

HIV infection among people of foreign origin voluntarily tested in Spain. A comparison with national subjects

The EPI-VIH Study Group

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Objectives: To describe exposure categories and HIV prevalence among subjects voluntarily tested in Spain by country of origin.

Methods: HIV prevalence and exposure categories were compared between national and non-Spanish subjects voluntarily tested in 18 sexually transmitted disease/HIV testing clinics from 16 Spanish cities in 2000.

Results: Of 8861 testers, 2810 (31.7%) came from foreign countries; 73.1% from Latin America, 9.1% from western Europe, 6.2% from central/eastern Europe, 4.4% from northern Africa, and 4.2% from sub-Saharan Africa. Among women from Latin America, 78% were sex workers compared to 5.5% Spanish women. HIV infection was diagnosed in 170 persons, 34.7% from foreign countries. HIV prevalence for Spanish subjects (23% for men and 1.0% for women) was significantly different from men and women from Latin America (11.3% and 0.3% respectively), Sub-Saharan Africa (9.1% and 7.5% respectively), and women from the north of Africa (11.8%). Compared with Spaniards, analyses of persons of the same exposure category showed higher HIV prevalence in men who had sex with men from Latin America (odds ratio: 4.1; 95% CI: 2.4–6.9), heterosexual men from sub-Saharan Africa (OR: 19.3; 95% CI: 6.4–58.0), and Latin America (OR: 9.4; 95% CI: 3.4–25.9), heterosexual women from sub-Saharan Africa (OR: 16.9; 95% CI: 3.5–82.4) and from northern Africa (OR: 15.3; 95% CI: 3.2–73.2).

Conclusions: An important proportion of HIV testers from these clinics came from foreign countries and some groups showed a high prevalence of HIV infection. Specific prevention and testing programmes adapted to the needs of migrants in Spain should be developed.

See appendix for complete list of the EPI-VIH Study Group

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Over the last decade, many south European countries have faced large influx of migrants from economically disadvantaged countries, similar to the migration patterns experienced by central and northern European countries since the 1960s. Spain has traditionally been a country of emigration but this trend has been rapidly changing over the last few years. The number of foreign residents reached 2.5% of the total Spanish population by the end of 2000, a third of whom come from the European Union, 32% from Africa—57% of which are Moroccans—and 22% from Latin America; but there is also an undetermined number of undocumented people not included in the official statistics who are highly vulnerable in terms of health in general and HIV in particular.^{1–3} It is well known that migrant populations are at higher risk of HIV infection and often suffer stigmatisation and discrimination.⁴ Many migrants in Spain, especially the undocumented under the current legislation, have problems accessing health services. Sociocultural and legal barriers, among others, complicate access to HIV testing in primary health care and hospital settings.^{3–6} The fear of the potential consequences of being diagnosed HIV positive may deter anyone, especially recently arrived migrants, from being tested in settings where confidentiality is not fully perceived.⁷

Spain has been the European country most affected by the AIDS epidemic over the last decade.⁸ Until the year 2000, only 2.5% of the AIDS cases diagnosed in Spain were people of foreign origin, although this accounts for more than a thousand cases and has been increasing over the years, reaching 6% by the 2000. Of all people diagnosed with AIDS whose country of origin is not Spain, 41% originated from Europe, 25% from Latin America, 20% from sub-Saharan Africa, and 9% from northern Africa.¹ Unlike AIDS cases, there is no available information on current HIV infections among people of foreign origin in Spain.

Open, free, and confidential HIV counselling and testing can be done in many Spanish cities in low threshold clinics that require no identification documents, thus selecting populations that often do not attend other health facilities. We describe risk situations and HIV prevalence among people voluntarily tested for HIV in these clinics over the year 2000, according to the country of origin.

METHODS

This study was carried out in a network of 18 HIV counselling and testing clinics, of which 13 also diagnose and treat other sexually transmitted diseases. These clinics are distributed among sixteen cities of more than 100 000 inhabitants throughout the Spanish territory (Barcelona, Bilbao, Cartagena, Granada, Gijón, Logroño, Madrid, Málaga, Murcia, Oviedo, Pamplona, San Sebastián, Santa Cruz de Tenerife, Santander, Sevilla y Vitoria). All of them offer voluntary, confidential, and free HIV testing, and some also offer anonymous testing by using a code system, whereby results are collected for subsequent visits. No legal documents are required, facilitating access for foreigners, especially for those without documents. Before and after HIV testing, trained professionals offer counselling in Spanish.

