlates of interest collected as part of the VCT questionnaire included alcohol use (“yes” vs. “no” or “stopped”), injection drug use (“present use or previous use” vs. “never use”), gender, age, educational attainment, marital status, employment status, rural/urban residence, language, and sexual orientation.

Statistical analysis

We used descriptive statistics to characterize the sample and to obtain the prevalence of psychosocial conditions. We fitted univariable logistic regression models to examine correlates of psychosocial conditions, omitting correlates with extremely low prevalence. These models were stratified by gender because previous studies from low-income countries have demonstrated that correlates of psychosocial conditions are gender-specific (Aljassem *et al.*, 2016; Tsai *et al.*, 2012). Variables with $p < 0.25$ in the univariable models (Hosmer, Lemeshow, & Sturdivant, 2013) were included in multivariable models, stratified by gender, with psychosocial condition as the outcome of interest.

Results

382 persons were enrolled into the study. Of these, 252 (66%) tested positive for HIV and were included in the analyses (Table 2). No one refused entry, although not all eligible patients were approached because of interviewer availability. 28% of men and 19% of women reported at least one psychosocial condition ($\chi^2=2.39$, $p=0.12$). The prevalence of probable depression was 23% among men and 15% among women ($\chi^2=2.21$, $p=0.14$). Men were more likely to report CSA (5% vs. 0%; $\chi^2=5.81$, $p=0.02$). The prevalence of IPV was comparable among men (4%) and women (5%) ($\chi^2=0.08$, $p=0.77$).

Among women, in unadjusted analyses, there were no correlates of interest that were statistically significant (Table 3). Among men, in unadjusted analyses, speaking Tamil and current alcohol use were associated with higher odds of a psychosocial condition. In adjusted analysis, current alcohol use was associated with a greater than two times higher odds of a psychosocial condition (AOR=2.24, 95% CI, 1.04-4.85) among men. There were

no other correlates in the adjusted analyses that reached statistical significance among men or women.

Discussion

In this primarily heterosexual-identified cohort of PLHIV entering into HIV care in India, about one-quarter of respondents screened positive for psychosocial conditions including probable depression, CSA, and IPV. We also found that, among men, alcohol use was associated with higher odds of reporting a psychosocial condition. Prevalence of depression in this study was 20%, similar to, if slightly lower than, prior studies of Indian PLHIV (Khan & Sehgal, 2010; Nebhinani et al., 2011; Talukdar et al., 2012). The prevalence of CSA and IPV was lower than expected; our estimates may underrepresent their true prevalence, as there may have been reluctance by participants to disclose sensitive information.

Significantly more men than women reported a history of CSA, which may relate to the possible modes of HIV acquisition among Indian men and women. In other settings, history of CSA has been associated with HIV-related sexual risk behaviors among men (Stall et al., 2003). Many of the men who tested positive for HIV are likely to have acquired HIV from high-risk behaviors such as condomless sex with other men or with sex workers, whereas women are likely to have acquired HIV from their primary male partners (Mayer et al., 2015). Additionally, men as well as women screened positive for our definition of IPV, driven by affirmative responses to the question, “Do you feel safe in your current relationship?” This finding may reflect men feeling unsafe from the standpoint of being stigmatized or abandoned by their wives, rather than being physically abused. Nevertheless, a positive response to this question among men is likely to be meaningful, as it suggests that the participant may have experienced or anticipated a high degree of HIV-related stigma.

In adjusted analyses, the only correlate that was associated with the presence of a psychosocial condition among male PLHIV was current alcohol use. Although the measure of current alcohol use used in this study is dichotomous and therefore cannot be used as an indicator of problem drinking, our findings suggest that alcohol use is worth investigating as a possible psychosocial condition and/or predictor of poor HIV outcomes in its own right. As India is regarded as a traditionally “dry” culture (Benegal, 2005), any alcohol use may be predictive of behavioral problems in the Indian context.

