



Attitudes of Elements of the Academic Community in Regard to the Rapid Test of HIV/AIDS

Frias A. M. *, Sim-Sim M. M., Chora M. A., Barros M. L., Silva G. M.

Nursing Department, University of Évora, Evora, Portugal

Email address:

anafrias@uevora.pt (Frias A. M.)

*Corresponding author

To cite this article:

Frias A. M., Sim-Sim M. M., Chora M. A., Barros M. L., Silva G. M. Attitudes of Elements of the Academic Community in Regard to the Rapid Test of HIV/AIDS. *International Journal of HIV/AIDS Prevention, Education and Behavioural Science*. Vol. 2, No. 4, 2016, pp. 27-35. doi: 10.11648/j.ijhpebs.20160204.12

Received: October 28, 2016; **Accepted:** December 10, 2016; **Published:** January 5, 2017

Abstract: *Background:* Knowing one's own seropositivity status of HIV/AIDS is important. Seropositivity can be determined by a rapid HIV/AIDS test. Attitudes towards a rapid test of HIV/AIDS show a predisposition to perform the analysis. *Objective:* This study investigated, the attitudes of students and staff in a Portuguese university toward rapid HIV/AIDS test. *Methods:* In a convenience sample, the data was collected on campus in three consecutive years. A self-administered structured questionnaire was used for data collection. A validated scale for Portuguese students was applied. A sample of 947 (86.3%) students and 150 (13.7%) teaching and non-teaching staff participated. The average age was 24.30 years-old (SD=8.64). Non-parametric tests were applied. *Results:* Attitudes of professors and non-teaching staff are more favorable in relation to the rapid test of HIV/AIDS, compared to students. Attitudes are also more favorable in the first year in which the study was conducted with both employees and students. The male students express more traditional attitudes. Students of nursing polo have expressed more favorable attitudes to the rapid test of HIV/AIDS. *Conclusion:* The attitudes towards rapid test of HIV/AIDS are generally favorable. It is necessary to conduct further research considering professors and other university staff. Improving favorable attitudes toward rapid HIV/AIDS test must be a positive fact for health.

Keywords: Health Attitudes, Health Behavior, HIV, Rapid HIV Testing, Students

1. Introduction

The rapid test of HIV/AIDS is specimen test, the result of fingerstick and analysis of capillary blood drop. It is an important resource for the health of the population given the speed of the results. It has the brevity of the referral unlike other laboratory procedures, which are subject to request and schedule may discourage or delay the verification of serology. In fact, it provides the answer in minutes. The rapid test of HIV/AIDS is reliable after three months the risk of contact but does not dispense laboratory confirmation if they detected HIV antibodies (i.e. Health General Directorate. Portugal. Standard 058/2011). The realization of the rapid test HIV / AIDS includes pre and post-test counseling. In Anglo-Saxon designation, for all these procedures it is often meet the terms of Voluntary Counselling and Testing (VCT) or HIV Testing and Counselling (HTC) or Rapid Diagnostic Tests (RDTs) [1-3].

In the Portuguese health system, the rapid test of HIV/AIDS is available in health units in Counseling Centers and Detection of HIV Early (CAD), which is held under consent, anonymously, with complete information about their nature and results (i.e. the General Health Directorate. Portugal. Standard 058/2011). It is attractive in street programs for people who have never made any assessment and a lack of training and information are unlikely to meet it [4]. In the general population the acceptance of rapid test of HIV/AIDS is positive [5], as well as in infected drug users and uninfected [6], the emigrants in Europe [7], in non-heterosexual minorities [8]. In non-clinical settings there are successfully implemented programs for the population to guarantee the confidentiality, discretion in the decision and gracious access [9, 10].

In addition to programs and studies in the community [11] screenings news in some of the electronic portals of Portuguese universities have emerged, opportune because of the type of known behaviors in college students [12]. The

University of Évora (UE) implemented from the academic year 2013-2014 the project Knowing and Preventing HIV/AIDS, in the academic community. In this project for individual benefit and potential partners, optimizing partnerships with CAD Évora, there are regular activities where mobile van offers freely, in various centers of the university campus, the rapid test of HIV/AIDS. In the programs of HIV/AIDS the rapid test offered by universities has registers of both little and high acceptance, but there is knowledge about the benefits of the test [2].

