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SEX PRACTICES AND KNOWLEDGE ABOUT HIV/AIDS AMONG DRUG USERS IN A LOW-INCOME URBAN COMMUNITY OF COSTA RICA

PRÁCTICAS SEXUALES Y CONOCIMIENTO SOBRE EL VIH/ SIDA ENTRE USUARIOS DE DROGAS EN UNA COMUNIDAD URBANA DE BAJOS INGRESOS EN COSTA RICA

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Abstract

HIV/AIDS transmission among drug users is associated with education, sex practices and substance use. This study examined 159 drugs users' knowledge, beliefs and sex behavior related to HIV/AIDS risk in Costa Rica. Results showed considerable use of marihuana, alcohol, crack and cocaine and a very low lifetime incidence of other drugs. All substance use patterns were higher than national averages. Respondents showed a high level of knowledge about HIV/AIDS transmission and prevention. However, there did not seem to be a relationship between knowledge and practice. Unprotected sex was common and having an HIV/AIDS test was not a regular practice. Knowledge about HIV/AIDS is not a determinant factor for condom use among this group. It is concluded that having the proper knowledge about transmission and prevention does not guarantee safe sex practices. Further research and public health evidence based practices for HIV/AIDS prevention should target drug user population.

Keywords: Central America, Costa Rica, Drug Use, HIV/AIDS, Sexual Practices.

Resumen

La transmisión del VIH/SIDA entre consumidores de drogas se asocia con factores como, educación, prácticas sexuales y consumo de sustancias. Este estudio examinó los conocimientos 159 usuarios de drogas, las creencias y el comportamiento sexual relacionado con el riesgo de VIH / SIDA en Costa Rica. Los resultados mostraron un uso considerable de marihuana, alcohol, crack y cocaína y una incidencia muy baja de otras drogas. Todos los patrones de consumo de sustancias fueron más altos que los promedios nacionales. Los encuestados mostraron un alto nivel de conocimiento sobre la transmisión y prevención del VIH/SIDA. Se concluye que el tener el conocimiento adecuado sobre la transmisión y prevención no garantiza las prácticas de sexo seguro. Nuevas investigaciones y prácticas basadas en la evidencia de salud pública para la prevención del VIH / SIDA deben dirigirse población de usuarios de drogas

Palabras clave: América Centra, Costa Rica, Uso de drogas, HIV/SIDA, Prácticas sexuales.

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In the last decade the HIV epidemic has escalated in Central America. The highest prevalence rates in the region are registered in the urban areas and are higher among men who have sex with men (MSM) (UNAIDS, 2010). Central America is the most affected sub region of Latin America; Honduras and Guatemala account for the majority of the regional cases (Bastos, Cáceres, Galvão, Veras, & Castilho, 2008; Soto et al., 2007; UNAIDS, 2009). Although efforts to reduce the epidemic in both countries have been made, problems remain. Cultural and structural factors, joined by limited local authority response to prevent infection and provide treatments, are still challenges (Cohen, 2006a, 2006b). The main transmission mode is unprotected sex, affecting not only vulnerable risk groups including MSM and sex workers, but also a wider population which includes women and male heterosexuals.

The first reported HIV/AIDS case in Costa Rica was in 1983. According to official numbers, from 2002-2010 there were 2640 new HIV cases registered in the country. In Costa Rica in 2011 there was a total of 488 new cases with a rate of 10,57 per 100,000, the capital city of San José proper had the highest number of new cases (Ministerio de Salud, 2013). Cases are more common in urban areas; however, due to population mobility, border regions have been identified as high risk locations affecting mostly sexual workers (Goldenberg, Strathdee, Perez-Rosales, & Sued, 2012; The World Bank, 2006). Costa Rica HIV cases have risen over the decade from 8.6 in 2002 to 14.7 incidence in 2012 (Ministerio de Salud, 2013); however, AIDS cases remain stable as a result of an effective retroviral HAART treatment response from health authorities (Nattrass, 2008; Wheeler et al., 2001). As prevention strategy since in 1998, the general HIV/AIDS law established that condoms are distributed through the public health system (Ley General del VIH/SIDA de la República de Costa Rica., 1998). Access and privacy are still barriers for more regular HIV/AIDS testing (OPS, 2004). While the general public health response to HIV/AIDS has controlled the rise on the incidence of AIDS cases, additional measures are needed to control the future spread of HIV.

Costa Rica HIV/AIDS research has focused on traditionally marginalized and stigmatized groups. The epidemic has been associated with risk populations such as, sexual workers, MSM and participants in sexual tourism. Earlier studies indicated that the general population had knowledge about HIV/AIDS prevention (Downe, 1997; Mata, Ramírez, & Quesada, 1995). A National Survey of Sexual and Reproductive Health showed both, men (86.5%) and women (86.3%), knew condom use to be an effective way of preventing HIV/AIDS transmission. Condom use was higher among men than women, and more frequent use of condom was found among younger age groups and people with higher levels of education (Ministerio de Salud, 2011). Between 2002-2010, HIV transmission affected mostly men (75%) between 25-35 years old. (Ministerio de Salud, 2012). A previous survey among MSM showed 56% had sex under the effects of alcohol and that 68.7% had used an illegal drug in the last year (Ministerio de Salud, 2010a). Both surveys showed sample groups had a good level on information about HIV/AIDS. Factors for not practicing safe sex are related to access to condoms or beliefs regarding their use.