Information on country of origin started being collected systematically in the year 2000, as well as other variables such as sex, age, previous HIV test, current or previous injecting drug use, heterosexual practices, homosexual practices, commercial sex relations, and HIV positive sexual partner. Patients were then grouped in exposure categories according to self reported risk situations in the following order of priority: injecting drug users (IDUs), men who had sex with men (MSM), female commercial sex workers, heterosexual men, other heterosexual women, and other risk exposures. Countries of origin other than Spain, also self reported by the subject, were grouped as follows: western Europe, central and

eastern Europe, Latin America, sub-Saharan Africa, northern Africa, and other countries. For all patients, blood specimens were tested for HIV by an enzyme linked immunosorbent assay, and reactive sera were confirmed by Western blot or immunofluorescence.

The study included all patients tested for HIV during the year 2000. When a patient had been tested more than once in the same clinic during the study period, only the last confirmed result was taken into account. It was not possible to detect duplicate cases of subjects tested in two or more clinics; nevertheless, it is thought that this situation was very infrequent.

Comparisons of proportions were done with the Fisher's exact test and comparisons of means were evaluated with the Student's *t* test. Statistical comparisons at $p < 0.05$ were considered significant. The association between region of origin and HIV prevalence was quantified through odds ratio (OR) and 95% confidence interval (CI). Multiple logistic regression was used to analyse associations where some variables were considered possible confounders.

RESULTS

Description of study population

Of the 8861 subjects included in the study, 2810 (31.7%) came from countries other than Spain. The commonest region of origin was Latin America (73.1%), followed far behind by western Europe (9.1%), central and eastern Europe (6.2%), Northern Africa (4.4%) and sub-Saharan Africa (4.2%). More than a half of the subjects coming from central and eastern Europe, Latin America, and northern Africa were women, whereas in the Spaniards, women only represented 36.6%. Subjects of foreign origin were slightly younger than Spaniards (table 1).

The most common exposure categories for Spaniards and persons of western Europe were heterosexual men and women, followed by MSM. A very high proportion of the subjects from central or eastern Europe (44.0%), from Latin America (78.1%), and from Africa (35.7%) were female sex workers. The percentage of IDUs was higher among people from central and eastern Europe (10.9%) than among Spanish subjects (4.2%) (table 1).

Of the total number of female sex workers, 84.6% were of non-Spanish origin and 75.4% were from Latin America. Among men who acknowledged commercial sex with other men, 64.1% came from foreign countries, and 57.7% came

from Latin America. Commercial sex work was reported by 35.4% of MSM from Latin America by only 2.1% of Spanish MSM ($p < 0.001$).

Over a quarter of the Spaniards (28.0%), Latin Americans (27.8%), and north Africans (30.4%) had had a previous HIV test done in the same clinic, while this was less frequent among people from western Europe (14.5%) and from sub-Saharan Africa (11.8%).

HIV prevalence

Overall, HIV prevalence for Spanish subjects (1.8%) was significantly different from that of people from sub-Saharan Africa (8.4%, $p < 0.001$). Both men and women from sub-Saharan Africa show a high prevalence (9.1% and 7.5%, respectively). Marked differences were observed in persons coming from Latin America, where HIV prevalence was 11.3% in men and 0.3% in women (table 2).

HIV prevalence was high among IDUs from different regions of origin, without statistically significant differences (table 3). MSM from Latin America and sub-Saharan Africa had a higher prevalence than Spaniards in the crude analysis, although only for the Latin Americans did this difference reach statistical significance when adjusted by age, previous test, and clinic (OR: 4.1; 95% CI: 2.4–6.9).

The highest HIV prevalence in female sex workers was observed in women from sub-Saharan Africa, but compared with prevalence in Spanish women this difference was not statistically significant in crude (5.4% and 0.6%, respectively; $p = 0.052$) nor in multivariate analysis (table 3).

In the analysis of heterosexually exposed men, a higher HIV prevalence was found among men from sub-Saharan Africa (8.9%) and from Latin America (4.5%) when compared with the Spanish group (0.5%). In multivariate analysis, the probability of being HIV positive among men from Latin America and sub-Saharan Africa was nine (OR: 9.4; 95% CI: 3.4–25.9) and nineteen times higher (OR: 19.3; 95% CI: 6.4–58.0) when compared with the Spanish men.

