AIDS/HIV mortality in Portugal in the 90s

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The main objective of this paper is to identify factors which influence AIDS/HIV mortality in Portugal from 1995 to 1999, and to reveal some limitations in the social and health policies, which may explain its first place in the western European countries ranking.
We used national mortality data for the period 1995-1999 and social and economic variables. SMR (standardized mortality rates) for acquired immunodeficiency diseases (AIDS) and pulmonary tuberculosis (TB) for the period 1995-1999, factor analysis and cluster analysis were used. The influence of social and economic factors, urbanization and migration were examined in twenty-eight sub-regions in Portugal mainland.
The results suggest four main issues: (1) geographical distribution of HIV/AIDS varies with gender. For men, mortality is concentrated in highly urbanised and immigration areas, specifically in the sub-regions of Lisbon and Porto. For women, one can observe HIV diffusion in the inland, along the main routes to Spain (border regions); (2) Portugal has the highest incidence rates and the highest number of cases of HIV-2 infected cases in the European countries; (3) Greater Lisbon is the main area for the African immigrant population and TB SMR; (4) Portugal has registered a rapid growth in the epidemic in recent years, mainly among intravenous drug users and heterosexuals.
Policies have not taken into account some fundamental components of the prevention of the diseases (HIV/AIDS and TB), standard of living and well-being and universal and timely access to health care, especially for highly mobile groups and their partners, and for intravenous drug users.

Keywords: HIV/AIDS; social inequalities; risk-taking behaviours; geographical inequalities.

1. Introduction

Over the last twenty years some advances, both in the identification of risk-taking behaviours and in therapeutics, have got positive results, mainly in developed countries (Moatti, 2000). By the end of the 90s, the epidemic was controlled and the number of new cases has been decreasing in the European Union countries, excluding Portugal.
The persistence of HIV/AIDS is linked to poverty, social exclusion, sexual behaviour, intravenous drug users (Atlani *et al.,* 2000; Faria and Ferreira, 2003), and also to the increase of health problems such as, for instance, TB (Antunes and Waldman, 2001; Santana and Nogueira, 2004; Elender, Bentahm and Langford, 1998; Nossa, 1995). Other authors underline the HIV/AIDS problems associated with the inadequacy and the inefficacy of health systems in re-

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Submetido à apreciação: 25 de Maio de 2004.
Aceite para publicação: 8 de Outubro de 2004.

sponding to these issues, even in countries where the health system guarantees free or very low cost coverage (Faria and Ferreira, 2003; Santana, 2001; Portugal. CVEDT, 2001). Some others suggest that the confidence in the efficacy of antiretroviral treatments has led to the devaluation of behavioural changes to reduce risk (Moatti, 2000; Portugal, 2003).

Even though HIV/AIDS is more frequent in certain groups or geographical areas, it does not restrict itself to these groups or geographical areas. The literature confirms that «vulnerability» increases in geometric progression, mainly in the urban and suburban areas of developing countries, but it is also a problem that arises in developed countries as a result of the increase in mobility (immigration from countries of high incidence) and of non-sustained development.

In spite of being a developed country, Portugal presents HIV/AIDS epidemic trends not registered in other western EU countries. The literature shows the highest values, for Portugal, of HIV/AIDS association with TB (Santana and Nogueira, 2004; Portugal. CVEDT, 2001; Portugal. Direcção-Geral da Saúde, 2003) and with the use of intravenous drugs (UNAIDS/WHO, 2001; Portugal. Director-geral da Saúde and Alto-comissário da Saúde, 2002; Paixão, 2003), as well as the highest prevalence of infections by HIV-2 (Paixão, 2003; Gomes, 2003) and the HIV diffusion among heterosexuals (Portugal. Director-geral da Saúde e Alto-comissário da Saúde, 2002; Paixão, 2003; Gomes, 2003) and poor and excluded people (Portugal. Director-geral da Saúde and Alto-comissário da Saúde, 2002).

This paper's main objectives are to identify some factors which can explain how Portugal is unique about HIV/AIDS among western European countries and to identify the characteristics of risk-taking behaviours in mainland Portugal. According to these objectives, this paper is divided into two parts. In the first part we present some of the most important problems regarding the HIV/AIDS and TB epidemic trends. The second part identifies the main constraints to the decreasing of the HIV/AIDS epidemic trend, also presenting some suggestions, which may contribute to attenuate the negative tendency that has been observed.

2. Risk of dying in Portugal of HIV/AIDS

The first AIDS case in Portugal dates back to 1983. Even though the incidence of AIDS in western Europe has been decreasing, Portugal has been registering a rapid growth in the epidemic in recent years. In 1994, Portugal occupied the fourth place in the ranking of AIDS incidence rates, after Spain, France and Italy. At the beginning of 21st century, Portugal is now in the first place, with an incidence rate of 105.8 cases per one million inhabitants (257.5/million of inhabitants, HIV non-symptomatic) (Paixão, 2003). However, because of under-reporting and under-diagnosis, the reported cases may reflect only a proportion of the true problem.

The intravenous drug users and heterosexuals are responsible for the persistence in the increasing tendency, being simultaneously the highest behavioural risk-groups in Portugal (Portugal. Director-geral da Saúde and Alto-comissário da Saúde, 2002) of diagnosed cases in Portugal — 8232, since the beginning of the epidemic up to June 2001, 1322 occurred in homo/bisexuals, 4095 in intravenous drug users, 2253 in heterosexuals and 69 in children, by vertical transmission; the remaining cases (around 6% of the total) were transmitted either by blood transfusions or by undetermined ways (UNAIDS/WHO, 2001).