The Costa Rican National Institute for Drug Dependence (IAFA) keeps statistics on substance use, and also provides prevention and treatment services. The 2010 Costa Rica National Survey for Drug Use showed a decrease in the use of alcohol and a rise, both in urban and rural areas, in the number of marijuana, cocaine and crack users from the previous surveys in 1995 and 2006 (IAFA, 2006, 2012). In the national survey no injecting drug users were found. Other drugs use, except for prescription drugs, remains stable. There is no recent published research on the association with HIV/AIDS knowledge and sexual behaviors of drug users in Costa Rica (IAFA, 2007, 2011). Social conditions are determinant factors of drug and substance abuse (Galea, Nandi, & Vlahov, 2004). Identified local risk factors for drug dependence are peer pressure, economic and social conditions, family and community isolation and violent social contexts (Dormitzer et al., 2004; Granados Hernández et al., 2009). These factors could be greater in rural areas than in urban areas because of higher unemployment rates, rate of school dropout, and poorer social development conditions (Sandi, Diaz, & Uglade, 2002). Substance abuse policy in Costa Rica has not targeted high risk of HIV/AIDS infection groups for prevention.

Drug use and HIV/AIDS are considered dual epidemics in many countries. Escalation of illicit drug use is one of the major factors in the spread of HIV (Beyrer et al., 2010). Traditionally drug users represent a high risk group for HIV infection not only because of habits and behavior but also because of unsafe sex practices resulting from drug use (Aceijas, Stimson, Hickman, & Rhodes, 2004; Booth, Kwiatkowski, & Chitwood, 2000; Edlin et al., 1994). The use of illicit drugs and alcohol plays an important role in risks for sexually transmitted infections (Kalichman, Cain, Zweben, & Swain, 2003). For instance, inaccurate knowledge about transmission may be a barrier for drug users testing for HIV/AIDS (Bertoni et al., 2011). Risk awareness is related to education level, local culture and previous tobacco and alcohol consumption patterns (Bejarano et al., 2011). Also compliance with HIV treatment is negatively associated with illicit drug consumption often complicated by social conditions such as incarceration, low income and housing problems (Milloy et al., 2012). Self-concept has been found to be a predictor for risky sexual practices among high educated population (Espada, Antón, & Torregrosa, 2008). Although IDUs are often considered

to be the riskier group, the combination of other substance abuse an unsafe sex practices and ought not to be overlooked or underestimated.

Among sexually active persons, condom use is the most effective way to prevent HIV/AIDS transmission. Misconceptions on the way of preventing transmission among active drug users cause false personal strategies of prevention. While some users may have knowledge about prevention while at the same time, their behavior is also influenced by myths and beliefs associated with HIV/AIDS (Lisa R Metsch, McCoy, Miles, & Wohler, 2004). Negative attitudes and beliefs regarding condom use are common among drug users (Mizuno et al., 2007). Condom availability and, regular condom use habit are determinant factors for safe sex practices (Song et al., 2009; Stacy, Stein, & Longshore, 1999); though, there are other factors that affect condom use like trusting the sexual partner, physical appearance, culture stigmatization and social influence (Marston & King, 2006). Research has shown that drug users are capable of and interested in safe sexual risk practices (LisaR. R Metsch, McCoy, Wingerd, & Miles, 2001). Condom use also is a leading factor for HIV/AIDS prevention among drug users.

Low income neighborhoods in Latin America are considered vulnerable population where risk of infection increases (Cáceres et al., 2008). Drug consumption is associated with high-risk sexual behaviors and reported STIs among other Latin American risk groups (Gálvez-Buccollini, DeLea, Herrera, Gilman, & Paz-Soldan, 2009). Research for hidden populations is difficult to achieve in low income urban communities (Jenkins, 2011). People feel threatened by or fearful of giving personal drug use information. Associated sexual risk factors such as sexual orientation and prostitution present challenges for research among drug-using risk populations (Ballester, Salmerón, Gil, & Gómez, 2012). Gaining information about drug behavior outside of clinics or health system statistics is more difficult. Our analysis below about drug users' beliefs and behavior toward HIV/AIDS addresses key factors in the public health agenda for Costa Rica. No other Costa Rican studies in relation to substance use and HIV/AIDS have been developed in the last decade. Information regarding the sexual practices in the daily routine of a community of drug users provides evidence to consider specific HIV/AIDS strategies for drug using risk groups. This paper describes the behavior and sexual practices of drug users and their perceptions on HIV/AIDS transmission.