Among women of heterosexual exposure category, those from sub-Saharan Africa (12.5%) and those from northern Africa (11.8%) showed a significantly higher prevalence than the national patients (0.9%). After adjusting for age, previous test, and clinic, differences remained significant, with OR: 16.9 (95% CI: 3.5–82.4) for women from sub-Saharan Africa and OR: 15.3 (95% CI: 3.2–73.2) for those from northern Africa.

Table 1 Characteristics of patients tested for HIV according to region of origin

	Spain No (%)	Western Europe No (%)	Central and Eastern Europe No (%)	Latin America No (%)	Sub-Saharan Africa No (%)	Northern Africa No (%)	Other countries No (%)	Total No (%)
Sex								
Men	3834 (63.4)	143 (55.9)*	60 (34.3)*	266 (13.0)*	66 (55.4)	56 (44.8)*	41 (50.6)*	4466 (50.4)
Women	2217 (36.6)	113 (44.1)	115 (65.7)	1788 (87.0)	53 (44.5)	69 (55.2)	40 (49.4)	4395 (49.6)
Age (mean±SD) (years)								
Men	31.9 ± 9.9	29.7 ± 8.2*	30.1 ± 7.8	30.1 ± 7.7*	29.8 ± 7.6	29.1 ± 7.3*	31.4 ± 8.7	31.2 ± 8.9
Women	29.6 ± 8.6	27.4 ± 6.6*	25.7 ± 5.3*	28.8 ± 7.0*	26.4 ± 5.9*	30.2 ± 8.3	25.5 ± 5.2*	29.2 ± 7.7
Exposure categories								
Injecting drug users	254 (4.2)	11 (4.3)	19 (10.9)*	8 (0.4)*	0 (0)*	3 (2.4)*	0 (0)*	295 (3.3)
Men who have sex with men	1310 (21.6)	44 (17.2)	7 (4.0)	127 (6.2)	6 (5.0)	1 (0.8)	10 (12.3)	1505 (17.0)
Female sex workers	331 (5.5)	18 (7.0)	77 (44.0)	1604 (78.1)	37 (31.1)	50 (40.0)	11 (13.6)	2128 (24.0)
Heterosexual men	2182 (36.1)	86 (33.6)	40 (22.9)	133 (6.5)	56 (47.1)	52 (41.6)	29 (35.8)	2578 (29.1)
Heterosexual women	1723 (28.5)	90 (35.2)	30 (17.1)	167 (8.1)	16 (13.4)	17 (13.6)	29 (35.8)	2072 (23.4)
Others	251 (4.1)	7 (2.7)	2 (1.1)	15 (0.7)	4 (3.4)	2 (1.6)	2 (2.5)	283 (3.2)
Previous HIV test in the clinic								
Yes	1695 (28.0)	37 (14.5)*	38 (21.7)	572 (27.8)	14 (11.8)*	38 (30.4)	13 (16.0)*	2407 (27.2)
No	4356 (72.0)	219 (85.5)	137 (78.3)	1482 (72.2)	105 (88.2)	87 (69.6)	68 (84.0)	6454 (72.8)
Total	6051 (100.0)	256 (100.0)	175 (100.0)	2054 (100.0)	119 (100.0)	125 (100.0)	81 (100.0)	8861 (100.0)

*Statistically significant differences ($p < 0.05$) as compared with patients of Spanish origin.