However, some gaps do exist. Despite the offer in the universities, the study of attitudes toward this test is scarce. On the one hand most college does not seek to know their HIV status; on the other hand they seem to be interested to identify the services/places where they perform the rapid test of HIV/AIDS [13]. In regard to knowledge about the disease, the benefits or screening resources do not translate into behavior change [2]. School-based studies show that the main reasons for not doing the rapid test of HIV/AIDS is fear, perception of being in low-risk, low susceptibility to infection or lack of information / education regarding this feature [1, 2]. In medical students, some barriers have been identified including the positive result of fear, but a predisposition to perform the test is high [14]. Unlike, nursing students' attitudes about the rapid test of HIV/AIDS are not very favorable [15]. Regarding the attitudes of other members of the academic community (i.e. teaching and non-teaching staff) studies are scarce, but it is known that professors influence students, particularly girls, to predispose to perform the test [16]. Attitudes to the rapid test HIV/AIDS were studied through psychometric scales, namely Attitudes about HIV-Antibody Testing Scale (HTAs) in African universities and multi-center projects [2, 17]. Thus, in the presence of some controversial results and/or its scarcity, it stresses the need to investigate the attitudes of members of the academic community. In fact, attitudes towards rapid test of HIV/AIDS represent the predisposition to perform the serological test [17] that is the direction to monitor their health.

As much as we can find in the database for Portugal, no publication deals with the attitudes toward the rapid test of university students and staff. Through the study of the attitudes about the various elements of the academic community we can identify deficiencies, social stigmas, and vulnerabilities. Universities, in addition to the formal scientific curricula, are crucibles of informal education. Among the many members of the academic community, they have transmitted and have swapped perspectives, involved on their own health and thus and a little available for the self-monitoring. It will be appropriate to the achievement of the current study, which aims to describe the attitudes of members of the academic community of the University of Évora when facing the rapid test of HIV/AIDS by applying the HTAs.

2. Methods

2.1. Study Design and Population

This is a descriptive and cross-sectional study that used

quantitative methods. Data were collected in three consecutive academic years considering nine university groups.

2.2. Sample

To be included, the participants had to be either a student or a worker at the university. We contacted 1156 people in the various areas of the campus. After removing tourists, visitors and incomplete questionnaires, the convenience sample resulted in 1097 cases. In the year 2013-2014, we collected a total of 617 questionnaires (56.2%) in 2014, in 2015 we collected 372 (33.9%), and in the year 2015-2016 we collected 108 (9.8%) cases.

2.3. Instrument

A questionnaire was applied to people who were circulating on campus, in the vicinity of a mobile van, which was offered freely the rapid test of HIV/AIDS. The approach to people, after explanation of the research and their consent, asked to fill in a questionnaire, taking about 8 minutes. In the questionnaire as well as characterization data (i.e. gender, age, profession, function at the university),

The HTAS is a scale with 22 items. Eight are phrased positively such as "My friends would support my decision to get an HIV" and 14 are negatively phrased, such as "I am afraid that if I were to be tested for HIV, my name would go into public records.". The items use a five point Likert scale ranging from "completely disagree" to "completely agree." The total score is based on the sum of points after reversing the items that are negatively formed. The higher the number of points, the more favorable the attitudes toward the test.

The instrument HTAs was validated for Portuguese [18]. In the current study the internal consistency of this Portuguese version of the scale shows an alpha coefficient of Cronbach of .831.

2.4. Ethical Considerations

The current study is part of Project HIV/AIDS in the Academic Community, with the 13009 registration. Permission to conduct the current research was obtained from Ethics Committee of the Research Center for Health Sciences and Technology at the University of Évora.

Each informant was requested to sign the consent form before completing the questionnaire.

2.5. Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 24.0. Tools used for analysis included frequencies and nonparametric tests. The level of significance was set at 0.05 ($\alpha=5\%$).

3. Results

3.1. Sample Descriptive Statistics

The average age of participants was 24.30 years-old

(SD=8.64) with a range of 18-61. The vast majority of subjects were students ($n=947$; 86.3%) in comparison with teaching staff and non-teaching staff ($n=150$; 13.7%). Females had greater representation ($n=657$; 59.9%) in the sample. Among boys, about half usually have preservatives ($n=213$; 53.8%), while in girls this appears in less than 1/3 ($n=162$; 29.5%).

3.2. Exploratory Analysis of the Variable Under Study

Exploratory analysis of the variable under study was held firstly, from the data collected in HTAs, both of descriptive and graphics. Descriptive of HTAs presented Media=74.61 (SD=9.163), with amplitude 44-90 and Median=75. In the histogram finds the dispersion of scores fashion and 86 stands on the highest column (Figure 1).

