



## SCIENTIFIC ARTICLE

# Construction and validation of the Scale Sources of Information about AIDS (SSIA)

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### KEYWORDS

Acquired  
immunodeficiency  
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Health knowledge

### Abstract

**Objective:** To characterize sources of information students of higher education turn to for clarification about AIDS.

**Research design:** Cross-sectional, non-experimental research, with the features of descriptive, correlational and explanatory studies. The data collection protocol includes personal and academic data and the sources of information about AIDS scale.

**Participants:** 2002 students participated, 60.7% girls ( $X = 21.76$ ; years  $\pm 4.43$  SD), of the first and last years of higher education in the North and Centre of Portugal.

**Results:** Students rely mainly on reading informational materials for information about AIDS. Approximately 37% have good information on AIDS with young people up to the age of 25 and attending courses in field of health having higher scores.

**Conclusions:** Changes are needed in health education models in the area of HIV/AIDS, since these are not showing a satisfactory level of efficiency. On the other hand, it is important to motivate young people to change their behaviours. Although many young people have knowledge, they do not change their risk behaviours.

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## Background

Students in higher education are a particularly difficult challenge in the fight against AIDS. Some of these young adults are a group that constitutes a “bridge” between those who are infected and the wider group of adolescents and young adults who are not infected or who may already be asymptomatic carriers. According to the Centre for Epidemiological Surveillance of Communicable Diseases of Portugal, the number of cases between January 1, 1983 and December 31, 2012, of individuals between 20 and 49 years old, represented 82.6% of total infected people.<sup>1</sup> This set of assumptions led us to the following questions: What are the sources of information used by higher education students in order to acquire knowledge about HIV? Is their knowledge based on scientific evidence? How important is it to them? How are the socio-demographic and academic variables reflected in the information sources on HIV/AIDS infection? To achieve these purposes, we outlined the following objective: to characterise the sources of information higher education students resort to for HIV/AIDS clarification. We believe that information and instruction about AIDS is one of the most relevant aspects to promote new attitudes and behaviours towards individuals with HIV/AIDS.

## Material and methods

This study is cross-sectional, non-experimental research, with the characteristics of descriptive, correlational and explanatory studies. The sample is non-random, comprised of 2002 students, with a mean age of 21.76 years  $\pm$  4.43 SD, in higher education in the field of health care and technology, spread over six higher education institutions in the north and central region of Portugal. The evaluation protocol consists of a questionnaire that allows socio-demographic, academic characterization and the scale of sources of information about AIDS to be constructed and validated for this purpose. The aim of the assessment tool is to determine where and/or from whom the higher education students commonly resort to with any questions or needed clarification regarding HIV/AIDS. To determine the origin of the knowledge acquired, questions were written on a Likert scale and five response categories were presented: 1-never, 2-rarely, 3-sometimes, 4-often and 5-always, in which each subject gets a score for each item 1, 2, 3, 4, or 5 and an overall mark that corresponds to the sum of all previous scores.

Students in the first and last years of their courses, who willingly volunteered to collaborate were included in the study. Students who were not appear to be willing to cooperating were excluded leading us to consider them null responses, due to their lack of congruence.

The psychometric study revealed values Cronbach's alpha ranging between 0.837 and 0.849 (Table 1). In the final version of the scale item 1, “I consider myself adequately prepared to address topics related to health education about AIDS,” was eliminated.

The factorial solution allowed the selection of five factors, with latent roots greater than 1, which together explain 55.78% of the total variance (Table 2). The Health care/educational institutions factor explains 16.38% of the

total variance and consists of items 17, 18, 19, 20, 21 and 22. The Media/peer education factor explains 11.44% of the total variance and consists of items 9, 10, 11, 12, 13 and 14. The Instruction factor explains 11.12% of the total variance. It is constructed with items 4, 5, 8 and 15. The Health professionals/parents and relatives factor explains 9.86% of the total variance, consisting of items 6, 7, 16 and 17. The Personal interests factor explains 6.96% of the total variance and includes items 2 and 3.