Table 2 HIV prevalence by gender and region of origin

	HIV+/Tested n/N	HIV prevalence (%)	OR (95% CI)	p Value
Men				
Spain	89/3834	(2.3)	1	
Western Europe	6/143	(4.2)	1.8 (0.7 to 4.3)	NS
Central and Eastern Europe	2/60	(3.3)	1.5 (0.2 to 5.6)	NS
Latin America	30/266	(11.3)	5.4 (3.4 to 8.4)	<0.001
Sub-Sahara Africa	6/66	(9.1)	4.2 (1.5 to 10.1)	0.005
Northern Africa	1/56	(1.8)	0.8 (0.02 to 4.6)	NS
Other countries	0/41	(0.0)	No HIV+ cases	NS
Women				
Spain	22/2217	(1.0)	1	
Western Europe	1/113	(0.9)	0.9 (0.02 to 5.6)	NS
Central and Eastern Europe	1/115	(0.9)	0.9 (0.02 to 5.5)	NS
Latin America	5/1788	(0.3)	0.3 (0.1 to 0.8)	0.011
Sub-Sahara Africa	4/53	(7.5)	8.1 (2.0 to 25.2)	0.003
Northern Africa	2/69	(2.9)	3.0 (0.3 to 12.5)	NS
Other countries	1/40	(2.5)	2.6 (0.1 to 16.7)	NS
Total				
Spain	111/6051	(1.8)	1	
Western Europe	7/256	(2.7)	1.5 (0.6 to 3.4)	NS
Central and Eastern Europe	3/175	(1.7)	0.9 (0.2 to 3.1)	NS
Latin America	35/2054	(1.7)	0.9 (0.6 to 1.4)	NS
Sub-Sahara Africa	10/119	(8.4)	4.9 (2.4 to 10.0)	<0.001
Northern Africa	3/125	(2.4)	1.3 (0.3 to 4.4)	NS
Other countries	1/81	(1.2)	0.7 (0.03 to 4.5)	NS

OR: crude odds ratio taking as reference the Spanish subjects. CI: confidence interval.

Characteristics of persons with HIV infection

A total of 170 HIV infections were diagnosed, of which 59 (34.7%) were foreigners. Among these, 66.1% were aged less than thirty years, as compared with 36.0% of the infected persons of Spanish origin ($p < 0.001$). Over three-quarters of the people with HIV were men, with no difference in country of origin. More than half of the people for whom HIV was diagnosed were MSM, whether of Spanish origin (64/111), from western Europe (5/7), or from Latin America (23/35). IDUs prevailed among infected persons from central and eastern Europe (2/3) and the heterosexual transmission predominated among Africans (10/13).

DISCUSSION

Nearly a third of the people tested for HIV in a large network of counselling and testing clinics in Spain in 2000 were of foreign origin. Over half of these were Latin American female sex workers. The profile of Spaniards who went for testing was very different as evidenced by the high proportion of heterosexuals who do not work in prostitution and MSM. The characteristics of these clinics have probably selected the population of this study and neither Spanish nor foreign subjects can be considered as representative of the whole of their respective populations. In the first place, all subjects included in the analysis were voluntarily tested for HIV, probably because they perceived themselves at risk; and in the second place, free and easy access to the clinics may have resulted in an over representation of the migrant population, with more difficulties accessing other health care facilities.

HIV prevalence for Spanish subjects was not significantly different to both men and women from Europe and men from north Africa, but there were important differences when compared with both men and women from sub-Sahara Africa, men from Latin America, and women from northern Africa.

Among female sex workers who came to be tested for HIV, the proportion of foreigners reached 84.6% in 2000, which represents a notable rise as compared with the 18.5% found in 1989–90.⁹ In both periods, the most frequent place of origin for migrant female sex workers was Latin America. HIV prevalence of Latin American women who work in prostitution did not differ to that of Spanish female sex workers,¹⁰ and was close to that of the Spanish female young population.¹¹

Latin American men presented a higher HIV prevalence than the Spanish men, both in the case of MSM and of heterosexual category. Among Latin American MSM, a third reported commercial sex work and several were transvestites, situations which have been associated with high rates of risk behaviour and HIV infection.^{12–15}

The prevalence of HIV was notably higher among heterosexual persons from sub-Sahara Africa than from other places of origin, as it has been described in other European studies.^{14–18} This probably reflects the higher prevalence of HIV in their countries of origin and a higher probability to be in an “at risk situation”.^{4, 19} It cannot be forgotten however, that HIV infections are also taking place in Spain and that socio-economic disadvantage makes people more vulnerable to becoming infected. The proportion of people having had a previous test in the same clinic was low among sub-Sahara Africans, and may be due to their recent arrival in Spain or to different health seeking behaviours compared with other groups. Heterosexual women from northern Africa not reporting to be working in prostitution also had a high HIV prevalence. It is surprising, as infection levels in their countries of origin are lower than in Spain. Barriers to social and health services delay HIV diagnoses and hamper HIV prevention.^{6, 7} Although no specific data were collected on this, it is known that people from sub-Saharan and northern Africa often face more cultural and linguistic barriers than people coming from Latin America and Europe—that is, HIV services are provided only in the Spanish language.¹ All these barriers probably delay HIV testing until the suspicion of infection is much stronger.