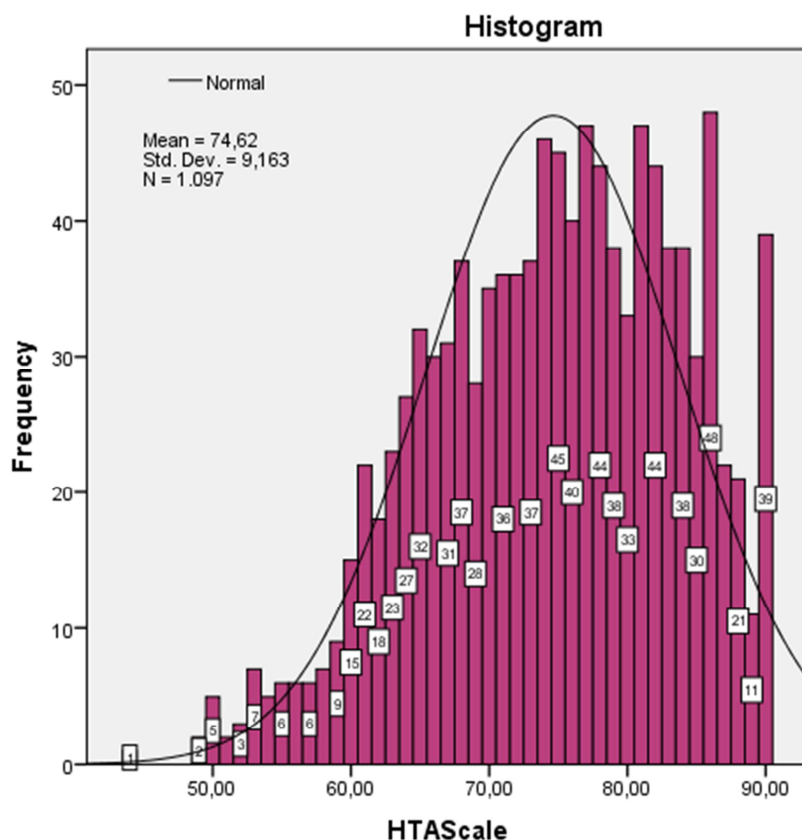


Figure 1. Histogram of HIV-HTAS.

It is observed a ratio of Skewness -5.14 and a degree of kurtosis 2.97. In the box plot an outlier is registered.

Using the Kolmogorov-Smirnoff test, It is found that the distribution of HTA does not have normal variable ($K-S < .05$). The following are the results using non-parametric tests.

3.3. Attitudes Toward the Rapid Test of HIV/AIDS Considering Type of Participants

The Mann-Whitney U test was used to compare differences between two independent groups when the dependent variable is not normally distributed. Considering the two groups of participants, i.e. students and staff, it was observed that the medians in the HTA are significantly different ($U=78959,500$; $n=1097$, $Z=-2,202$, $P=.028$). The staff (eg professors and non-teaching staff) shows averages of higher ordination ($n=150$; Med=601.90) when compared to students ($n=947$; Med=540.62).

It can be seen that attitudes toward the rapid test in the staff group were significantly higher than among the student

group.

3.4. Attitudes Toward the Rapid Test of HIV/AIDS Considering Project Evolution in Academic Years

Over the three academic years (eg abbreviated as AcdY in the figure) of the project, three groups of data emerged. When the observation of HTAs over the three year project, through the Kruskal-Wallis statistics, it is observed that at least in one of the years there is a significantly different median ($H(2)=6.683$, $p=.035$). In the sub-sample of staff there are significant differences ($H(2)=6,378$, $p=.041$), and in multiple comparisons of means of Dunn orders it appears that the employees who responded to the questionnaire in the academic year 2014-2015 have a significantly higher score in the HTA when it is compared to the academic year 2015-2016 (Figure 2).

In sub-sample of the students to realize the Kruskal-Wallis test, there are also significant differences in the HTA, according to the academic years of data collection ($H(2)=8.833$, $p=.012$, $n=947$). For multiple comparisons of

means of Dunn orders, it appears that students who responded to the questionnaire in the academic year 2013-2014 have a significantly higher score in HTAs when they're

compared to those who responded in the academic year 2014-2015 (Figure 3).