2.1. Sources and methods

The study of HIV/AIDS and TB in mainland Portugal is based on disaggregated death records at the sub-region level, because these data are not available for higher detail scales on account of the confidentiality associated with this information. The number of deaths was analysed according to sex and age group[1] for a period of five years — 1995 to 1999. Because mortality changes according to age and sex, we used a method that eliminates this variation. We standardized age by using the indirect method. As a result, we reached a value — standardized mortality rate (SMR) — that shows variations in the sub-regions in relation to a reference value from mainland Portugal corresponding to one hundred.

To calculate SMRs, we followed three steps: (1) we established, for mainland Portugal, the death-rate for each age group, considered as reference rates or standard rates[2]; (2) we calculated the number of expected cases in each sub-region and in each age groups; (3) we calculated SMRs in groups of municipalities in mainland Portugal, by the relation between expected deaths and observed deaths[3]. Taking into account potential problems resulting from the influence of chance in the considered sample, we calculated a confidence interval (CI) of 95%.

[1] Seven age groups were considered: 0-24, 25-34, 35-44, 45-54, 55-64, 65-74 and ≥ 75.

[2] Reference rates = total of observed cases in mainland Portugal, during the considered period, by age group ÷ number of inhabitants in mainland Portugal (estimates from 1996) per age group.

[3] $SMR = \frac{\text{Number of cases observed in each NUT III}}{\text{Total of expected cases in each NUT III}} * 100$

After calculating the SMRs for HIV/AIDS and TB, we selected 18 variables that can be grouped in four categories. Four sets of variables were included: (1) variables connected to mortality (two): AIDS SMR and TB SMR (1995-99); (2) variables connected to the age structure of the population (six): percentage of the population, male and female, in the age groups 0-24, 25-34, 35-44, 45-54, 65-74, ≥ 75; (3) variables connected to socio-economic structure (eight), that can be divided into: (*a*) variables connected to purchasing power (one): «per capita» purchasing power indicator; (*b*) variables connected to professional groups (five): percentage of the male/female population in non-manual professional groups (1 e 2; 3, 4 e 5), manual (6; 7 e 8; 9); (*c*) variables connected to educational level (two): illiteracy rate; male/female; percentage of male/female population aged 15 and over that graduated from or studies at intermediate or higher education level; (4) morpho-functional variables (two): percentage of the population living in predominantly rural areas and percentage of African population (immigrants).

All information was obtained from Instituto Nacional de Estatística (Portuguese Institute for Statistics). The Institute worked on the mortality data, specifically for this study.

2.2. Results

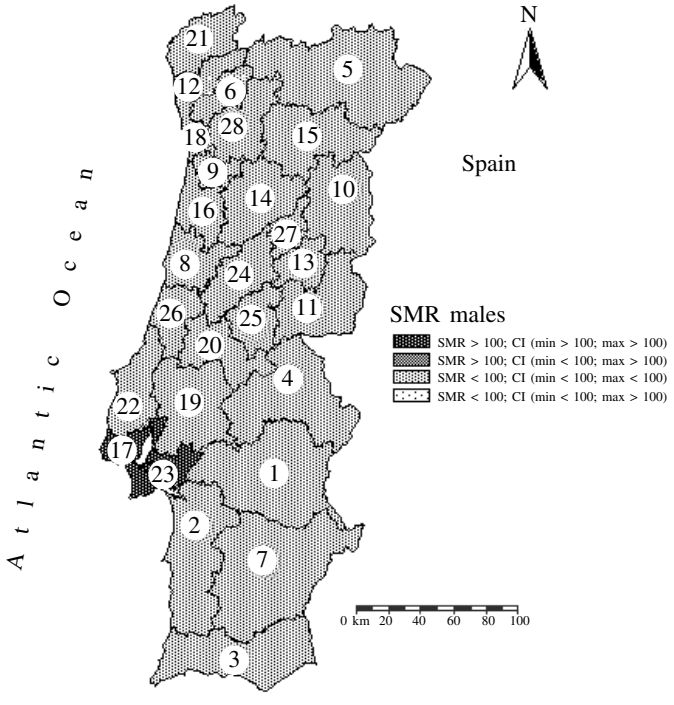
2.2.1. HIV/AIDS SMR spatial distribution

Similarly to what happens in the European Union countries, AIDS deaths affect predominantly males. Between 1995 and 1999, 3739 and 752 deaths by HIV/AIDS were reported in the male and female population, respectively.

By age group, in both sexes, the 25-34 age group has the most deaths, followed by the 35-44 age group. In some geographical areas it is one of the main causes of death in these age groups. This fact is more relevant in the Greater Lisbon, where 42% of male and 28% of female of reported deaths between 1994 and 1999 in the 25-34 age group were caused by HIV/AIDS.

The geographical distribution of AIDS SMR for men is higher in the metropolitan areas, especially in Greater Lisbon (Grande Lisboa) (299.4), where almost three times more deaths occur than the reference value for mainland Portugal (one hundred), followed by the Península de Setúbal (172.1) *(Figure 1).*

Figure 1
SMR HIV-AIDS, males and females (all ages), period: 1994-1999



Sub-regions:
1) Alentejo Central; 2) Alentejo Litoral; 3) Algarve; 4) Alto Alentejo; 5) Alto Trás-os-Montes; 6) Ave; 7) Baixo Alentejo; 8) Baixo Mondego; 9) Baixo Vouga; 10) Beira Interior Norte; 11) Beira Interior Sul; 12) Cávado; 13) Cova da Beira; 14) Dão-Lafões; 15) Douro; 16) Entre Douro e Vouga; 17) Grande Lisboa (Greater Lisbon); 18) Grande Porto (Grater Porto); 19) Lezíria do Tejo; 20) Médio Tejo; 21) Minho-Lima; 22) Oeste; 23) Península de Setúbal; 24) Pinhal Interior Norte; 25) Pinhal Interior Sul; 26) Pinhal Litoral; 27) Serra da Estrela; 28) Tâmega.