METHOD

Sample

A total of 161 answered questionnaires were obtained; two were excluded because of missing data leaving 159 surveys for analysis. A brief screening was performed to insure eligibility. In order to participate in the study, individuals were required to be at least 18 years old and to have used an illegal drug within the last three months.

Procedure

Prior to enrollment of study participants in September, 2005, several visits to the community of Los Guido, as well as the local health center and EBAIS (Equipos Básicos de Atención Integral en Salud), were made in advance in order to gain knowledge of the community, introduce the study to the community, and establish contacts with local people and agencies. The study team received support from local churches and neighborhood organizations. Three interview sites were set up in a local church public facility within the community. Recruitment of participants was initiated by study staff members conducting outreach throughout the community. Snowball sampling techniques were used and participants were asked to refer other people for possible inclusion in the study (Watters & Biernacki, 1989). After arriving at the interview site, each participant was taken to a separate room where confidentiality could be maintained. The participants were informed of the scientific purpose of the investigation and anonymity of the information to be given. A written informed consent was read to each participant in presence of a witness and participants were given a copy. After oral agreement with and signing the informed consent, the study questionnaire was administered by a trained interviewer. Each session lasted approximately 40 minutes. Prior to the beginning of the interview process, the study had been approved by the ethics committee and Internal Review Board (IRB) of the University of Costa Rica and the University of Miami.

Instrument

Interview topics included demographics, health, drug use history, sexual behavior, condoms, HIV/AIDS knowledge and attitudes, violence and immigration and were adapted from an instrument developed by the Comprehensive Drug Research Center at the University of Miami, which, in turn, had been composed by using constructs from validated instruments, previously used for crack and heroin studies (Weatherby, Needle, & Cesari, 1994).

Analysis

Data were entered into a SPSS database for analysis. Descriptive statistics were used to determine relationships

among variables. No other statistics techniques were used to data interpretation.

Table 1. Sample demographics (N=159)

		%
Sex	Men	45.9
	Women	54.1
Nationality	Costa Rican	81.8
	Nicaraguan	17.0
	Other	1.2
Age	18 to 30	68.6
	31 and above	31.5
Employment status	Full-time work	17.0
	Part time/Occasional work	32.7
	Unemployed	37.7
	Other income	3.1
	Housewife/Student	9.4
Education	8th Grade or less	68.5
	9th Grade or more	31.4
Marital status	Single	57.2
	Legal Married	11.3
	Living as married	23.9
	Separated/Widow/Other	7.6
Years living in Los Guido	Less or = 5	64.2
	6 to 10	10.7
	11 to 15	4.4
	16 or more	20.8
Main source of income	A Job	38.4
	Spouse, Partner or Family	21.4
	Occasional Jobs	19.5
	No Income	20.7
Living arrangement	House or apartment own	52.8
	Rented house or apartment	30.4
	Slums/shanties	14.9
	Other place	1.8
People living in the same household	1 to 3	31.4
	4 to 7	53.5
	8 or more	15.1

RESULTS

Drugs and substance use

The lifetime substance use history among the total sample (N=159) shows the predominant use of marihuana and alcohol among respondents. Almost all had used marihuana 96.9% and alcohol 96.3% in their lifetime while over half had used crack 69.4% and/or powder cocaine 67.5%. The lifetime use of other drugs was lower, 25% had used barbiturates, 22.5% illegal prescription drugs, club drugs 6.9%, opiates 3.7% and injected drugs 7.5%.

Use in the last thirty days was similar to lifetime usage patterns. The principal drugs were marihuana 87.4% and alcohol 84.9% followed by crack 52.2% and powder cocaine 37.1%. The use of other substances was lower, prescriptions drugs 8.8%, barbiturates 8.8%, club drugs 1.3%, opiates 1.3% and injected drugs.

Sexual practices

All of the participants had vaginal sex in their lifetime. The average age of first vaginal sex episode was 14 years (SD=2.5). The mean number of sex partners in lifetime was 15 (SD= 19). More than three quarters had vaginal sex in the last thirty days 77.4%, only 24.6% of those having sex reported using a condom.

The mean number of vaginal sexual relations in the last thirty days was 7 (SD=12); however, the mean number of condom use was 1.6 (SD=3.5). The principal self-reported reasons for not using a condom were don't like them 56.4% and partner doesn't like them 32.9%. Other important reasons for non-use are trust, don`t believe could get HIV from partner 24.7% or don't believe can transmit HIV to their partner 16.5%.

In the last thirty days, half of the participants had vaginal sex with their primary partner 52.2%. A smaller number had vaginal sex with casual partner 27%, while few had traded sex for drugs or money 8.8%, or drugs or money for sex 2.5%.

Anal sex also was frequent, 38.4% declared ever having anal sex in their lifetime, with a mean of 5.2 persons (SD=8.2). However, these numbers are smaller when asked about anal relations in the last thirty day, 8.8% of the people had practiced anal sex. Among participants who declared having anal relations in the last thirty days, 78% declared using condom.