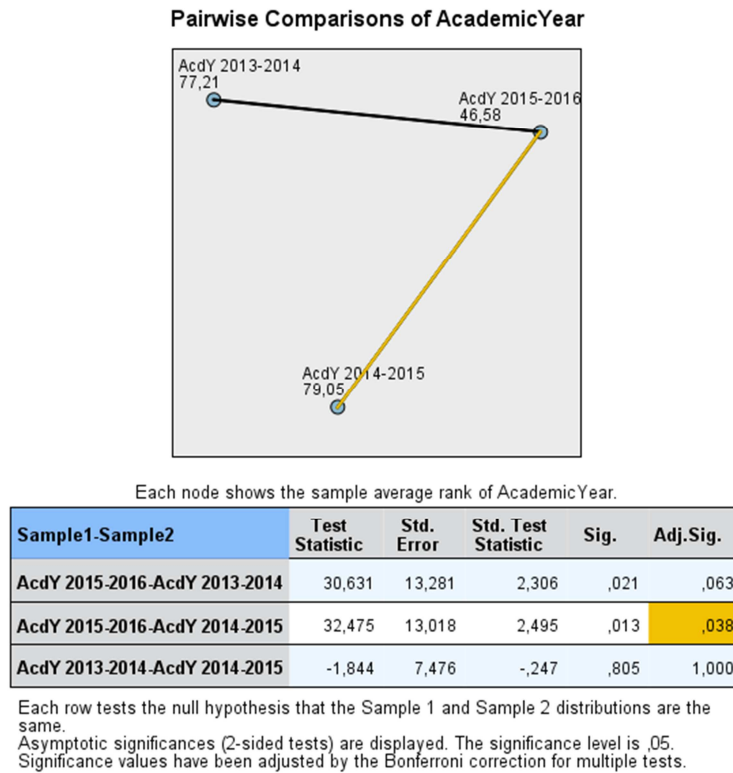


Figure 2. Multiple comparisons of Dunn orders for HTAs in the sub-sample of employees according to the year of data collection.

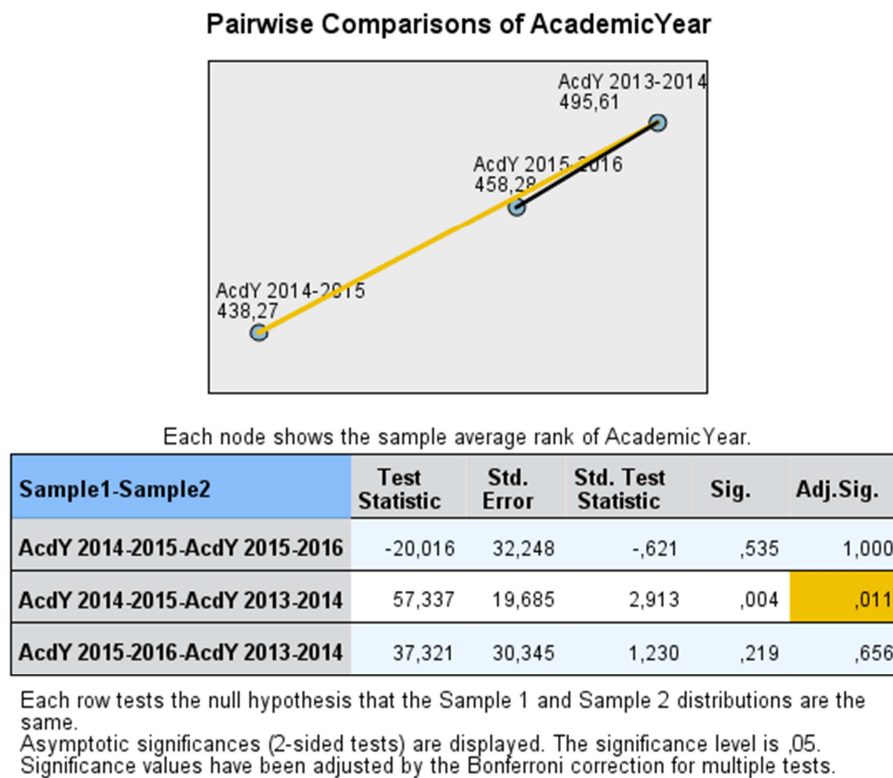


Figure 3. Multiple comparisons of Dunn orders for HTAs in students according to the year of data collection.