There are several limitations. First, the study was conducted at a single HIV care center and therefore the findings may not be generalizable to the entire country. We anticipate that the results of this study will at least be hypothesis generating and encourage similar research in other parts of India and in the public sector. Second, the PHQ-9 can be considered a screening tool, but not a diagnostic tool. However, other studies have confirmed that the PHQ-9 has good accuracy in diagnosing major depressive disorder in India (Ganguly et al., 2013; Kochhar et al., 2007). Finally, we encountered limitations in the use of the existing VCT questionnaire for correlates of interest (in particular, the dichotomous alcohol use variable). Further research is needed to precisely measure these variables to understand possible associations with other psychosocial conditions and with HIV-related outcomes.

In summary, we estimated the prevalence of probable depression, CSA, and IPV among PLHIV presenting for HIV care in southern India and found that, among male PLHIV, alcohol use was associated with a markedly higher odds of reporting a psychosocial condition. Further study is needed to characterize alcohol use among male PLHIV and the impact of psychosocial conditions and alcohol use on HIV-related outcomes in India.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

We are grateful to the many staff members of the Y.R. Gaitonde Centre for AIDS Research and Education who participated in this project.

This work was supported by Harvard Catalyst/The Harvard Clinical and Translational Science Center (National Center for Research Resources and the National Center for Advancing Translational Sciences, National Institutes of Health Award KL2 TR001100, an appointed KL2/Catalyst Medical Research Investigator Training award) (Chan), National Institutes of Health P30AI06354 (Mayer), and unrestricted research grants from Merck, Gilead, and Bristol Meyers Squibb (Mayer).

References

- Aljassem K, Raboud JM, Hart TA, Benoit A, Su D, Margolese SL, et al. Gender Differences in Severity and Correlates of Depression Symptoms in People Living with HIV in Ontario, Canada. *Journal of the International Association of Providers of AIDS Care*. 2016; 15(1):23–35. <http://doi.org/10.1177/2325957414536228>. [PubMed: 24899261]
- Alvarez-Uria G, Pakam R, Midde M, Naik PK. Entry, Retention, and Virological Suppression in an HIV Cohort Study in India: Description of the Cascade of Care and Implications for Reducing HIV-Related Mortality in Low- and Middle-Income Countries. *Interdisciplinary Perspectives on Infectious Diseases*. 2013; 2013:384805. <http://doi.org/10.1155/2013/384805>. [PubMed: 23935613]
- Benegal V. India: alcohol and public health. *Addiction (Abingdon, England)*. 2005; 100(8):1051–1056. <http://doi.org/10.1111/j.1360-0443.2005.01176.x>.
- Blutinger EJ, Solomon S, Srikrishnan AK, Thamburaj E, Kumarasamy N, Balakrishnan P, et al. Dropout from care among HIV-infected patients enrolled in care at a tertiary HIV care center in Chennai, India. *AIDS Care*. 2014; 26(12):1500–1505. <http://doi.org/10.1080/09540121.2014.934654>. [PubMed: 25011519]
- Feldhaus KM, Koziol-McLain RN, Amsbury HL. Accuracy of 3 Brief Screening Questions for Detecting Partner Violence in the Emergency Department. *JAMA : the Journal of the American Medical Association*. 1997; 277(17):1357–1361. [PubMed: 9134940]
- Ganguly S, Samanta M, Roy P, Chatterjee S, Kaplan DW, Basu B. Patient health questionnaire-9 as an effective tool for screening of depression among Indian adolescents. *The Journal of Adolescent Health*. 2013; 52(5):546–551. <http://doi.org/10.1016/j.jadohealth.2012.09.012>. [PubMed: 23299020]
- Hosmer, DW., Jr, Lemeshow, S., Sturdivant, RX. *Applied logistic regression*. 3rd. Hoboken: John Wiley and Sons; 2013.
- Khan MA, Sehgal A. Clinico-epidemiological and Socio-behavioral Study of People Living with HIV/AIDS. *Indian Journal of Psychological Medicine*. 2010; 32(1):22–28. <http://doi.org/10.4103/0253-7176.70523>. [PubMed: 21799555]
- Kochhar PH, Rajadhyaksha SS, Suvarna VR. Translation and validation of brief patient health questionnaire against DSM IV as a tool to diagnose major depressive disorder in Indian patients. *Journal of Postgraduate Medicine*. 2007; 53(2):102–107. [PubMed: 17495375]
- Kroenke K, Spitzer RL. The PHQ-9: A New Depression Diagnostic and Severity Measure. *Psychiatric Annals*. 2002; 32(9):509–515. <http://doi.org/10.3928/0048-5713-20020901-06>.