Beliefs and knowledge HIV/AIDS

Participants' knowledge and beliefs about HIV/AIDS transmission is presented in Table 2. Nearly all 96.9% of the participants were aware they could become infected

with HIV by having unprotected sex with someone who had already been infected, and 89.9% knew that a woman who had HIV could transmit the disease to her unborn child. Likewise, 86.8% understood that MSM can transmit the virus. Half believed that having sex with only one person precluded transmission of the virus.

There was also a sizable proportion of respondents who believed one could acquire HIV by eating in a restaurant where the cook has HIV 61.1%, using public toilets 44.7%; while 54.1% agreed that touching someone with HIV would not transmit the virus. Few (1.3%) believed one could get HIV by donating blood. However, 67.9% believed that using a latex condom was an effective way to prevent HIV transmission. Likewise, over three-quarters of the respondents thought that if a sex partner had an undetectable viral load, safe sex was not so important.

The respondents were inconsistent regarding fear of HIV, Nine in ten agreed they were less concerned with HIV since new medication became available and 88.7% believed that safe drug use was not so important because of the new medications. However, 85.5% believed that in spite of the medications available, HIV was "still just as scary".

Substance use and attitudes toward HIV/AIDS is presented in Table 3. Substance used makes no significant difference regarding the attitudes and behavior toward viral transmission. A majority believed they had a chance of contracting HIV/AIDS; however, very few had any test in the last three months. Just half of respondents used condoms when they had the last vaginal sexual relation.

Table 2. Knowledge and beliefs of HIV/AIDS

	(%)
A person can get HIV from having unprotected sex with an infected person *	96.9
A woman with HIV can pass it on to her unborn child *	89.9
Safe drug use is not so important because of new medications	88.7
A person can get HIV from a man who has sex with other men *	86.8
Now that I know medicine for HIV is available, I am not so worried	91.2
Even though there are medications, HIV is still just as scary *	85.5
If a person tests positive, it means he has HIV *	82.4
If a person has an undetectable load, safe sex is not so important	78.6
Cleaning works with water protects against HIV	81.1
HIV isn't so bad now that we have medicine	78.0
HIV is not the threat it used to be	69.8
Using latex condom is an effective way to prevent HIV *	67.9
A person cannot get HIV from oral sex	57.9
HIV is controllable like diabetes	58.5
A person can get HIV by eating in a restaurant where cook has HIV	61.1
Any person having sex with just one other person can't get HIV	50.9
A person cannot get HIV from touching another person with HIV	54.1
A person can get HIV from public toilets	44.7
Cleaning works with bleach is effective way to kill HIV virus *	16.4
Now there are medicines, I am not as worried about sharing works	8.2
A person can get HIV by donating blood	1.3

* Correct Statements

Table 3. Substance, condom use and HIV/AIDS attitudes (N = 159)

Substance used last thirty days	Had a HIV test in the last three months	Never use condom when having vaginal sex	Believes that has a personal chance to get HIV	Knows using a latex condom is an effective way to keep from getting HIV during sex	Knows a person can get HIV from having unprotected sex with someone who has HIV
Crack n = 131	17.6%	48%	55%	67.9 %	96.9%
Cocaine n=112	19 .6%	47.3%	54.5%	67.9%	95.5%
Marihuana n=149	18.9%	45.8%	57.3%	66.9%	96.5%
Alcohol n=142	16.2%	48.7%	57.2%	66%	97.9%

DISCUSION

This study targets drug users in their daily living conditions, a methodological practice that needs to be used to understand and establish a prevention programming for HIV/AIDS and drug use among high risk populations. Research of drug users in communities used for this study was possible because of the joint efforts of stakeholders within the community and the snow balling strategies to locate the drug-using populations.

Lifetime drug use corresponds with other national surveys completed in Costa Rica. As in the national survey, (IAFA, 2012) there is a low percentage of IDU's. However, there is a high prevalence of use in the last thirty days of marihuana 87.4%, crack use 52.2% and cocaine 37.1%. Among sample, drug use in the last thirty days is considerable higher than the national average prevalence in the 2006, (marihuana 0.6%, crack 0.1% cocaine 0.1%) and 2010 (marihuana 2.0%, crack 0.2% cocaine 0.6%) national surveys (IAFA, 2012). The use of illegal drugs, marihuana and crack, and less cocaine is probably related to the low cost and accessibility in the community. The use of alcohol in the last thirty days is 87.4%, compared to the 24.3% of the general population as reported by the National Survey. It is important to point out that the legal age for drinking in Costa Rica is 18 years old. There is a risk pattern of substance abuse reported with in this sample, considerably higher when compared to national data.