All other regions of mainland Portugal present significantly lower values than the standard value for mainland Portugal.
Deaths among women were more geographically dispersed than among men. Besides Greater Lisbon (SMR = 301) and Península de Setúbal (SMR = 177), women AIDS death high figures can also be found along the main routes to Spain *(Figure 2).*

2.2.2. Factor and cluster analysis

The set of factors we studied in this paper (four for men and three for women) explain about 82% and 78% of HIV/AIDS SMR variance, respectively, for men and women[4]. Principal outcomes of factor analysis are given in *Tables 1* to *4* (*Tables 1* and *2* describe the *factor loadings* for males and females; *Tables 3* and *4* present the *factor scores,* also for men and women).

[4] These percentages are given by communalities. The communality of a variable is the proportion of variance explained by the factors that were extracted and used in the analysis.

The first factor (urbanity/rurality) explains 47% for males and 32% for females of HIV/AIDS SMR. These same factors have lower explanatory capacity when we consider TB, registering 14% and 32% in males and females[5]. That is, the connection between HIV/AIDS and social (immigration), economic and demographic characteristics is stronger, presenting a more significant geographical concentration than TB. This first, more important factor, shows that predominantly urban areas, with high purchasing power, with a population mostly in non-manual professions have, simultaneously, higher AIDS and TB SMRs, specially the AIDS SMR (*Tables 1* and *2*).
Factor analysis was complemented with a hierarchical ascending classification, known by *cluster analysis* (*Figures 3* and *4*). This classification, identifying similar identity geographical groups («clusters»), suggests the formation of four geographical groups for males and females. For both sexes, the analysis highlights a risk group, the «urban» group, with a special emphasis on Greater Lisbon. In fact, this

[5] Again, these proportions are given by communalities.

Figure 2
SMR HIV-AIDS, females (all ages), period: 1994-1999

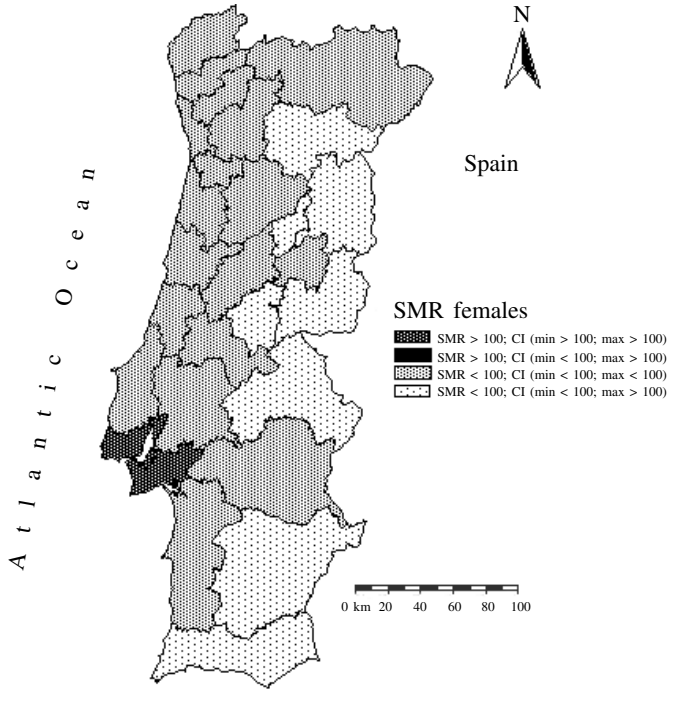


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Table 1
Factor loadings (males)

Variables	Factor 1	Factor 2	Factor 3	Factor 4
% APR	–0,83	0,26	–0,16	0,03
% IMI	0,92	0,06	0,30	–0,11
IPC	0,83	0,52	0,02	0,06
Tx. anal	–0,77	0,35	0,06	–0,19
Emd/sp	0,76	0,49	0,00	0,21
G 1/2	0,70	0,41	–0,47	0,08
G 3/4/5	0,67	0,66	0,02	0,04
G 6	–0,71	0,03	0,02	0,58
G 7/8	0,28	-0,65	–0,27	–0,63
G 9	–0,48	0,15	0,73	0,08
%P 0-24	0,40	–0,80	–0,13	0,35
%P 25-34	0,50	–0,77	–0,03	0,21
%P 35-44	0,76	–0,24	0,31	–0,34
%P 45-54	0,69	0,50	0,29	–0,14
%P 65-74	–0,75	0,61	–0,01	–0,18
%P ≥ 75	–0,77	0,51	–0,24	–0,24
AIDSSMR	0,69	0,58	–0,06	0,12
TBSMR	0,37	0,41	–0,37	0,06

Table 2
Factor loadings (females)