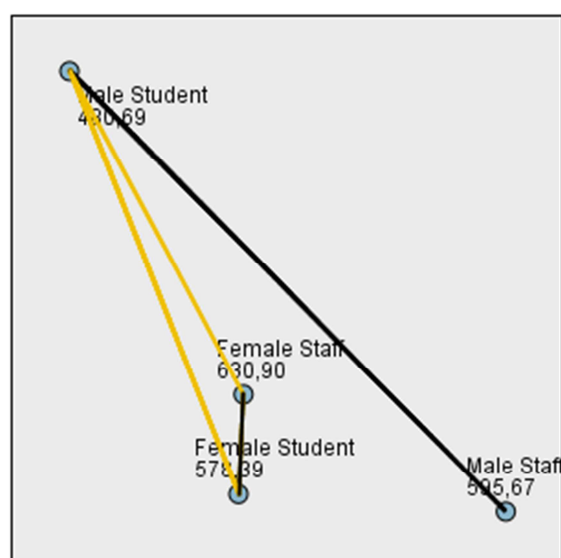
3.5. Attitudes Toward the Rapid Test of HIV/AIDS Considering Gender

A Kruskal-Wallis test was performed comparing males and females from each group (students and staff). Through a Kruskal-Wallis test for independent samples it was revealed that there are significant differences in the HTA ($M(3)=31,372$, $p=.0100$, $n=1097$) when it is compared to the relatively sub-samples and the function at the university (i.e. student or employee in both gender). Females, be they university staff or students, showed significantly more favorable attitudes than males. In fact by the multiple comparison of means of Dunn orders, the male students have presented media of ordination in HTAs significantly less favorable when they are compared to women, students ($p=.000$) or employees ($p=.000$), according to Figure 4.

3.6. Attitudes Toward the Rapid Test of HIV/AIDS by Academic School

Given the students, there are significant differences when considering the four schools of the university ($H(3)=13,027$, $p=.005$; $n=918$). In order to examine differences between each school pairwise comparisons were done. The average of ordination in HTAs of the subsample of Nursing School ($n=153$) is the highest of all and significantly higher in relation to the sub-sample of students from the School of Technology ($n=301$, $p=.002$) and School of Social Sciences ($n=298$, $p=.036$). Significant differences exist between the School of Nursing and the School of Social Sciences, with the School of Nursing always showing higher means. Although the School of Nursing showed higher means than the School of Arts, the difference between the means was not significant. Among the three schools the differences were not significant. The Graph 5 shows the Dunn multiple comparisons of Order.

Pairwise Comparisons of RoleSex



Each node shows the sample average rank of RoleSex.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Male Student-Female Student	-97,699	20,869	-4,682	,000	,000
Male Student-Male Staff	-114,977	51,385	-2,238	,025	,152
Male Student-Female Staff	-150,214	34,250	-4,386	,000	,000
Female Student-Male Staff	-17,278	50,691	-,341	,733	1,000
Female Student-Female Staff	-52,515	33,199	-1,582	,114	,682
Male Staff-Female Staff	-35,237	57,508	-,613	,540	1,000

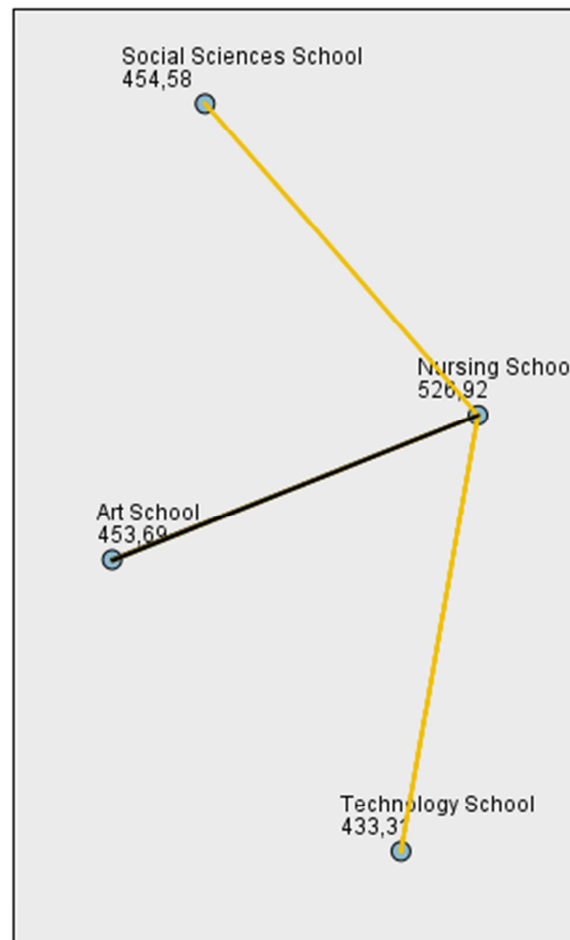
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Significance values have been adjusted by the Bonferroni correction for multiple tests.