The correlations between the five factors with the overall value of the scale, range from 0.165 (Personal interests versus Health care/educational institutions) and 0.749 (Health care/educational institutions versus Sources of information/knowledge about AIDS Scale) and is highly significant. There is a positive correlation between the factors and the overall scale value, which means an increase or decrease in the size of the scale is associated with increases or decreases in the others (Table 3).

## Results

The item with the highest frequency of agreement is “1 – I consider the issues related to HIV/AIDS important,” (mean = 4.82) followed by items “3 – I try to stay informed about HIV/AIDS,” (mean = 3.99), “2 – I consider myself adequately prepared to address topics related to health education about AIDS,” (mean = 3.80) and “9 – I obtained knowledge about AIDS through reading informative material (posters, flyers, brochures, magazines, books),” (mean = 3.74). Items 18 and 23 (means between 1.39 and 1.65) have a lower rate of agreement.

For the value of the overall scale, we established cut-off groups based on the formula, mean  $\pm$  0.25 SD, which allowed participants to be classified into three groups. Those who had poor sources of information about AIDS with a score less than or equal to 51, those with reasonable sources were situated between 52 and 56 points, and good sources of information greater than or equal to 57 points. The results show that 42.0% of the sample was classified as having poor sources of information on AIDS and 36.6% had good sources of information. Among those classified as having poor sources of information, the largest percentage is boys (47.3%) with statistical significance and those with good sources of information were observed to be especially girls (38.7%) also with significant differences.

Females have higher means, consistent with the best sources of information about AIDS with regard to the media/peer education, instruction, health professionals/parents and relatives and the overall value of the scale, while males reveal the best sources of information about AIDS in health/educational institutions and personal interests. The differences between the genders are significant for the media/peer education, instruction and information sources (overall value) subscales (Table 4).

With regards to age, the students who are between 19 and 25 years old have scores consistent with best sources of information/knowledge in relation to health/educational institutions, the media/peer education, instruction, personal interests and sources of overall sources of information/knowledge about AIDS; while students aged between 17 and 18 reveal better information through the

**Table 1** Internal consistency of the scale sources of information on AIDS

	Mean	Standard deviation	Ritem-total (without item)	Without item $\alpha$	$h^2$
1. I consider myself adequately prepared to address topics related to health education about AIDS	3.80	0.83	0.201	0.849	0.587
2. I try to stay informed about HIV/AIDS	3.99	0.85	0.361		0.544
3. During the last month I talked to others about the issue of AIDS.	2.52	1.08	0.447	0.841	0.420
4. During the course had training in education health, with regard to the issue of AIDS	2.13	1.19	0.389	0.844	0.438
5. During secondary school I participated in instructional activities related to health education with regards to the issue of AIDS	2.48	1.13	0.334	0.846	0.400
6. I obtained knowledge about AIDS in consultation with health practitioners (GP, infectionologist, nurse)	2.22	1.14	0.448	0.841	0.407
7. I attended conferences/workshops/seminars on AIDS	2.15	1.16	0.446	0.841	0.609
8. I obtained knowledge about AIDS through reading informative material (posters, flyers, brochures, magazines, books)	3.74	0.78	0.267	0.847	0.506
9. I obtained knowledge about AIDS through colleagues, friends and/or girl/boyfriend	3.21	0.91	0.427	0.842	0.524
10. I obtained knowledge about AIDS through the mass media (radio shows, television, newspapers)	3.58	0.81	0.240	0.848	0.524
11. I obtained knowledge about AIDS through the internet (specific sites, online articles, chat, forums, blogs)	3.07	1.04	0.386	0.843	0.534
12. When I have questions about HIV/AIDS/sexuality I usually turn to colleagues, friends and/or girl/boyfriend	2.70	1.01	0.387	0.843	0.469
13. When I have questions about HIV/AIDS/sexuality I usually resort to the internet (specific sites, online articles, chat, forums, blogs)	2.94	1.10	0.327	0.846	0.410
14. When I have questions about HIV/AIDS/sexuality I usually turn to a teacher	2.02	1.02	0.539	0.837	0.532
15. When I have questions about HIV/AIDS/sexuality I usually turn to my parents and family	2.19	1.03	0.415	0.842	0.482
16. When I have questions about HIV/AIDS/sexuality I usually turn to health teams (health centre, hospital, clinics)	2.21	1.10	0.440	0.841	0.640
17. When I have questions about HIV/AIDS/sexuality I usually turn to the school support office (psychologists, teachers, counsellors)	1.57	0.84	0.565	0.837	0.644
18. When I have questions about HIV/AIDS/sexuality I usually turn to the hospital infectious diseases consultation	1.54	0.89	0.516	0.839	0.695
19. When I have questions about HIV/AIDS/sexuality I usually turn to social services	1.42	0.77	0.564	0.838	0.737
20. When I have questions about HIV/AIDS/sexuality I usually turn to NGOs (non-governmental organizations)	1.39	0.77	0.544	0.839	0.687
21. When I have questions about HIV/AIDS/sexuality I usually I turn to the Centre for Counselling and Early Detection of HIV	1.55	0.92	0.552	0.837	0.742
22. When I have questions about HIV/AIDS/sexuality I usually turn to the District Committee for the Fight Against AIDS	1.65	1.10	0.419	0.842	0.757