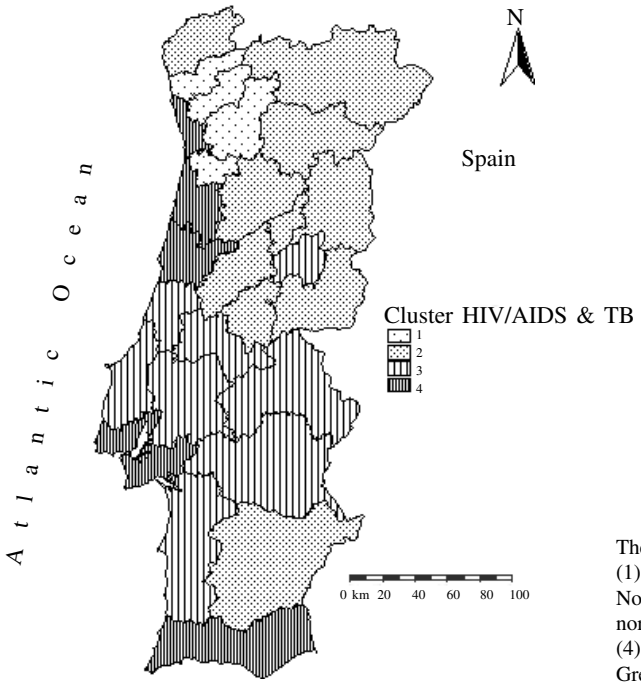
Variables	Factor 1	Factor 2	Factor 3
% APR	–0,85	0,24	0,06
% IMI	0,95	0,09	–0,11
IPC	0,79	0,52	0,20
Tx. anal	–0,90	0,18	–0,06
Emd/sp	0,69	0,50	0,31
G 1/2	0,48	0,72	0,15
G 3/4/5	0,41	0,79	–0,32
G 6	–0,69	–0,18	0,36
G 7/8	0,27	–0,76	0,27
G 9	–0,37	0,44	–0,74
%P 0-24	0,44	–0,80	–0,11
%P 25-34	0,69	–0,68	–0,03
%P 35-44	0,92	–0,23	–0,18
%P 45-54	0,74	0,50	–0,03
%P 65-74	–0,78	0,58	0,08
%P ≥ 75	–0,80	0,47	0,22
AIDSSMR	0,57	0,55	0,39
TBSMR	0,57	0,51	–0,02

Legend *Tables 1* and *2*: %APR — percentage of the population living in predominantly rural areas; %IMI — percentage of immigrants; IPC — Composite indicator of purchasing power, formed by several variables; Tx. anal — percentage of male/female population aged 10 and over that can't read/write; Emd/sp — percentage of male/female population aged 15 and over that graduated from or studies at intermediate or higher education level; G1/2 — percentage of the male/female population in non-manual professional groups — high status; G3/4/5 Percentage of the male/female population in non-manual professional groups medium-non qualified commerce and services; G6 — percentage of the male/female population in agriculture; G7/8 — percentage of the male/female population in manual professional groups (3, 4 e 5), manual (6; 7 e 8; 9); %P 0-24 — percentage of the population, male and female, in the age groups 0-24; %P 25-34 — percentage of the population, male and female, in the age groups 25-34; %P 35-44 — percentage of the population, male and female, in the age groups 35-44; %P 45-54 — percentage of the population, male and female, in the age groups 45-54; %P 65-74 — percentage of the population, male and female, in the age groups 65-74, % > 75 — percentage of the population, male and female, in the age groups ≥ 75; AIDSSRM-AIDS SMR; TBSMR-SMR TB.

Table 3
Factor scores (males)

Sub-regions	Factor 1	Factor 2	Factor 3	Factor 4
Alentejo Central	–0,53	0,48	0,96	–0,66
Alentejo Litoral	–0,54	0,72	1,33	–1,10
Algarve	0,43	1,01	0,13	–0,15
Alto Alentejo	–0,84	0,80	0,93	–0,53
Alto Trás-os-Montes	–1,23	0,25	–0,60	2,56
Ave	0,81	–1,91	0,14	–0,57
Baixo Alentejo	–0,67	0,48	–0,29	0,57
Baixo Mondego	0,59	0,29	1,03	0,31
Baixo Vouga	0,36	–0,54	2,35	0,86
Beira Interior Norte	–0,72	1,00	–1,86	–0,45
Beira Interior Sul	–0,69	1,22	–1,78	–1,71
Cávado	0,87	–1,51	–0,65	0,64
Cova da Beira	–0,28	0,15	0,55	–0,71
Dão-Lafões	–0,57	–0,32	–0,38	1,34
Douro	–0,79	–0,39	0,68	2,29
Entre Douro e Vouga	0,94	–1,62	–1,00	–1,32
Grande Lisboa (Greater Lisbon)	2,67	2,38	–0,93	1,28
Grande Porto (Greater Porto)	2,05	0,21	–0,33	0,11
Lezíria do Tejo	–0,17	0,17	1,23	–0,51
Médio Tejo	–0,14	–0,08	0,20	–0,88
Minho-Lima	–0,25	–0,50	–1,48	0,66
Oeste	–0,03	–0,16	0,62	–0,10
Península de Setúbal	1,60	0,73	0,67	–0,36
Pinhal Interior Norte	–0,90	–0,03	–0,60	–0,51
Pinhal Interior Sul	–1,78	0,12	0,14	–0,21
Pinhal Litoral	0,38	–0,65	0,51	–0,77
Serra da Estrela	–0,77	0,07	–0,72	–0,12
Tâmega	0,22	–2,37	–0,85	0,04

Figure 3
Hierarchical ascending classification. Clusters, males

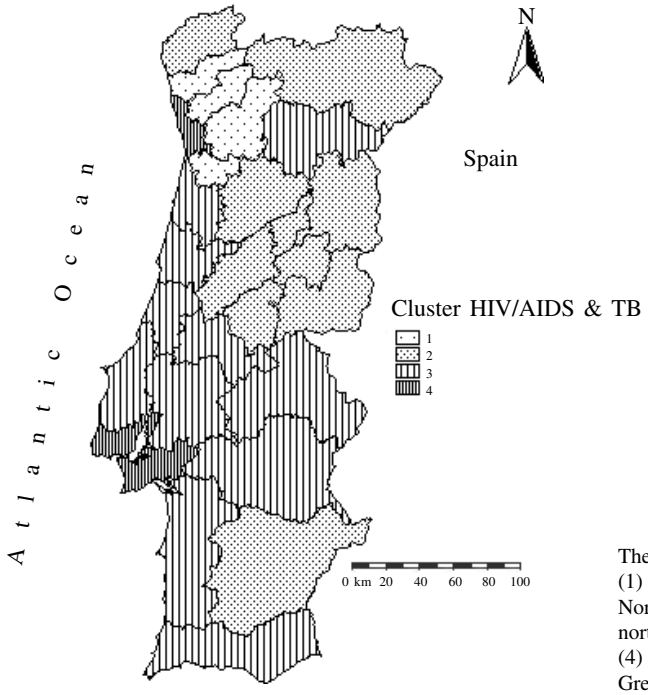


The four geographical categories are:
(1) recent industrial (composed of sub-regions in the industrialised North of Portugal); (2) rural (formed of rural areas mostly in the northern and central parts of Portugal); (3) transition rural urban; (4) urban (composed of urban areas, with a special emphasis on Greater Lisbon).