In regard to HIV/AIDS knowledge, this study showed drug users in the sample had a good level of information regarding transmission and prevention. It is however contradictory that awareness about virus transmission does imply regular safe sex practices. Almost fifty percent of those who had vaginal sex did not use condom in their last sexual encounter. The national reproductive health survey shows that the population of this sample and the national population had a similar behavior in condom use in the last thirty days (Ministerio de Salud, 2011). Moreover, above fifty percent believed that they have a chance of infection of HIV/AIDS; while less than twenty percent had any HIV/AIDS test in the last three months. Causes for unsafe sex practice are related to the confidence of participants to their sexual partners not been HIV positive, and a low risk perception of becoming infected with HIV. Further research needs to asses risk factors of being under the effects of drugs when having a sexual relationship. This particular group of drug users, despite knowing effective prevention methods, does not regularly practice safe sex.

Availability of condoms is a factor to be considered, as low income drug users may not have regular access to condoms or money to buy them. Moreover, national law establishes condom use as part of the prevention strategy. Condoms are distributed through the public health system; however is important to analyze and evaluate the distribution and access to condoms, particularly for high risk groups. It is uncertain if, how and why risk groups do or don't have access to condoms from the national health system. No local programs have been identified for this cause. Costa Rica female sexual workers showed that acceptability in the use of female condom would allow them empowerment over sexual relationships, yet today it is not available for the population (Madrigal, Schifter, & Feldblum, 1998). Prevention strategies, if implemented, should focus not only in providing concrete scientifically based information, but also in providing prevention strategies proven to work (Booth, Lehman, Dvoryak, Brewster, & Sinitsyna, 2009; McCoy, De Gruttola, Metsch, & Comerford, 2011; Stacy et al., 1999; Williams et al., 2011)

Research on drug users out of the clinical treatment condition is not considered by health authorities in the HIV/AIDS prevention context. Current HIV National Strategic Plan 2011-2015 (Ministerio de Salud, 2010b) recognizes drug users as an important vulnerable group; however, they plan only to advise the promotion of prevention campaigns among adolescents in context of treatment conditions at the National Institute on Alcoholism and Drug Dependence (IAFA). Other reported interventions are life skills national program for school children, F-17 initiative and DARE, all educational and prevention strategies that are focused on children and adolescents (Ministerio de Salud, 2012). However, interventions for drug users in community settings are not available, neither for HIV/AIDS screenings or prevention programs.

Health workers should take note of the different characteristics and vulnerability drug users exhibit as these often result in poor services due to bias and stigma from health workers (Mosack, Abbott, Singer, Weeks, & Rohena, 2005). From a human rights perspective, drug users also should be part of the prevention strategy. Prejudice and stigma may also deprive them from basic prevention and treatments (Jürgens, Csete, Amon, Baral, & Beyrer, 2010). Also, the lack of recognition of the cultural limitations, can affect the effectiveness of programs and campaigns (Singer, Scott, Wilson, Easton, & Weeks, 2001). Moreover, there should be a discussion if and how drug users should be targeted as a risk group, despite the low absence of IDU. public health response for the different risk groups, drug users, sexual workers and MSM, all require appropriate public health policies. Rapid HIV testing for screening and regular condom access through local health centers could be alternatives for these groups.

There is need for more HIV AIDS prevention programs for Latin America (Bastos et al., 2008). Prevention programs based only on reported attitudes and cognition about the infection and increase amount of information

about prevention and sexual risk do not necessarily translate into a reduction of HIV/AIDS transmission (Simoni, Nelson, Franks, Yard, & Lehavot, 2011). Moreover, knowledge about the possible ways of HIV/AIDS transmission without effective programs leading to lower risks and safer practices are insufficient to prevent the spread of HIV/AIDS. Prevention strategies may include not only education and behavioral prevention programs but also a strong epidemiological screening control which includes regular HIV/AIDS testing among risky populations (Padian et al., 2011).

In this descriptive study, no hypotheses were generated or tested. Also, because a random study cannot be done among hidden populations such as drug users, the results cannot be generalized to a larger population.

REFERENCES

Aceijas, C., Stimson, G. V, Hickman, M., & Rhodes, T. (2004). Global overview of injecting drug use and HIV infection among injecting drug users. AIDS, 18(17), 2295–2303. Retrieved from http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00002030-200411190-00010

Ballester, R., Salmerón, P., Gil, M. D., & Gómez, S. (2012). Sexual Risk Behaviors for HIV Infection in Spanish Male Sex Workers: Differences According to Educational Level, Country of Origin and Sexual Orientation. AIDS and behavior, 16(4), 960–8. doi:10.1007/s10461-011-9964-4

Bastos, F. I., Cáceres, C., Galvão, J., Veras, M. A., & Castilho, E. A. (2008). AIDS in Latin America: assessing the current status of the epidemic and the ongoing response. International journal of epidemiology, 37(4), 729–37. doi:10.1093/ije/dyn127

Bejarano, J., Ahumada, G., Sánchez, G., Cadenas, N., Marco, M. de, Hynes, M., & Cumsille, F. (2011). Perception of risk and drug use: An exploratory analysis of explanatory factors in six Latin American countries. The Journal of International Drug, Alcohol and Tobacco Research, 1(1), 9–17.