health professionals/parents and relatives subscale and those over 25, in personal interests (Table 5), with significant differences except for the personal interests subscale.

Similarly, the results point to a better level of information sources for all factors of the scale for students attending courses in the field of health, with statistically significant differences, except in the health professionals/parents and relatives (Table 6).

## Discussion

This study sought to characterise the sources of information higher education students turn to for clarification about AIDS. As for the sources of AIDS information, the students consider “matters related to HIV/AIDS important” (Mean=4.82); they try to stay “informed about HIV/AIDS” (mean = 3.99); they consider themselves “adequately

**Table 2** Cronbach's alpha values by subscale

Factors	Eigen value	% variance	% acumulated variance	Cronbach's alpha	No. of items
Sources of information about AIDS Scale				0.848	22
Health care/educational Institutions	3.603	16.380	16.380	0.863	6
Media/peer education	2.518	11.446	27.825	0.713	6
Instruction	2.447	11.123	38.948	0.652	4
Health professionals/parents and relatives	2.171	9.869	48.817	0.603	4
Personal interests	1.355	6.969	55.786	0.490	2

**Table 3** Pearson correlation matrix between factors and overall scale value

Factors	Health care/ educational institutions	Media/peer education	Instruction	Health professionals/ parents and relatives	Personal interests
Media/peer education	0.219	—			
Instruction	0.463	0.366	—		
Health Professionals/parents and relatives	0.460	0.308	0.444	—	
Personal interests	0.161	0.232	0.301	0.266 ns	—
Sources of information about AIDS Scale	0.749	0.653	0.762	0.730	0.435

**Table 4** t test for differences in means between sources of information about AIDS and sex

Sources of information	Sex				Leven's <i>P</i>	t	<i>P</i>
	Male		Female				
	Mean	SD	Mean	SD			
Health care/educational institutions	9.25	4.46	9.03	3.86	.000	1.108	.253
Media/peer education	18.89	3.83	19.45	3.49	.031	-3.350	.001
Instruction	8.10	3.03	9.28	3.06	.247	-8.499	.000
Health professionals/parents and relatives	8.95	3.06	9.19	2.91	.340	-1.755	.076
Personal interests	7.85	1.40	7.75	1.34	.398	1.478	.136
Sources of information about AIDS Scale (overall value)	53.05	11.45	54.74	9.94	.001	-3.385	.001

**Table 5** Kruskal-Wallis test between age groups and sources of information/knowledge related to AIDS

Sources of information	Age groups			$\chi^2$	<i>P</i>
	17-18	19-25	$\geq 26$		
	Mean ranking	Mean ranking	Mean ranking		
Health care/educational Institutions	952.32	1024.64	919.68	9.909	.007
Media/peer education	1010.69	1014.88	906.69	7.265	.026
Instruction	1015.70	1042.63	727.71	61.124	.000
Health professionals/parents and relatives	1041.95	1012.79	880.19	12.549	.002
Personal interests	985.04	997.37	1047.95	1.931	.381
Sources of information about AIDS Scale	999.52	1029.48	829.99	24.241	.000