It was not possible to assess what proportion of people of foreign origin were already infected on arrival in Spain and how many became infected afterwards, as migration of HIV infected persons from countries with no access to anti-retroviral treatment is likely to be occurring in Europe. Nevertheless, it is highly probable that at least 15% who had had a previous negative test in the same clinic became infected in Spain. It has been estimated that in Barcelona more than a quarter of immigrants with AIDS became infected after their arrival in Spain.²⁰

Interpretation of these findings is difficult as there are many competing explanations that should be put in different

Table 3 Comparison of HIV prevalence according to region of origin for each exposure category

Exposure categories	HIV+ /Tested n/N	HIV prevalence (%)	OR (95% CI)	p Value
Injecting drug users*				
Spain	15/254	5.9	1	
Western Europe	1/11	9.1	1.2 (0.1 to 9.9)	NS
Central and eastern Europe	2/19	10.5	1.7 (0.3 to 8.4)	NS
Latin America	1/8	12.5	3.5 (0.3 to 36.3)	NS
Northern Africa	0/3	0.0	No HIV+ cases	NS
Men who had sex with men				
Spain	64/1310	4.9	1	
Western Europe	5/44	11.4	2.2 (0.8 to 5.7)	NS
Central and eastern Europe	0/7	0.0	No HIV+ cases	NS
Latin America	23/127	18.1	4.1 (2.4 to 6.9)	<0.001
Sub-Saharan Africa	1/6	16.7	3.2 (0.4 to 28.4)	NS
Northern Africa	0/1	0.0	No HIV+ cases	NS
Other countries	0/10	0.0	No HIV+ cases	NS
Female sex workers				
Spain	2/331	0.6	1	
Western Europe	0/18	0.0	No HIV+ cases	NS
Central and eastern Europe	1/77	1.3	1.3 (0.1 to 14.5)	NS
Latin America	4/1604	0.2	0.3 (0.1 to 1.6)	NS
Sub-Saharan Africa	2/37	5.4	4.9 (0.6 to 38.6)	NS
Northern Africa	0/50	0.0	No HIV+ cases	NS
Other countries	0/11	0.0	No HIV+ cases	NS
Heterosexual men				
Spain	11/2182	0.5	1	
Western Europe	0/86	0.0	No HIV+ cases	NS
Central and eastern Europe	0/40	0.0	No HIV+ cases	NS
Latin America	6/133	4.5	9.4 (3.4 to 25.9)	<0.001
Sub-Saharan Africa	5/56	8.9	19.3 (6.4 to 58.0)	<0.001
Northern Africa	1/52	1.9	4.2 (0.5 to 33.6)	NS
Other countries	0/29	0.0	No HIV+ cases	NS
Heterosexual women				
Spain	15/1723	0.9	1	
Western Europe	1/90	1.1	1.3 (0.2 to 10.0)	NS
Central and eastern Europe	0/30	0.0	No HIV+ cases	NS
Latin America	1/167	0.6	0.7 (0.1 to 5.3)	NS
Sub-Saharan Africa	2/16	12.5	16.9 (3.5 to 82.4)	<0.001
Northern Africa	2/17	11.8	15.3 (3.2 to 73.2)	0.001
Other countries	1/29	3.4	4.1 (0.5 to 32.5)	NS

OR: odds ratio adjusted by age, clinic, and previous HIV test, and in the analysis of injecting drug users, also adjusted by sex; CI: confidence interval.

*There were no injecting drug users from sub-Saharan Africa or from "other countries".

contexts for each of the communities. This work aims to make a first approximation to a difficult subject with views to deeper analysis in forthcoming years. It is essential to bear in mind the risk of further stigmatising these communities; however, this should not be an excuse for not identifying the health needs of these populations, as lack of data could only contribute to ignoring specific health problems.^{3 21}

In summary, a considerable proportion of the people attending HIV testing clinics in Spain came from foreign countries, and some groups showed high prevalences of HIV infection. HIV prevention programmes will only be effective if they take into account these populations and implement culturally adapted interventions.

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APPENDIX

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If you would like to become a contributor for *Clinical Evidence* or require more information about what this involves please send your contact details and a copy of your CV, clearly stating the clinical area you are interested in, to Polly Brown (pbrown@bmjgroup.com).