

Street Youths Are the Only High-Risk Group for HIV in a Low-Prevalence South American Country

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Objectives: To measure HIV prevalence in various subpopulations in Bolivia.

Design: In 2002 in Cochabamba, we offered voluntary counseling and testing to homeless street youths, registered and unregistered commercial sex workers, truck drivers, and prisoners. We examined surveillance data of pregnant women and blood donors.

Results: Among street youths over 15, overall HIV prevalence was 3.5% (11/313), higher among those recruited in the street, lower among those recruited in centers for homeless; prevalence was 0.6% (2/334) and 0.5% (1/189) in female registered and nonregistered sex workers, respectively, and below 0.3% in all other groups. All HIV cases were attributed to sexual transmission.

Conclusion: In a low-prevalence setting where intravenous drug use is uncommon, street youths are a threat for the expansion of the HIV epidemic. We argue that HIV prevention in this population requires a comprehensive approach to their health and social problems.

BOLIVIA HAS THE LOWEST human immunodeficiency virus (HIV) prevalence in Latin America, estimated in 2001 at less than 0.1% among adults aged 15 to 49.¹ A few seroprevalence studies have been conducted in various regions and different subpopulations of the country since 1986; most have shown very low or nonexistent HIV prevalence among the populations sampled, and no clear time trend. Notification of HIV/AIDS cases in Bolivia doubled between 2000 and 2001.² Improved reporting probably played a significant role in this increase, which nevertheless caused great concern because Bolivia is surrounded by countries with much higher HIV prevalence and lives in constant fear of following in their tracks. However, whereas intravenous drug use is a major route of transmission in Argentina and Brazil, it accounts for barely 3% of the cases in Bolivia, where transmission is mainly through heterosexual contacts (50%).¹ As in most countries of the

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region, homosexual contacts account for a significant proportion of HIV cases (30% in Bolivia, 25% in Argentina, 27% in Brazil, 35% in Peru¹).

In the context of this concern, we decided to carry out HIV seroprevalence surveys in low- and high-risk groups in the city of Cochabamba (600,000 inhabitants), which has the second-highest prevalence of registered HIV cases in Bolivia.² We particularly tried to reach subgroups potentially at risk and not serosurveyed before in Bolivia.

Materials and Methods

We followed methods recommended by the United Nations Program on HIV/AIDS (UNAIDS) for second-generation HIV-surveillance.³ The study received ethical clearance from the National Health Authorities, and the National STI/HIV/AIDS Programme. We used ELISA tests (Vironostiska HIV Uniform II plus O; Organon Teknika, Boxtel, The Netherlands) to ascertain HIV status. If positive, the test was repeated. If 2 successive ELISA tests were positive, HIV infection was confirmed by Western blot (WB; Bio-Rad, New Lav Blot). Study participants found to be HIV-infected after voluntary counseling and HIV testing (VCT) were referred to specialized services for free medical (CD4 count, cotrimoxazole preventive therapy) and psychological follow-up. Basic information on intravenous drug use and sexual behavior was collected. Neither antiretroviral therapy nor prevention of mother-to-child transmission is presently available in public services in Bolivia.

We used different strategies to contact high-risk groups. In Bolivia, registered commercial sex workers (CSWs) are required to be screened for HIV every 6 months and for other sexually transmitted infections (STI) every 3 months in order not to lose their health certificates and work permit. We included all CSWs attending the only health clinic delivering or renewing health certificates in Cochabamba from July to December 2002 (therefore including by definition all CSWs registered for that 6-month period). According to various sources (police, departmental health services, NGOs), between 300 and 700 CSWs work unregistered in Cochabamba. To reach them, we distributed 270 information leaflets on VCT with the address of the VCT centre in 40 known brothels—80% of brothels registered in town—and to a few CSWs

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TABLE 1. HIV Prevalence Among High-Risk Groups in 2002

	N Tested/Size of Population (%)		HIV+/N Tested % (95% CI)			
			Males		Females	
Prisoners	932/1192	(78)	1/773	0.13 (0.00–0.72)	0/159	0.0 (0.0–2.3)
Truck drivers	408/492	(83)	0/408	0.0 (0.0–0.90)	0/21	0.0 (0.0–16.1)
Sex workers						
Registered	334/334	(100)	1/9	11.1 (0.3–48.2)	2/334	0.6 (0.07–2.14)
Nonregistered	189/270*	(70)	0/0	-	1/189	0.5 (0.0–2.9)
Street youths						
<15y.o.†	223/-		0/192	0.0 (0.0–1.9)	0/31	0.0 (0.0–11.2)
≥15 y.o.						
In a center for the homeless	219/-		3/166	1.8 (0.4–5.2)	2/53	3.8 (0.5–13.0)
In the street	94/-		4/49	8.2 (2.3–19.6)	2/45	4.4 (0.5–15.1)
Total	313/-		7/215	3.3 (1.3–6.6)	4/98	4.1 (1.1–10.1)

*Two hundred seventy leaflets distributed; estimated size of population: 300–700.