Table 4
Factor scores (females)

Sub-regions	Factor 1	Factor 2	Factor 3
Alentejo Central	–0,28	0,75	–1,25
Alentejo Litoral	–0,25	0,67	–1,86
Algarve	0,58	0,90	–0,67
Alto Alentejo	–0,69	0,81	–1,13
Alto Trás-os-Montes	–0,99	0,07	0,23
Ave	0,84	–2,24	0,21
Baixo Alentejo	–0,58	0,18	0,70
Baixo Mondego	0,65	0,39	0,11
Baixo Vouga	0,72	0,05	–1,83
Beira Interior Norte	–0,85	0,87	1,00
Beira Interior Sul	–0,95	0,73	1,49
Cávado	0,76	–1,65	0,06
Cova da Beira	–0,37	–0,23	0,66
Dão-Lafões	–0,70	–0,49	0,60
Douro	–0,59	–0,10	–0,84
Entre Douro e Vouga	0,92	–1,62	0,68
Grande Lisboa (Greater Lisbon)	2,32	2,26	1,93
Grande Porto (Greater Porto)	1,81	0,11	0,71
Lezíria do Tejo	–0,20	0,41	–1,62
Médio Tejo	–0,19	0,46	–0,22
Minho-Lima	–0,58	–0,64	1,15
Oeste	0,28	–0,03	–0,80
Península de Setúbal	1,71	0,78	0,01
Pinhal Interior Norte	–1,26	–0,14	–0,15
Pinhal Interior Sul	–2,16	0,24	1,07
Pinhal Litoral	0,48	–0,25	–0,84
Serra da Estrela	–0,66	0,11	0,67
Tâmega	0,23	–2,39	–0,08

Figure 4
Hierarchical ascending classification. Clusters, females



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group presents a high purchasing power, high immigrants' concentration, high educational level, with non-manual workers and the highest value for AIDS and TBSMR[6].

For females, another risk cluster was observed. This risk cluster is a rural group, especially formed by inland rural areas, near the Spanish border. They are rural areas with low purchasing power, high illiteracy, high numbers of manual workers (agriculture), and SMR AIDS figures that deserve some attention (not significantly lower than the reference value).

3. Discussion

3.1 Situation in Portugal among European countries

AIDS geographical distribution and cluster analysis reveal gender differences. That is, for men, death is almost entirely concentrated in highly urbanised coastal areas, specifically in the Greater Lisbon and Porto (high percentage of African immigrants, young people and high SMR TB). For women, we can observe some dispersion (especially in inland rural areas, near the Spanish border (Rosel *et al*., 2000), which becomes a problem, due to the characteristics of the spreading of this type of disease (sexual partners, prostitution). The increase in the number of heterosexuals infected might cause an increase in the number of registered cases in Portugal and more often among rural and inland Portuguese women. We saw that these diseases are concentrated in some urban and suburban areas, especially for men (Santana, Nogueira and Ribeiro, 2001). Some authors, who have studied the agglomeration effects, mainly of HIV/AIDS (Gould, 1993; Wood, 2000), have concluded that when the disease is detected, there might be some migration to areas where the health care offered may be better or more accessible (geographically and organizationally). This might be part of the explanation for the high level of concentration for both causes of death in coastal areas, especially in Lisbon and Porto. We have, however, no knowledge of any geographical mobility studies that might test this assumption in the case of Portugal (Wigle, 1995).

Portugal is an example of the link between HIV infections and TB. Simultaneously, in 2002, the TB incidence rates in Portugal were four times higher than in the other European Union countries (Portugal. Direcção-Geral da Saúde, 2003). The proportion of multi-resistance cases (TB-MR) (primary: 2.3%; acquired: 10.4%) is two/three times more than the EU countries (Portugal. Direcção-Geral da Saúde, 2003). In 2002, the percentage of TB cases linked with HIV infections was 15% — 669 cases (while this rate in Europe is only 11%) (Portugal. Direcção--Geral da Saúde, 2003), a situation that seems more serious in more urban coastal districts, mainly in Lisbon and Porto (Portugal. Director-geral da Saúde and Alto-comissário da Saúde, 2002). According to Paixão (2003), tuberculosis is the main opportunistic infection associated with AIDS cases (HIV-1: 45%; HIV-2: 36%) (Gomes, 2003), with relevance for drug addicts, in which over 60% of notified pathologies were TB.

The proportion of TB infections increased significantly in the last five years (6%), above all in Greater Lisbon (18%), among HIV/AIDS patients, drug users and immigrants from countries with high incidence rates (Portugal. Direcção-Geral da Saúde, 2003; UNAIDS/WHO, 2001). In 1994, incidence rate of TB was the highest in Europe (51/100 000, in adults and 21/100 000 in younger than 15). By 2002, Portugal goes on registering the highest figures of incidence of TB in European Union (41/100 000 inhabitants; incidence rate of TB/AIDS: 7.1/100 000 inhabitants), specially concentrated in Lisbon and Porto (57%) (Portugal. Direcção-Geral da Saúde, 2003).