Figure 4. Multiple comparisons of Dunn orders for HTAs according to subsamples sex-role in university.

Pairwise Comparisons of University Schools



Each node shows the sample average rank of University Schools.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Technology School-Art School	-20,381	25,619	-.796	,426	1,000
Technology School-Social	21,275	21,655	,982	,326	1,000
Technology School-Nursing	-93,616	26,311	-3,558	,000	,002
Art School-Social Sciences	,894	25,665	,035	,972	1,000
Art School-Nursing School	-73,235	29,699	-2,466	,014	,082
Social Sciences School-Nursing	-72,341	26,356	-2,745	,006	,036

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Significance values have been adjusted by the Bonferroni correction for multiple tests.

Figure 5. Multiple comparisons of Dunn orders for HTAs depending on subsamples of university schools.

4. Discussion

4.1. Discussing the Variable Under Study

Considering the variable HTAs in the study, measures of central tendency had a lower average than the median and less than mode, indicating negative skewness. The skewness quotient confirmed a negatively skewed distribution, or asymmetric left ($Sks / SE = -5.14$) and the degree of kurtosis showed leptokurtic elevation ($K / SE = 2.97$). In fact, the

presence of atypical values (eg if 308) does not require its withdrawal [19] and was not found error in the data review, remained. The presence of outliers is legitimate and we chose comprehensive solution that is desirable to collect naturally diverse opinions on the matters under investigation. Rarely distributions are symmetrical but it should be noted these aspects to be aware of deviations from the media and thus the sample response trend in study [19]. In the current investigation it was justified to perform initially exploratory data analysis using descriptive and graphical techniques as

they offer a comprehensive understanding of how the study participants behave in relation to variable HTAs. On the other hand Portuguese studies were not known with HTAs instrument, as well as its validation [18]. With this analysis there is an agglomeration tendency of data values to the right side of the middle, which brings high scores to the HTA means a positive opinion to the rapid test of HIV/AIDS. This contributes to studies which generally show interest in testing and high predisposition to perform it [1, 5]. Achieving this kind of rapid tests, it can be configured as a way to limit the spread of HIV and to promote the demand for health services.

Given the non-variable distribution of normality HTAs we opted for non-parametric statistical towards achieving accuracy in interpreting the results. In fact, it is recommended the use of median or mode as typical representative values of the sample, because the distribution is not normal, there is distortion of the mean value [19].

4.2. Attitudes Toward the Rapid Test of HIV/AIDS Considering Type of Participant

Although there are studies in universities [2, 15, 20], the attitudes of other members of the academic community beyond the students are rarely visible. That is not found in literature of comparison between groups (i.e. students *versus* employees). In the current study, the lowest average of HTAs of ordinations in students contributes to authors who observe moderately supporters attitudes to this type of testing [18], unlike other studies that are strongly positive attitudes [20]. The current results are somewhat unexpected, it would be logical one attitudinal stance more favorable for students, given that during the university years the affective-sexual trials are frequent and risk compounded by unprotected sex [2, 17]. Other aspects, such as multiple partners and sequential monogamy, provide forms of STI transmission that are not negligible. When it's not exposed a study in a similar population that represents teaching staff and in higher education, suggest the results that most life experience could lead to greater openness and less fear of social criticism among peers, aspect that students are vulnerable [20]. On the other hand professors, i.e. a portion of this subsample, have in schools educational functions that may influence the greater tendency to see the rapid test of HIV in valuing attitude and thus higher score in HTAs. Actual results contribute to the trend observed in professors of pre-university level who show positive attitude towards this type of testing for HIV/AIDS [21].

4.3. Attitudes Toward the Rapid Test of HIV/AIDS Considering Project Evolution in Time

The students surveyed in the first year that it was held to offer free rapid test of HIV on campus have averaged significantly higher ordination in HTAs. That is, in the inaugural year, participants showed greater prevalence of high scores in HTAs. In fact, the project was a novelty in the institution and in academia in general, as much as possible

unveiling in the year 2013-2014 the portals of the Portuguese universities, few academic institutions have similar projects. On the other hand, the project breaks conservative postures and open space on campus to address in public private matters reported to sexuality, HIV and safe sex. The rupture with conservatism with regard to these issues is perhaps attractive to students, answering the need for information. But the six-month with the activities and TR-HIV offer may, to have reduced the novelty effect, lead to lower valuation. The results to some extent agree with those obtained by other authors, showing that after participating in a new project in a university, subjects showed a slight increase in enthusiasm for, and a return to few of HIV/AIDS test performed, like occurs in general population [9].