- Leserman J. Role of depression, stress, and trauma in HIV disease progression. *Psychosomatic Medicine*. 2008; 70(5):539–545. <http://doi.org/10.1097/PSY.0b013e3181777a5f>. [PubMed: 18519880]
- Markowitz SM, O'Cleirigh C, Hendriksen ES, Bullis JR, Stein M, Safren SA. Childhood sexual abuse and health risk behaviors in patients with HIV and a history of injection drug use. *AIDS and Behavior*. 2011; 15(7):1554–1560. <http://doi.org/10.1007/s10461-010-9857-y>. [PubMed: 21161362]
- Mayer KH, Gangakhedkar R, Sivasubramanian M, Biello KB, Abuelezam N, Mane S, et al. Differing Identities but Comparably High HIV and Bacterial Sexually Transmitted Disease Burdens Among Married and Unmarried Men Who Have Sex With Men in Mumbai, India. *Sexually Transmitted Diseases*. 2015; 42(11):629–633. <http://doi.org/10.1097/OLQ.0000000000000344>. [PubMed: 26462187]
- Mayston R, Kinyanda E, Chishinga N, Prince M, Patel V. Mental disorder and the outcome of HIV/AIDS in low-income and middle-income countries: a systematic review. *AIDS*. 2012; 26(Suppl 2):S117–35. <http://doi.org/10.1097/QAD.0b013e32835bde0f>. [PubMed: 23303434]
- Mehta SH, Lucas GM, Solomon S, Srikrishnan AK, McFall AM, Dhingra N, et al. HIV Care Continuum Among Men Who Have Sex With Men and Persons Who Inject Drugs in India: Barriers to Successful Engagement. *Clinical Infectious Diseases*. 2015; 61(11):1732–1741. <http://doi.org/10.1093/cid/civ669>. [PubMed: 26251048]
- National AIDS Control Organization. , editor. Technical Report: India HIV Estimates-2012. 2012. Retrieved July 28, 2014, from <http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/data-and-analysis/tools/spectrum/India2012report.pdf>
- Nebhinani N, Mattoo SK, Wanchu A. Psychiatric morbidity in HIV-positive subjects: a study from India. *Journal of Psychosomatic Research*. 2011; 70(5):449–454. <http://doi.org/10.1016/j.jpsychores.2010.09.021>. [PubMed: 21511075]
- Srikantiah P, Ghidinelli M, Bachani D, Chasombat S, Daoni E, Mustikawati DE, et al. Scale-up of national antiretroviral therapy programs: progress and challenges in the Asia Pacific region. *AIDS*. 2010; 24(Suppl 3):S62–71. <http://doi.org/10.1097/01.aids.0000390091.45435.ea>. [PubMed: 20926930]
- Stall R, Mills TC, Williamson J, Hart T, Greenwood G, Paul J, et al. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *American Journal of Public Health*. 2003; 93(6):939–942. [PubMed: 12773359]
- Talukdar A, Ghosal MK, Sanyal D, Sengupta Talukdar P, Guha P, Guha SK, Basu S. Determinants of Quality of Life in HIV-Infected Patients Receiving Highly Active Antiretroviral Treatment at a Medical College ART Center in Kolkata, India. *Journal of the International Association of Physicians in AIDS Care*. 2012; 12(4):284–290. <http://doi.org/10.1177/1545109712445924>.
- Thombs BD, Bernstein DP, Ziegelstein RC, Bennett W, Walker EA. A brief two-item screener for detecting a history of physical or sexual abuse in childhood. *General Hospital Psychiatry*. 2007; 29(1):8–13. <http://doi.org/10.1016/j.genhosppsych.2006.10.013>. [PubMed: 17189738]
- Tsai AC, Bangsberg DR, Frongillo EA, Hunt PW, Muzoora C, Martin JN, Weiser SD. Food insecurity, depression and the modifying role of social support among people living with HIV/AIDS in rural Uganda. *Social Science & Medicine*. 2012; 74(12):2012–2019. <http://doi.org/10.1016/j.socscimed.2012.02.033>. [PubMed: 22513248]
- World Bank. , editor. HIV/AIDS in India. 2012. Retrieved July 27, 2014, from <http://www.worldbank.org/en/news/feature/2012/07/10/hiv-aids-india>