Another issue that differentiates the Portuguese case in the EU context is the prevalence of HIV-2 infections (Paixão, 2003; Gomes, 2003). Portugal presents the highest number of infections by HIV-2 (342 until 21 December 2001) (Gomes, 2003) among European countries. The responsible agents for AIDS are HIV-1 and HIV-2. While the first one is the origin of the most frequent type of AIDS, at a world level, the latter is responsible for more regional cases, basically in Western Africa (Gomes, 2003; Cazein *et al.,* 1996; Ewold, 1994). Information on HIV-2 is scarse. Nevertheless, it seems to be rare in Europe (less than 1% of all HIV cases) (Cazein *et al.,* 1996). Portugal seems to be a specific case — HIV-2 was found in 13% of HIV patients with sexually transmitted diseases and in 29% of all HIV patients with TB (Cazein *et al.,* 1996). Since HIV-2 is historically a typical virus of Western Africa (Cazein *et al.,* 1996; Ewold, 1994; Ezekiel, 2000), the higher prevalence of these infections in Portugal may be explained by the mobility of the population, specifically the return of ex-colonies' residents and the immigration from African countries (Guinea-Bissau, Angola, Cape Verde and Mozambique) (Gomes, 2003). Current

[6] Previously, we saw that HIV/AIDS and TBSMRs were influenced by the urbanity/rurality factor (increasing proportionally). In *Tables 3* and *4* we can see that the most positive factor scores are the Metropolitan Areas of Lisbon and Porto).

evidence indicates that HIV-2 is less virulent and less mother-child transmissible than HIV-1, and seems to increase vulnerability to TB less than HIV-1. There is some evidence that in Guinea-Bissau the HIV-2 infections are relatively virulent, more than in other neighbouring countries in West Africa (Ewold, 1994), as Senegal. Ewold (1994) predicts that sexual partner rates in Guinea-Bissau have been higher than those in Senegal. Geographical variations in virulence may be associated with differences in sexual partner rate. In Portugal the HIV-2 infected cases were more frequent transmitted via heterosexual (67% in Portugal, between 1983 and 2000), and are more often concentrated in the older age groups (25-54 years old: 78.4%) than the HIV-1 infected (20-49 years old: 86.2%) (Gomes, 2003). The TB is the most frequent opportunistic infection in VIH-2 infections.

3.2. Policies

The problems associated with risk-taking behaviours [intravenous drug consumption, not protected sex – 85.6% of Portuguese women don't use condom (Almeida, André and Lalande, 2002) —, cultural practices among ethnic groups] and the difficulties to health services access and utilisation for some groups (immigrants, drug consumers, women living in rural and inland municipalities) may be the explanation for the rise of the epidemic, notwithstanding the National Commission against AIDS (Comissão Nacional de Luta contra a SIDA — CNLCS) and other NGOs (organizações não governamentais) efforts (Portugal. Director-geral da Saúde and Alto-comissário da Saúde, 2002).

The association of multi-resistance TB with HIV/AIDS presents a great challenge to the control programmes in the future. So far, in Portugal there are some organizational and financial weaknesses to support and develop new tools for TB control (primary health centres and hospitals), as well as to develop strategies for cost-effective measures to control HIV infection (Portugal. Direcção-Geral da Saúde, 2003). Despite some positive, but not enough, structural aspects, such as high vaccination coverage, the remarkable progress in the country's healthcare coverage and the improvement in the standard of living (housing, nutrition, education), and treatment of tuberculosis, the number of TB cases has increased after 1974, when all forecasts indicated the continuation of the decline (9% per year), registered since the late sixties. 1975 was the year for the inversion of this tendency. The authors argue that the double burden of disease defines the complexity of the problems that health systems must address (Decker and Lazarus, 2001; Petcey, 1998; Beeker, Guenther-Grey and Raj, 1998; Smith, 1998; Smith and Thomas, 1998). In Portugal, like in other European countries, the decline of the HIV infection will be possible through the implementation of effective local preventive policies, consisting of services provision for the HIV infected or «affected» people, specially a health promotion/education offensive to limit the spread (Smith, 1998), mainly directed to those risk-taking behaviours and risk-areas of higher HIV infection vulnerability, identified in Portugal: (1) TB infected people, especially multi-resistance TB; (2) drug addicts of both sexes; (3) migrants and mobile people; (4) areas of Lisbon, Porto and Península de Setúbal — areas with a large mobile population; (5) poverty and delinquency sources; (6) people aged between 25 and 44; (7) female and male sex workers. It is necessary to choose an adequate and effective strategy with foreseeable consequences for a better cost/effectiveness ratio, to overcome all the main components of the problem with emphasis on:

- *Decreasing of HIV/AIDS association with TB:* (*a*) integration of care of AIDS and TB patients into the primary health care (PHC) services; (*b*) training of PHC workers; (*c*) development of TB geographical-specific sub-programmes; (*d*) increasing of chemotherapy prevention to TB among people who are «affected» by VIH/AIDS; (*e*) involvement of social workers will have positive effects in TB and HIV prevention;
- *Decreasing of transmission:* (*a*) development of strategic plans, such as condom use programmes, health care and health promotion/education projects for the population in general and for several specific groups (sex workers and highly mobile groups) (UNAIDS/WHO, 2001); (*b*) community-based treatment approaches for injecting drug users; (*c*) access to screening (specially for women in rural and inland); (*d*) access to treatment of these diseases in a timely manner and as close as possible to the patient's home; (*e*) «risk areas» approach targets intervention in places through which a large number of mobile people pass (truck stops, train and bus stations, marketplaces, harbours, and customs areas). The advantage of this approach is to cover everyone, potentially at risk, in the area rather than one or two specific groups (UNAIDS/WHO, 2001);
- *Decreasing the vulnerability of immigrants and mobile people* (UNAIDS/WHO, 2001): (*a*) research in migrants and mobile people health topics – their realities and their vulnerabilities; (*b*) national AIDS programmes should pay special attention, mainly funds to address the needs involved; (*c*) creating an