4.4. Attitudes Toward the Rapid Test of HIV/AIDS Considering Participants Gender

Regarding the analysis of HTAs in sub-samples of sex, male students are who express less favorable attitudes, results that contribute to some studies [9, 22], but against to other where the boys value most the rapid test when it is compared to girls [20], or others who do not register differences based on sex [17]. Not having a vantage perspective of the rapid test of HIV and unaware of the HIV status can be problematic. In fact, if we consider that the most widely used method for the prevention of HIV is the male condom, and that for boys the use of this method is a behavior, which for women is a goal, but it stands out in the sample of the current study a little immediate availability of condoms, we may be in the presence of risks which are not made aware by students and not accountable at the time. In fact, the college students' behavior is somewhat problematic as regards the risks of sexual activity [12].

4.5. Attitudes Toward the Rapid Test of HIV/AIDS Considering Academic Schools

The subsample of participants of School of Nursing has higher scores on HTAs and this was expected, as it is a school of health where the content on HIV/AIDS syndrome is formally made in the curriculum. The results contribute to studies in schools of health care [14, 15], but do not reflect other authors who find in students of health area inconsistent attitudes towards the rapid test of HIV/AIDS [20]. The highest score in the subsample of Nursing may possibly have other influences. The nursing school develops for three years a project with specific training on HIV / AIDS, to educate/act among peers, aspect that can be the differentiating factor in relation to other schools of the university. That is, every six months, for several weeks in extra-curricular format, a group of students have specific training on matters relating to HIV/AIDS.

It seems clear that the existence of programs where students are educators have contributed to the adhesion effect to screening and more positive attitudes to the rapid test, underlined by some authors

[2]. It encourages in this way a culture of openness and

preparedness to be an agent of change among peers.

5. Conclusion

Totally, elements of the academic community expressed positive attitudes in HTAs, conveying appreciation of the rapid test of HIV/AIDS. The male students express more traditionalist positions, which may involve risks and needs to be studied in detail way, associating (in) safe sex practices and type of sexual partners.

The comparison of current results in similar socio-cultural contexts is difficult because most of the studies on the students' attitudes in regard to the rapid test of HIV/AIDS are in African countries, where the test is fostered and considered means of preventing spread of infection. In European countries the norm is the contention on the availability of rapid test of HIV/AIDS. Given the migratory movements of the general population and the increased mobility of students in inter-university exchanges, it is necessary to rethink the benefits that may have prevention programs on campus, although invisible immediately. If the rapid test of HIV/AIDS is understood in a valuing way, the barriers to their achievement decrease, having more value to health, which in fact it is one of the greatest assets.

In the global elements of the academic community expressed positive attitudes in HTAs, conveying appreciation of the rapid test HIV/AIDS. The male students express more traditionalist positions, which may involve risks and needs to be studied in detail way, associating sex practices (in) safe and type of sexual partners.

The comparison of current results in similar socio-cultural contexts is difficult because most of the studies on the attitudes of students face the rapid test HIV/AIDS is in African countries, where the test is fostered and considered means of preventing spread of infection. In European countries the norm is the contention on the availability of rapid testing HIV / AIDS. Given the migratory movements of the general population and the increased mobility of students in inter-university exchanges, will be to rethink the benefits that may have prevention programs on campus, although invisible immediately. If HIV / AIDS rapid test is understood valuing way, the barriers to their achievement decrease if reaping more value to health, which in fact is one of the greatest assets.

Limitations

The small number of participants during the last two years prohibits the generalizability of the current study.

Recommendations

Given the results of the current study and current health initiatives in universities, it is appropriate to continue to offer the rapid test without charge at the University of Évora.

Future Research

Considering the size of the present study, we intend to study the attitudes toward the rapid test of AIDS of students at other academic institutions in nearby cities.

Competing Interests

The present study shows no financial or other contribution that could create a conflict of interest.