Bertoni, N., Singer, M., Silva, C. M., Clair, S., Malta, M., & Bastos, F. I. (2011). Knowledge of AIDS and HIV transmission among drug users in Rio de Janeiro, Brazil. Harm reduction journal, 8(1), 5. doi:10.1186/1477-7517-8-5

Beyrer, C., Malinowska-Sempruch, K., Kamarulzaman, A., Kazatchkine, M., Sidibe, M., & Strathdee, S. A. (2010). Time to act: a call for comprehensive responses to HIV in people who use drugs. Lancet, 376(9740), 551–63. doi:10.1016/S0140-6736(10)60928-2

Booth, R. E., Kwiatkowski, C. F., & Chitwood, D. D. (2000). Sex related HIV risk behaviors: differential risks among injection drug users, crack smokers, and injection drug users who smoke crack. Drug and Alcohol Dependence, 58(3), 219–26. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10759032

Booth, R. E., Lehman, W. E. K., Dvoryak, S., Brewster, J. T., & Sinitsyna, L. (2009). Interventions with injection drug users in Ukraine. Addiction, 104(11), 1864–1873. doi:10.1111/j.1360-0443.2009.02660.x

Cáceres, C. F., Konda, K. a, Salazar, X., Leon, S. R., Klausner, J. D., Lescano, A. G., … Coates, T. J. (2008). New populations at high risk of HIV/STIs in low-income, urban coastal Peru. AIDS and behavior, 12(4), 544–51. doi:10.1007/s10461-007-9348-y

Cohen, J. (2006a). Struggling to Deliver on Promises and Assess HIV's Spread. Science, 313(5786), 480–481. doi:10.1126/science.313.5786.480

Cohen, J. (2006b). Why So High? A Knotty Story . Science , 313 (5786), 481–483. doi:10.1126/science.313.5786.481

Dormitzer, C. M., Gonzalez, G. B., Penna, M., Bejarano, J., Obando, P., Sanchez, M., … Anthony, J. C. (2004). The PACARDO research project: youthful drug involvement in Central America and the Dominican Republic. Revista panamericana de salud pública = Pan American journal of public health, 15(6), 400–16. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15272987

Downe, P. (1997). Constructing a complex of contagion: the perceptions of AIDS among working prostitutes in Costa Rica. Soc Sci Med, 44(10)(May), 1575–83.

Edlin, B. R., Irwin, K. L., Faruque, S., McCoy, C. B., Word, C., Serrano, Y., … Holmberg, S. D. (1994). Intersecting Epidemics -- Crack Cocaine Use and HIV Infection among Inner-City Young Adults. New England Journal of Medicine, 331(21), 1422–1427. doi:10.1056/NEJM199411243312106

Espada, J., Antón, F., & Torregrosa, M. S. (2008). Autoconcepto y búsqueda de sensaciones como predictores de conductas sexuales bajo los efectos de las drogas en universitarios. Salud y drogas, 8(2), 137–155. Retrieved from http://haaj.org/index.php?journal=haaj&page=article&op=view&path%5B%5D=59

Galea, S., Nandi, A., & Vlahov, D. (2004). The social epidemiology of substance use. Epidemiologic reviews, 26, 36–52. doi:10.1093/epirev/mxh007

Gálvez-Buccollini, J. A., DeLea, S., Herrera, P. M., Gilman, R. H., & Paz-Soldan, V. (2009). Sexual behavior and drug consumption among young adults in a shantytown in Lima, Peru. BMC public health, 9, 23. doi:10.1186/1471-2458-9-23

Goldenberg, S. M., Strathdee, S. A., Perez-Rosales, M. D., & Sued, O. (2012). Mobility and HIV in Central America and Mexico: a critical review. Journal of immigrant and minority health / Center for Minority Public Health, 14(1), 48–64. doi:10.1007/s10903-011-9505-2

Granados Hernández, M., Brands, B., Adlaf, E., Giesbrecht, N., Simich, L., & Wright, M. da G. M. (2009). Perspectiva crítica de la familia y de personas cercanas sobre factores de riesgo familiares y comunitarios en el uso de drogas ilícitas en San José, Costa Rica. Revista Latino-Americana de Enfermagem, 17(spe), 770–775. doi:10.1590/S0104-11692009000700003

IAFA. (2006). Consumo de Drogas en Costa Rica resultados de la encuesta nacional 2006. San José, Costa Rica. Retrieved from http://www.iafa.go.cr/investigaciones/epidemiologica/

IAFA. (2007). Investigaciones sobre Alcoholismo y Farmacodependencia. Costa Rica, 2001-2005. San José, Costa Rica. Retrieved from http://www.iafa.go.cr/investigaciones/epidemiologica/

IAFA. (2011). Investigaciones sobre Alcoholismo y Farmacodependencia. Costa Rica, 2006-2010. San José, Costa Rica. Retrieved from http://www.iafa.go.cr/investigaciones/epidemiologica/