†Out of 223 children, 16 were found in the street. There were 466 residents in the centers for homeless street youths during the study period (data per age not available); 426 accepted VCT (91%). It is estimated that an additional 500 people live in the street.

working in the street. Long-distance truck and bus drivers were contacted through 12 professional organizations covering 492 registered drivers (90% of long-distance truck drivers in Cochabamba). All 7 prisons in Cochabamba agreed to participate; there were 1192 inmates during the study period. Street youths (estimated to be between 900 and 1000 in Cochabamba) were approached through nongovernmental organizations or municipality services offering assistance. We visited all centers for homeless street youths. In addition to the 466 persons present on the days these centers were visited for the study, 110 homeless street youths were also recruited directly in the street. We failed, however, to identify an entry point for the homosexual community in Cochabamba.

In 2001 and 2002, the first 1000 pregnant women attending the antenatal clinic of the largest public hospital in Cochabamba were tested for HIV on blood samples taken for another, unrelated purpose. The test was performed without informed consent, anonymously and unlinked. We also present data from screening in the recently established blood bank in Cochabamba. All voluntary blood donors have to agree to VCT; potential donors with a history of STI are excluded from donation.

Exact binomial 95% confidence intervals were computed around prevalences.

Results

A total of 2440 persons in high-risk groups were tested (Table 1); 18 had a first positive ELISA test. Of these, 16 had a positive repeated ELISA test and were also positive on Western blot (predictive positive value of a first positive ELISA test: 88.8%; of 2 successive positive ELISA tests: 100%). Out of 536 homeless street youths tested, 95% were aged less than 25 years. There were 129 females (24.1%; median age: 15 years) and 407 males (75.9%; median age: 18 years). Apart from 1 male patient with missing information, all 15 persons with a confirmed HIV infection in high-risk groups reported multiple sexual partners; none reported intravenous drug use. Among 8 males (out of 9) for whom the information was available, reported sexual contacts were homosexual (3), bisexual (1), and heterosexual (4). The higher seroprevalence was found among older street youths, particularly those recruited directly in the street.

Discussion

We have surveyed a wide range of groups at different risk for HIV infection, but unfortunately we could not identify specific groups of men having sex with men. Suffering high discrimination, these are difficult to access in a relatively small and provincial town like Cochabamba, unlike, for instance, in large towns like Lima⁴ where they represent a larger community, more likely to be better organized and to offer entry points for such a study.

The prevalence data found in low-risk groups routinely used for surveillance confirm very low HIV prevalence in this population and do not suggest any particular trends in recent years. Truck drivers (despite previously documented high-risk behavior and low condom use⁵) and prisoners showed HIV prevalence similar to the general population. High HIV prevalences have been observed among prisoners in Latin-American countries neighboring Bolivia, including Argentina (17%)⁶ and Brazil (22%).⁷ This can reflect a concentration of high-risk groups in prisons and/or transmission inside prisons, due, for instance, to intravenous drug use⁸ or homosexual contacts.⁹ Intravenous drug use is not a problem in the general population or in prisons in Cochabamba, and the fact that spouses and CSWs are allowed to regularly visit inmates might reduce high-risk homosexual behaviors inside prisons. HIV prevalence among female registered CSWs in Cochabamba in 2002 (2/334, 0.6%) is not statistically different from 1997 data (0/230)¹⁰ and is similar to prevalence in female nonregistered CSWs (1/189, 0.5%). There is a variety of reasons why CSWs in Cochabamba are not registered (for instance, being too young to register, unstable place of residence, unwillingness to pay the fees incurred by the regular checkups, even denial of a health certificate after the checkup). However, commercial sex activities spread over a large social and behavioral spectrum, and our sample of unregistered CSWs (mainly those brothel based) might have excluded both ends of this spectrum.