References

- [1] Madiba S, Mokgatle M. "Students want HIV testing in schools" a formative evaluation of the acceptability of HIV testing and counselling at schools in Gauteng and North West provinces in South Africa. *BMC Public Health*. 2015; 15: 388.
- [2] Mwangi RW, Ngure P, Thiga M, Ngure J. Factors influencing the utilization of Voluntary Counselling and Testing services among university students in Kenya. *Glob J Health Sci*. 2014; 6 (4): 84-93.
- [3] WHO. Consolidated guidelines on HIV testing services. Geneva: World Health Organization; 2015.
- [4] Fernández-Balbuena S, de la Fuente L, Hoyos J, Rosales-Statkus ME, Barrio G, Belza MJ, et al. Highly visible street-based HIV rapid testing: is it an attractive option for a previously untested population? A cross-sectional study. *Sex Transm Infect*. 2014; 90 (2): 112-118.
- [5] Kenya S, Okoro I, Wallace K, Carrasquillo O, Prado G. Strategies to Improve HIV Testing in African Americans. *J Assoc Nurses AIDS Care*. 2015; 26 (4): 357-367.
- [6] Telles-Dias PR, Westman S, Fernandez AE, Sanchez M, Group RTW. [Perceptions of HIV rapid testing among injecting drug users in Brazil]. *Rev Saude Publica*. 2007; 41 Suppl 2: 94-100.
- [7] Gennotte AF, Semaille P, Ellis C, Necsoi C, Abdulatif M, Chellum N, et al. Feasibility and acceptability of HIV screening through the use of rapid tests by general practitioners in a Brussels area with a substantial African community. *HIV Med*. 2013; 14 Suppl 3: 57-60.
- [8] Wong HT, Tam HY, Chan DP, Lee SS. Usage and Acceptability of HIV Self-testing in Men who have Sex with Men in Hong Kong. *AIDS Behav*. 2014.
- [9] Clifton S, Nardone A, Field N, Mercer CH, Tanton C, Macdowall W, et al. HIV testing, risk perception, and behaviour in the British population. *AIDS*. 2016; 30 (6): 943-952.
- [10] Di Giuseppe G, Sessa A, Mollo S, Corbisiero N, Angelillo IF, Group CW. Knowledge, attitudes, and behaviors regarding HIV among first time attenders of voluntary counseling and testing services in Italy. *BMC Infect Dis*. 2013; 13: 277.
- [11] Ribeiro F, Sacramento O. A despistagem do VIH/sida: saúde pública e motivações dos utentes do teste rápido no Nordeste de Portugal. *Saúde Social*. 2014; 23 (2): 510-522.

- [12] Reis M, Ramiro L, Gaspar de Matos M, Diniz JA. Artigo original: Os comportamentos sexuais dos universitários portugueses de ambos os sexos em 2010. Sexual behaviours of Portuguese university students of both sexes in 2010 (English). 2012; 30: 105-114.
- [13] Oppong Asante K. HIV/AIDS knowledge and uptake of HIV counselling and testing among undergraduate private university students in Accra, Ghana. *Reprod Health*. 2013; 10: 17.
- [14] Daniyam CA, Agaba PA, Agaba E. Acceptability of voluntary counselling and testing among medical students in Jos, Nigeria. *J Infect Dev Ctries*. 2010; 4 (6): 357-361.
- [15] Donkor E. Knowledge, attitudes and practices of voluntary counselling and testing for HIV among university students. *Global Advanced Research Journal of Social Science*. 2012; 1 (2): 41-46.
- [16] Tenkorang EY, Maticka-Tyndale E. Individual- and school-level correlates of HIV testing among secondary school students in Kenya. *Stud Fam Plann*. 2013; 44 (2): 169-187.
- [17] Peltzer K, Nzewi E, Mohan K. Attitudes towards HIV-antibody testing and people with AIDS among university students in India, South Africa and United States. *Indian J Med Sci*. 2004; 58 (3): 95-108.
- [18] Frias A, Sim-Sim M, Chora M, Caldeira E. Adaptação e validação para português da HIV Antibody Testing Attitude Scale. *Acta Paulista de Enfermagem*. 2016; 29 (1): 77-83.
- [19] Dancey C, Reidy J. *Estatística sem Matemática para Psicologia*. 3 ed. S. Paulo: Artmed; 2006.
- [20] Addis Z, Yalew A, Shiferaw Y, Alemu A, Birhan W, Mathewose B, et al. Knowledge, attitude and practice towards voluntary counseling and testing among university students in North West Ethiopia: a cross sectional study. *BMC Public Health*. 2013; 13: 714.
- [21] Kakoko DC, Åström AN, Lugoe WL, Lie GT. Predicting intended use of voluntary HIV counselling and testing services among Tanzanian teachers using the theory of planned behaviour. *Social Science & Medicine*. 2006; 63 (4): 991-999.
- [22] Caldeira KM, Singer BJ, O'Grady KE, Vincent KB, Arria AM. HIV testing in recent college students: prevalence and correlates. *AIDS Educ Prev*. 2012; 24 (4): 363-376.