IAFA. (2012). Consumo de drogas en Costa Rica. Encuesta Nacional 2010. San José, Costa Rica. Retrieved from http://www.iafa.go.cr/investigaciones/epidemiologica/

Jenkins, R. A. (2011). Recruiting Substance-Using Men Who Have Sex With Men into HIV Prevention Research: Current Status and Future Directions. AIDS and behavior. doi:10.1007/s10461-011-0037-5

Jürgens, R., Csete, J., Amon, J. J., Baral, S., & Beyrer, C. (2010). People who use drugs, HIV, and human rights. Lancet, 376(9739), 475–85. doi:10.1016/S0140-6736(10)60830-6

Kalichman, S. C., Cain, D., Zweben, A., & Swain, G. (2003). Sensation seeking, alcohol use and sexual risk behaviors among men receiving services at a clinic for sexually transmitted infections. Journal of Studies on Alcohol, 64(4), 564–569. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12921199

Ley General del VIH/SIDA de la República de Costa Rica. (1998). San José, Costa Rica.

Madrigal, J., Schifter, J., & Feldblum, P. (1998). Female condom acceptability among sex workers in Costa Rica. AIDS education and prevention official publication of the International Society for AIDS Education, 10(2), 105–13.

Marston, C., & King, E. (2006). Factors that shape young people's sexual behaviour: a systematic review. Lancet, 368(9547), 1581–6. doi:10.1016/S0140-6736(06)69662-1

Mata, L., Ramírez, G., & Quesada, J. (1995). HIV/AIDS in Costa Rica: epidemiological and sociological features, 1993. Cellular and molecular biology, 41(Suppl 1:S53-63.).

McCoy, C. B., De Gruttola, V., Metsch, L., & Comerford, M. (2011). A comparison of the efficacy of two interventions to reduce HIV risk behaviors among drug users. AIDS and behavior, 15(8), 1707–14. doi:10.1007/s10461-011-9975-1

Metsch, Lisa R, McCoy, C. B., Miles, C. C., & Wohler, B. (2004). Prevention myths and HIV risk reduction by active drug users. AIDS education and prevention : official publication of the International Society for AIDS Education, 16(2), 150–9. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15134123

Metsch, LisaR. R, McCoy, C. B., Wingerd, J., & Miles, C. C. (2001). Alternative Strategies for Sexual Risk Reduction Used by Active Drug Users. AIDS and Behavior, 5(1), 75–84. doi:10.1023/A:1009563506385

Milloy, M.-J. S., Marshall, B. D. L., Kerr, T., Buxton, J., Rhodes, T., Montaner, J., & Wood, E. (2012). Social and structural factors associated with HIV disease progression among illicit drug users: a systematic review. AIDS (London, England), 26(9), 1049–63. doi:10.1097/QAD.0b013e32835221cc

Ministerio de Salud. (2010a). Prevalencia de VIH, sífilis y comportamiento de riesgo en hombres que tienen sexo con hombres del Gran Área Metropolitana de Costa Rica. San José, Costa Rica. Retrieved from http://www.cipacdh.org/pdf/DVS_prevalencia_VIH_sifilis_comportamiento.pdf

Ministerio de Salud. (2010b). Plan Estratégico Nacional del VIH 2011-2015. San José, Costa Rica. Retrieved from http://www.ministeriodesalud.go.cr/index.php/menu-superior-sobre-ministerio-ms/menu-superiores-sobre-ministerio-politicas-planes-salud-ms/doc_download/963-plan-estrategico-nacional-pen-vihsida-2011-2015

Ministerio de Salud. (2011). Informe de los resultados de la Encuesta de Salud Sexual y Reproductiva 2010. San José, Costa Rica. Retrieved from http://www.ministeriodesalud.go.cr/index.php/inicio-menu-principal-centro-de-informacion-ms/inicio-menu-principal-centro-informacion-publicaciones-ms/doc_download/1168-informe-de-resultados-encuesta-nacional-de-salud-sexual-y-reproductiva-2010

Ministerio de Salud. (2012). Informe Nacional Sobre los Avances en la Lucha Contra el SIDA 2010-2011 (pp. 1–90). San José, Costa Rica. Retrieved from http://www.unaids.org/es/dataanalysis/monitoringcountryprogress/progressreports/2012countries/file,68499,es..pdf

Ministerio de Salud. (2013). Estadísticas de VIH, SIDA y Mortalidad Por SIDA, Costa Rica 2002-2012. San José, Costa Rica. Retrieved from http://www.ministeriodesalud.go.cr/index.php/informacion/doc_details/1284-estadisticas-de-vih-y-sida-costa-rica-2002-2011