enabling environment (appropriate language, tailored to the cultural context of the target groups); public services should address barriers caused by mobility and lack of legal status; (*d*) health promotion and education — including HIV/AIDS infection information — mainly provided by migrant communities' members (individuals and associations); (*e*) health support of these populations; (*f*) legal access to local health care services to already infected or «affected» by HIV and TB; (*g*) allowing migrants to live with their families; (*h*) special interventions addressed to itinerant traders, trucks, seafarers, or transport workers; (*i*) creative cross-border approaches providing information on HIV prevention and care services to people moving between Spain/Portugal/Spain, concerning efforts between respective governments to establish and harmonize contacts, policies and programmes for those groups.

The success of preventive policies depends, essentially, on the involvement and participation of different organizations and social groups which include family, community, health services, schools, cultural organizations, etc. Care and treatment would profit from the closeness to the family environment, which can diminish the effects of loss of sociability, feelings of stigmatization as well as decrease the concentration of patients in Lisbon and Porto.

A low investment in preventive health schemes may have its darkest consequences in the spread of HIV/AIDS. If the disease's present tendency is maintained (HIV/AIDS highly associated with TB, and with multi-resistance TB; women HIV infections in inland and rural areas), we can predict that Portugal will be confronted, in the short and medium term, with an avoidable increase in mortality, a considerable increase in the number of years lost (each person who dies has lost, in average, 32,3 years), a decrease in productivity (caused by the incapacity of the diseased population) and a significant increase in health expenditure, not only because of the increase in the number of patients, but also because of the high number of days HIV patients in Portugal spend in hospital (20,7 days of hospitalisation per year for AIDS patients) (Almeida, André and Lalande, 2002).

Finally, in Portugal, attention should be paid to the urgent monitoring of HIV/AIDS – surveillance, research, safe blood transfusions and strengthening of laboratory diagnosis services. Only with a systematic gathering of reliable information (improvement in the quality of the data), knowledge of the disease can be improved, in order to guide subsequent activities at different levels of intervention: prevention, care, treatment and social integration of patients.

4. Conclusion

In 2001, Portugal had the highest incidence of AIDS and TB in the EU, and some researchers suggest that the incidence level is considerably underestimated. No less worrying is the fact that the trend does not follow the Western European pattern, of a decrease in the period between 1992 and 1997. Portugal presents some characteristics similar to Eastern European and developing countries, where the epidemic takes more lives. The reasons that make Portugal different from other European or developed countries are: (1) the highest figures of association between AIDS and TB; (2) highest HIV-2 infected cases; (3) dispersion of AIDS women's mortality.

HIV heterosexual transmission is increasing in Portugal. The heterosexual transmission may spread the virus from high-risk behaviour groups to the population in general. Also the importance of population mobility within the AIDS epidemic is increasingly recognized. Migrants (from Africa, Eastern European countries and Brazil, etc.) included some of the vulnerable population at risk of HIV infection. Reasons for this are related with the connections between migration process and poverty, exploitation, separation from families and partners, and separation from the socio-cultural norms that guide behaviours in stable communities. For the time being, in Portugal, the most effective way of reducing HIV transmission is through behavioural change — reducing the number of sexual partners, increasing condom use and using safe injecting practices, as well as through the implementation of local preventive policies, consisting of service provision — i.e. health education programmes — for HIV infected or «affected» people, in order to limit the spread to groups/areas of higher HIV infection vulnerability.

□ References

ALMEIDA, A. N.; ANDRÉ, I. M.; LALANDE, P. — Novos padrões e outros cenários para a fecundidade em Portugal. *Análise Social*. XXXVII : 163 (2002) 371-409.

ANTUNES, J.; WALDMAN, E. A. — The impact of AIDS, immigration and housing overcrowding on tuberculosis death in São Paulo, Brazil, 1994-1998. *Social Science and Medicine*. 52 (2001) 1071-1080.

ATLANI, L, *et al.* — Social change and HIV in the former USSR : the making of a new epidemic. *Social Science and Medicine*. 50 (2000) 1547-1556.

BEEKER, C.; GUENTHER-GREY, C.; RAJ, A. — Community empowerment paradigm drift and the primary prevention of HIV/AIDS. *Social Science and Medicine*. 46 : 7 (1998) 831-842.

CAZEIN, F., *et al.* — Prevalência da infecção por HIV-2 na Europa. *Eurosintese*. 1 : 3 (1996) 1-4.

DECKER, C.; LAZARUS, A. — Tuberculose e infecção VIH : como tratar simultaneamente as duas doenças de forma segura. *Postgraduate Medicine.* McGraw-Hill Companies. 16 : 5 (2001) 26-32.

ELENDER, F.; BENTAHM, G.; LANGFORD, I. — Tuberculosis mortality in England and Wales during 1982-1992 : its association with poverty, ethnicity and AIDS. *Social Science and Medicine*. 46 : 6 (1998) 673-681.

EWOLD, P. W. — AIDS : where did it come from and where is it going. *Evolution of Infectious Disease*, Oxford, Oxford University Press 1994 : cap. 8 : 119-157.

EZEKIEL, K. — Health and disease in Southern Africa : a comparative and vulnerability perspective. *Social Science and Medicine.* 50 (2000) 965-983.