**Table 6** t test for differences in means between sources of information/knowledge about AIDS and type of course

Sources of information	Type of course				Leven's P	t	P
	Health		Other areas				
	Mean	SD	Mean	SD			
Health care/educational institutions	9.31	4.04	8.89	4.18	.759	2.305	.021
Media/peer education	19.67	3.42	18.70	3.81	.002	5.956	.000
Instruction	10.10	2.92	7.26	2.56	.000	23.095	.000
Health professionals/parents and relatives	9.09	2.91	9.10	3.05	.139	-0.030	.000
Personal interests	7.81	1.29	7.77	1.44	.001	0.511	.606
Sources of information about AIDS Scale	56.00	10.04	51.73	10.77	.041	9.086	.000

prepared to address topics related to health education about AIDS" (mean = 3.80); and they "obtained knowledge about AIDS through reading informative material (posters, flyers, brochures, magazines, books)" (mean = 3.74). It was also found that for 42.0% the sources of information/knowledge about AIDS are poor, which is more prevalent among boys. On the other hand, it was also concluded that females had higher rates with regards to sources of information about AIDS when it comes to the media/peer education, instruction, health professionals/parents and relatives and the overall scale value, while males had higher rates in relation to sources of information about AIDS in health/educational institutions and personal interests. Young people, aged 19-25 years, had levels consistent with best sources of information regarding health/educational institutions, the media/peer education, instruction, personal interests and overall sources of information about AIDS. The mean values indicate better use of sources of information about AIDS for students attending the last year of the course and courses in the field of health.

In a study conducted on this topic, it was concluded that the main sources of information on AIDS/HIV in descending order were the doctor (84%), a person with AIDS (30%), the media (10%), teachers (8%) and finally, paramedical practitioners (7%). This study also revealed that the best places for information were: the hospital (60%), school and/or college (42%) and home (10%).<sup>2</sup>

It is worth emphasising that among those classified as poor sources of information/knowledge the largest statistically significant percentage was for boys (47.3%) and good sources are observed especially for girls (38.7%). Females have higher mean rates, in agreement with the best sources of information/knowledge about AIDS with regards to the media/peer education, instruction, health professionals/parents and relatives and overall scale values, while males have higher mean rates also in agreement with the best sources of information/knowledge about AIDS in health/educational institutions and personal interests, with significant differences. The most important source of information was also reported to be the press and television (the media),<sup>3,4</sup> followed by colleagues, friends and teachers, but the same study also tells us that the vast majority of individuals consider that information about AIDS, should be made available by health services (76.4%),<sup>3,5</sup> followed by young people's groups (61.8%), teachers (45.1%) and finally the family (38.6%).<sup>4</sup>

Our study has revealed that young people aged between 19-25 were those who had rates consistent with the best sources of information regarding health/educational institutions, the media/peer education, instruction, personal interests and overall sources of information on AIDS while students aged between 17 and 18 years revealed a higher ordered mean in the health professionals/parents and relatives subscale and those over the age of 25 in personal interests, with significant differences for all variables except for the personal interests. In another study it was concluded that there are statistically significant differences in the level of knowledge about AIDS among individuals in health and non-health courses, being higher those attending courses in the field of health. This is probably due to a strong relationship between information sources and its quality and knowledge on AIDS.<sup>6</sup> Our study also suggests better sources of information about AIDS for those attending courses in the health field, with statistically significant differences, with the exception of health professionals/parents and relatives. Mean values lie in the improved utilization of information sources on AIDS for all students attending the last year in every subscale except health professionals/parents and relatives, but the value of t is only explanatory for instruction and personal interests.

### What we know about the theme

A research group of pedagogical practices needs to be created, leading to the development of new instructional models to Aids prevention.

### What we get out the study

Our study also suggests better sources of information about AIDS for those attending courses in the health field, with statistically significant differences. Mean values lie in the improved utilization of information sources on AIDS for all students attending the last year of higher education course. Due to previous studies that took place in Portugal it is possible to note a progressive improvement in the selection of sources to get information about AIDS.

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## Conflicts of interest

The authors declare that there are no conflicts of interest.

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