Table 1

Characteristics of patients by gender

Characteristic	Overall (n=252)	Women (n=104)	Men (n=148)	T-test / χ^2 statistic	P-value
<i>Sociodemographic and clinical variables</i>					
Age, mean (SD), y	38.8 (9.4)	36.7 (9.5)	40.2 (9.0)	2.94	0.004 *
Achieved more than primary education, %	62.7	50.0	71.6	12.21	<0.001 *
Married, %	75.4	70.2	79.1	2.59	0.11
Employed, %	74.6	43.3	96.6	91.8	<0.001 *
Urban residence, %	57.1	60.6	54.7	0.85	0.36
Tamil speaker, %	14.3	8.7	18.2	4.59	0.03 *
Telugu speaker, %	80.2	85.6	76.4	3.27	0.07
Heterosexual, %	96.0	99.0	93.9	4.20	0.04 *
<i>Substance use variables</i>					
Current alcohol use, %	18.3	1.0	30.4	35.49	<0.001 *
Injection drug use, %	0.8	1.0	0.7	0.06	0.80
<i>Psychosocial conditions</i>					
Probable depression, %	19.8	15.4	23.0	2.21	0.14
Childhood sexual abuse (CSA), %	3.2	0	5.4	5.81	0.02 *
Intimate partner violence (IPV), %	4.4	4.8	4.1	0.08	0.77
Any psychosocial condition (depression, CSA, IPV), %	24.2	19.2	27.7	2.39	0.12
At least one psychosocial condition and current alcohol use, %	7.1	0	12.2	13.62	<0.001 *

* p < 0.05

Table 2
Unadjusted factors associated with psychosocial conditions, by gender

Characteristic	Women (n=104), Odds Ratio (95% CI)	Men (n=148), Odds Ratio (95% CI)
Age, y	1.00 (0.95-1.06), p=0.93	0.98 (0.94-1.02), p=0.43
Achieved more than primary education (vs. other)	0.78 (0.29-2.08), p=0.62	1.11 (0.50-2.49), p=0.80
Married (vs. unmarried)	0.74 (0.26-2.09), p=0.57	1.13 (0.46-2.78), p=0.79
Employed (vs. unemployed)	0.85 (0.31-2.29), p=0.74	0.24 (0.04-1.50), p=0.13
Urban residence (vs. rural)	0.45 (0.17-1.22), p=0.12	0.72 (0.35-1.48), p=0.37
Tamil speaker (vs. other)	1.22 (0.23-6.38), p=0.81	2.54 (1.07-6.04), p=0.04 *
Current alcohol use (vs. no current alcohol use)	Omitted due to low prevalence	2.32 (1.09-4.94), p=0.03 *

*
p < 0.05