Mizuno, Y., Purcell, D. W., Latka, M. H., Metsch, L. R., Gomez, C. A., & Latkin, C. A. (2007). Beliefs that condoms reduce sexual pleasure-gender differences in correlates among heterosexual HIV-positive injection drug users (IDUs). Journal of urban health: bulletin of the New York Academy of Medicine, 84(4), 523–36. doi:10.1007/s11524-007-9162-x

Mosack, K. E., Abbott, M., Singer, M., Weeks, M. R., & Rohena, L. (2005). If I didn't have HIV, I'd be dead now: illness narratives of drug users living with HIV/AIDS. Qualitative health research, 15(5), 586–605. doi:10.1177/1049732304271749

Nattrass, N. (2008). Are country reputations for good and bad leadership on AIDS deserved? An exploratory quantitative analysis. Journal of Public Health, 30(4), 398–406. doi:10.1093/pubmed/fdn075

OPS. (2004). La situación del VIH/SIDA en Costa Rica (p. 48). San José, Costa Rica.

Padian, N. S., McCoy, S. I., Karim, S. S. A., Hasen, N., Kim, J., Bartos, M., … Cohen, M. S. (2011). HIV prevention transformed: the new prevention research agenda. Lancet, 378(9787), 269–78. doi:10.1016/S0140-6736(11)60877-5

Perspectiva crítica de la familia y de personas cercanas sobre factores de riesgo familiares y comunitarios en el uso de drogas ilícitas en San José, Costa Rica. (2009). Revista Latino-Americana de Enfermagem, 17(spe), 770–775. doi:10.1590/S0104-11692009000700003

Sandi, L., Diaz, A., & Uglade, F. (2002). Drug use and associated factors among rural adolescents in Costa Rica. Substance use & misuse, 37(5-7), 599–611. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12117062

Simoni, J. M., Nelson, K. M., Franks, J. C., Yard, S. S., & Lehavot, K. (2011). Are peer interventions for HIV efficacious? A systematic review. AIDS and behavior, 15(8), 1589–95. doi:10.1007/s10461-011-9963-5

Singer, M., Scott, G., Wilson, S., Easton, D., & Weeks, M. (2001). "War Stories": AIDS Prevention and the Street Narratives of Drug Users. Qualitative Health Research, 11(5), 589–611. doi:10.1177/104973201129119325

Song, Y. S., Calsyn, D. a, Doyle, S. R., Dierst-Davies, R., Chen, T., & Sorensen, J. L. (2009). Predictors of condom use among men enrolled in drug treatment programs. AIDS education and prevention : official publication of the International Society for AIDS Education, 21(5), 460–73. doi:10.1521/aeap.2009.21.5.460

Soto, R. J., Ghee, A. E., Nuñez, C. A., Mayorga, R., Tapia, K. A., Astete, S. G., … Multicéntrico, S. T. (2007). Sentinel Surveillance of Sexually Transmitted Infections/HIV and Risk Behaviors in Vulnerable Populations in 5 Central American Countries. J Acquir Immune Defic Syndr, 46(1), 101–111. doi:00126334-200709010-00014

Stacy, A., Stein, J., & Longshore, D. (1999). Habit, Intention, and Drug Use as Interactive Predictors of Condom Use Among Drug Abusers. AIDS and Behavior, 3(3), 231–241. doi:10.1023/A:1025408611916

The World Bank. (2006). Reducing HIV/AIDS Vulnerability in Central America: Costa Rica: HIV/AIDS Situation and Response to the Epidemic. Washington, DC. Retrieved from http://siteresources.worldbank.org/INTHIVAIDS/Resources/375798-1103037153392/CAHIVAIDSCOSTARICAFINAL.pdf

UNAIDS. (2009). AIDS Epidemic Update 2009. Joint United Nations Programme on HIVAIDS UNAIDS and World Health Organization WHO. World Health Organization. Retrieved from http://www.unaids.org/en/KnowledgeCentre/HIVData/EpiUpdate/EpiUpdArchive/2009/default.asp

UNAIDS. (2010). Global report: UNAIDS report on the global AIDS epidemic 2010. Urban Research (Vol. 3, p. 364). UNAIDS. doi:10.1080/17535069.2010.481379

Weatherby, N., Needle, R., & Cesari, H. (1994). Validity of self-reported drug use among injection drug users and crack cocaine users recruited through street outreach. Evaluation and Program …, 17(4), 347–355. Retrieved from http://www.sciencedirect.com/science/article/pii/0149718994900353

Wheeler, D. A., Arathoon, E. G., Pitts, M., Cedillos, R. A., Bu, T. E., Porras, G. D., … Sosa, N. R. (2001). Availability of HIV care in Central America. JAMA : the journal of the American Medical Association, 286(7), 853–60. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11497545

Williams, M., Bowen, A., Atkinson, J. S., Nilsson-Schönnesson, L., Diamond, P. M., Ross, M. W., & Pallonen, U. E. (2011). An assessment of brief group interventions to increase condom use by heterosexual crack smokers living with HIV infection. AIDS Care, 24(2), 220–231. doi:10.1080/09540121.2011.59770