FARIA, D.; FERREIRA, H. — Infecção VIH e imigração em Portugal. *III Congresso Virtual* 2003.
Available at: www.aidscongress.net/article.php?id_comunicacao =109. 10-1-2004.

GOMES, P. — Infecção pelo vírus da imunodeficiência humana tipo 2 (HIV-2). *III Congresso Virtual* 2003. Available at: www.aidscongress.net/article.php?id_comunicacao=142 10-1-2004.

GOULD, P. — The slow plague : a geography of the AIDS pandemic. London : Blackwell, 1993.

MOATTI, J.P. — HIV/AIDS social and behavioural research : past advances and thoughts about the future. *Social Science and Medicine.* 50 (2000) 1519-1532.

NOSSA, P. — Abordagem geográfica da relação saúde/doença : o caso da Sida. Coimbra : University of Coimbra, 1995. PhD thesis.

PAIXÃO, M. — Epidemiologia da infecção VIH/SIDA : o impacto em Portugal. *III Congresso Virtual* 2003.
Available at: www.aidscongress.net/article.php?id_comunicacao =106 10-1-2004.

PETCEY, R., *et al.* — A tale of two (low prevalence) cities : a social movement organisation and the local policy response to HIV/AIDS. *Social Science and Medicine*. 47 : 9 (1998) 1197-1208.

PORTUGAL. CVEDT — SIDA : A situação em Portugal a 30 de Setembro de 2000. Lisboa : CNLCS. INS, 2001.

PORTUGAL. Direcção-Geral da Saúde. Programa Nacional de Luta contra a Tuberculose (PNT) — Ponto da situação epidemiológica e de desempenho : ano de 2002, 2003. Available at: www.dgsaude.pt/estat/pnct/dmt_03.htm. 10-1-2004.

PORTUGAL. Director-geral da Saúde e Alto-comissário da Saúde — Ganhos em saúde em Portugal : ponto da situação. Lisboa : Direcção-Geral da Saúde. Ministério da Saúde, 2002.

PORTUGAL, I. — O binómio HIV/tuberculose multiresistente. *III Congresso Virtual*, 2003. Available at: www.aidscongress.net/article.php?id_comunicacao =136. 10-1-2004.

ROSEL, J., *et al*. — A multilevel time-series model for the incidence of AIDS cases in Spain. *Health & Place*. 6 : 4 (2000) 309--317.

SANTANA, P. — Poverty, social exclusion and health. *Social Science and Medicine.* 52 (2001) 132-145.

SANTANA, P.; NOGUEIRA, H; RIBEIRO, O. – A geografia da SIDA em Portugal. *Cadernos de Geografia*. 20 (2001) 15-28.

SANTANA, P.; NOGUEIRA, T. — The geography of HIV/AIDS in Portugal. *Fennia* 182 (2005) 95-108.

SMITH, F. — Cultural constraints on the delivery of HIV/AIDS prevention in Ireland. *Social Science and Medicine*. 1998; 46 : 6 (1998) 661-672.

SMITH, F. E.; THOMAS, R. — Prevention action and the diffusion of HIV/AIDS. *Progress in Human Geography*. 20 : 1 (1998) 1-22.

UNAIDS/WHO — Care and support for people living with HIV/AIDS : report on global HIV/AIDS epidemic, 2001.

UNAIDS. WHO — Population mobility and AIDS : UNAIDS technical update. Geneva : UNAIDS; 2001.

WIGLE, D. T. — Canada's health status : a public health perspective. *Risk Analysis*. 15 : 6 (1995) 693-698.

WOOD, E., *et al.* — Determinants of geographic mobility among participants in a population-based HIV/AIDS drug treatment program. *Health &* Place. 6 : 1 (2000) 33-40.

□ Resumo

MORTALIDADE POR SIDA/HIV EM PORTUGAL NOS ANOS 90

Este artigo tem como principal objectivo identificar os factores que influenciam a mortalidade do HIV/SIDA em Portugal continental no período de 1995 a 1999 e que poderão estar na origem da má posição que Portugal ocupa no quadro dos países da Europa ocidental. Nesse sentido, foram usados dados de mortalidade (razão padronizada de mortalidade VIH/SIDA e tuberculose pulmonar) e variáveis sócio-económicas numa análise factorial e de *clusters* que incluiu os vinte e oito agrupamentos de concelhos do continente.

Os resultados sugerem quatro aspectos principais: (1) a distribuição geográfica do VIH/SIDA varia com o género. Nos homens, a mortalidade está concentrada nas áreas de forte urbanização e imigração, com destaque para os agrupamentos da Grande Lisboa e Grande Porto. Nas mulheres, para além dos elevados valores que se observam na Grande Lisboa e Península de Setúbal, verificou-se existirem valores da RPM que merecem destaque em agrupamentos de concelhos que fazem fronteira com a Espanha; (2) Portugal apresenta a maior taxa de incidência e de número de casos de infecção por HIV-2 no quadro dos países da Europa; (3) a Grande Lisboa é o

agrupamento de concelhos com maior número de imigrantes africanos e a mais elevada RPM por TB; (4) em Portugal tem vindo a observar-se um aumento da epidemia VIH/SIDA nos últimos anos, principalmente devido aos consumidores de drogas injectáveis e aos heterossexuais.
As políticas sociais desenvolvidas têm tido pouco impacto em aspectos fundamentais da prevenção das doenças (VIH/SIDA e TB), tais como na melhoria das condições de vida/bem-estar e no acesso tempestivo aos cuidados de saúde, com especial ênfase nos grupos de grande mobilidade e seus parceiros e nos consumidores de drogas injectáveis.

Palavras-chave: SIDA/HIV; desigualdades sociais; comportamentos de risco; desigualdades geográficas.