In our survey of homeless street youths, we found a much lower number of females than males. This is common in South America, probably because of alternative strategies open to females such as mothering younger siblings, domestic employment, and prostitution.¹¹ In South America and elsewhere, street youths live lives of extreme personal and social risk, marked by violence and human rights abuses.^{12,13} The fact that they are at high risk for STI has been documented in various settings. Indeed, they become sexually active early in life, and most (if not all) have suffered sexual

TABLE 2. HIV Prevalence Among Low-Risk Groups

Year	HIV(+)/N tested (%; 95% CI)			
	Pregnant women		Blood donors	
2000			2/3694	(0.05%;0.00–0.19)
2001	0/1000	(0.00%; 0.00–0.11)	3/4273	(0.07%; 0.01–0.21)
2002	2/1005	(0.20%; 0.02–0.72)	1/4833	(0.02%; 0.00–0.12)

abuse. To obtain money or food, they may engage in survival sex. Multiple sexual partners, sex under the influence of drugs, anal sex, and same-sex encounters are common.^{11,14–16} A similar picture emerges from the experience of social workers working in the STI clinic and in centers for homeless youths in Cochabamba. These social workers mentioned several cases of sexual abuse within the family as the reason to leave home. They also reported a high level of promiscuity among street youths, frequent use of noninjectable drugs (glue), occasional sex for money, and repeated treatment of STI in youths sometimes as young as 11 years old. A small survey carried out in the STI clinic found 17 out of 149 street youths (11.4%) reacting to an RPR test for syphilis (PROSIN, Ministry of Health, Cochabamba, 2003, unpublished report). At the time of the survey (2002), all social and health workers working with street youths converged in their opinion that intravenous drug use was extremely uncommon in Cochabamba and that it was not a risk factor for transmission of HIV. However, recently (2004) they reported observing a worrying increasing trend in intravenous drug use in this population.

Although the highest HIV prevalence was in homeless youths found in the street, as opposed to those in centers for the homeless, the difference between these 2 populations is not clear cut, because centers for homeless youths host a very heterogeneous population. Indeed, they provide different levels of services. At one end of the spectrum are residential program centers where turnover is very high because youths move in and out as they wish; at the other end are centers providing full-time school education and vocational training, with a more stable population. All HIV cases found among youths in centers for the homeless were in those catering for the most unstable population.

Despite a widely documented high risk for STI, data on HIV seroprevalence among homeless street youths in developing countries are surprisingly scarce. A MEDLINE search over the past 15 years returned only 3 studies: 4 of 20 street girls in Kenya¹⁵ and 4 of 195 (2%) street-based youths in Brazil¹⁷ were found HIV positive. HIV prevalence was 4% among 1460 street youths lodged in security institutes in Argentina¹⁸ (with intravenous drug use as significant risk factor for HIV infection). In these studies, the homeless population surveyed was younger than in Bolivia; it is therefore “good news” that no HIV case was found in Bolivia in the under-15 street children. However, in Brazil, Argentina, or Kenya, overall HIV prevalence is much higher than in Bolivia, and street youths are only one among several groups with higher HIV prevalence, like sex workers, intravenous drug users, or prisoners. The striking feature in our survey is that street youths appear as the *only* group with higher HIV prevalence, higher even than in CSWs.

Whereas our HIV-prevalence data on the general population and on various high-risk groups seem to confirm low and relatively stable patterns of sexual HIV transmission in Bolivia, one particularly vulnerable group emerges as a new threat for the expansion of the HIV epidemic. It is urgent to identify the bridges between this high-risk population, and other groups.³ On the other hand,

HIV prevention in street youths faces overwhelming challenges (as testified by health workers having to treat their recurring STIs over and over again). After our survey, the lengthy and humiliating procedure for exemption of fees in the public health services (a deterrent from using these services) was waived for street youths using the STI clinic in Cochabamba. However, STIs are only a part of their numerous health problems, and they should be granted access to a global package of care (including, for those who need it, access to antiretroviral therapy, soon to be available in Bolivia). Health problems being often the main motive to contact social services, the opportunity should not be missed to offer wider assistance. To this end, more and better assistance services are needed in Cochabamba. There are millions of youths throughout the developing world living on the street. How best to assist them is the subject of much debate¹¹ and beyond the scope of this study, but HIV prevention in this population is doomed to fail without a more comprehensive approach of their health and social problems.

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