The Open Public Health Journal

Content list available at: https://openpublichealthjournal.com

RESEARCH ARTICLE

Knowledge about HIV/AIDS and Attitudes towards Sexuality of Undergraduate Students at a Peruvian University

Anwar Julio Yarin Achachagua[1,*], Ivan Ángel Encalada Díaz[2], Jorge Wilmer Elias Silupu[3], Abad Antonio Surichaqui Mateo[4], Sandy Dorian Isla Alcoser[5] and Beatriz Silvia Surichaqui Tiza[2]

[1]*Universidad Nacional Mayor de San Marcos, Facultad de Ingeniería Industrial, Lima District, Peru*
[2]*Universidad Nacional Mayor de San Marcos, Facultad de Educación, Lima District, Peru*
[3]*Universidad Nacional Ciro Alegría, Facultad de Ingeniería, La Libertad, Peru*
[4]*Universidad Nacional Huancavelica, Facultad de Ciencias Empresariales, Huancavelica, Peru*
[5]*Universidad Nacional de Huancavelica, Facultad de Ciencias Empresariales, Huancavelica, Peru*

Abstract:

Background:

In Peru, there are some concerning difficulties in ascertaining the situation of sexually transmitted diseases, which makes it even more difficult to prevent and improve this situation.

Objective:

The objective of this article was to inquire what knowledge the students at a Peruvian university have about HIV/AIDS in order to determine the relationship between this knowledge and attitude towards sexuality.

Methods:

This was a cross-sectional study with a non-experimental design, involving a quantitative approach and a correlation measurement. 294 students were included in the study. The data collection technique used was the survey for each study variable with a Cronbach's alpha of .884 for the first variable and .704 for the second variable. Spearman's Rho coefficient correlation test was used to contrast the results.

Results:

Among the results, a significant and reverse correlation was obtained between knowledge about HIV/AIDS and attitudes towards sexuality (r = -.304, p-value = .000). Likewise, only 54.8% of the students were found to have adequate knowledge regarding HIV/AIDS and 75.17% had normal attitude towards sexuality.

Conclusion:

It has been concluded that the more the adequate knowledge about HIV, the less students present risk-taking attitudes towards sexuality, and given the evidence of risky sexual behaviour in all age groups, as well as a significant number engaging in regular risk sexual behaviour, we suggest that universities implement sex education programs permanently regardless of the academic cycle.

Keywords: HIV/AIDS, Sexuality, Attitude, Level of knowledge, University, Adolescent.

Article History	Received: September 29, 2021	Revised: February 7, 2022	Accepted: February 24, 2022

1. INTRODUCTION

Today, young individuals get involved in sexual relationsat an early age in the absence of contraceptive methods that prevent the risk of unwanted pregnancy and sexually transmitted diseases (ETS) [1 - 5]; it is important to note that the incidence of sexual relations is increasing worldwide, a situation that makes it imperative that special attention be paid to the sexual conduct of adolescents [3, 6].

The Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) has become a disease that threatens the general population, affecting the body

* Address correspondence to this author at the Universidad Nacional Mayor de San Marcos, Facultad de Ingeniería Industrial, Lima District, Peru;
Tel: 51989427051; E-mail: anwar.yarin@unmsm.edu.pe

system, as well as mental health and social relationships [7 - 9].

After sub-Saharan Africa and Asia, Latin America is the most affected region by HIV. It is estimated that, in the year 2018, 100,000 people in Latin America contracted HIV, which represents an increase of 7% compared to 2010. Approximately, half of the countries that make up the region experienced an increase in its incidence during the period of 2010 to 2018, with the most significant rises occurring in Brazil, Costa Rica, Bolivia, and Chile [10].

Young people between the ages of 16 and 20 are in the high-risk group for HIV/AIDS in most parts of the world, as young people are more likely to have multiple sexual partners and engage in unprotected sex [11]. According to figures provided by United Nations International Children's Emergency Fund (UNICEF), around 30 adolescents between the ages of 15 and 19 contracted HIV every hour in 2017 [12]. In the case of Peru, according to the statistics provided by the Ministry of Health, in the period from 1983 to 2016, a total of 65,657 cases of HIV and 34,438 cases of AIDS were reported. Of the latter amount, 2.6% corresponded to people between 10 and 19 years of age, and 29.3% in those between 20 and 29 years of age. However, it is necessary to highlight that this disease has a long incubation period; thus, a large percentage of the latter value must have been infected before the age of 20 [13].

Literature on the knowledge of HIV and the attitude of young people to the risk of contracting it involves a wide range of studies carried out on this topic [1, 6, 11, 14 - 25].

In these studies, among other aspects, it is found that, in general, there is little and sometimes erroneous knowledge on the part of adolescents regarding HIV and STDs, as well as a denial of any vulnerability to contracting this virus. Some research has found a relationship between knowledge about HIV/AIDS and attitudes towards sexuality [24, 26], as well as there is research that has not identified a relationship between these variables [27, 28]. Despite the extensive scientific literature on this topic, there is no consensus regarding the level of information that adolescents have in relation to sexual health. Interestingly, where there is coherence is the fact that the use of contraceptive methods in adolescents is not sufficient, thus, it implies that the level of information does not necessarily lead to a preventive attitude [16].

Although in the literature, consulted people have been found to be sometimes aware of HIV transmission, there is a lack of understanding about the risk and potential danger of this disease, a situation that increases the vulnerability of young people and adolescents to HIV/AIDS [5, 29]. In the case of Peru, there are some concerning difficulties in ascertaining the situation of STDs [13], which makes it even more difficult to prevent and improve this situation. Similarly, AIDS programs, particularly those aimed at young people, focus on preventive measures [30], thus leaving a knowledge gap about STDs in the young population. Lack of knowledge, in addition to inaccurate concepts related to STDs, can lead to negative sexual consequences [19]. Sex education is known to be most effective when it is based on the opinions of the adolescents themselves; however, research studying the experiences of youth and adolescents who have received sex education is limited [18]. Undoubtedly, sex education is an excellent source of guidance for young people and adolescents regarding sexuality, sexual health, and relationships, resulting in a possible improvement in the sexual health of this population.

Due to the aforementioned aspects, the objective of this study was to inquire what knowledge the students at a Peruvian university have about HIV/AIDS in order to determine the relationship between this knowledge and their attitudes towards sexuality.

1.1. About Sexuality

According to Goldfarb and Constantine [31] “sexuality is shaped by the knowledge, beliefs, attitudes, values, and sexual conduct of individuals. Its dimensions take into account the anatomy, physiology, and biochemistry of the sexual response, as well as identity, orientation, roles, and personality as well as thoughts, feelings, and relationships”.

In 1991, the authors Simpson and Gangestad indicated that the sexual conduct of young adults is measured by their number of sexual partners, in addition to the age of individuals at the time of their first sexual encounter. Furthermore, regarding attitudes to sexuality, moral liberalism/conservatism is included, along with factors such as the condemnation of premarital sex as well as socio-sexuality, which is considered a measure of interest in casual sex [32]. It is convenient to provide information to young people for them to make decisions about their own sexuality, without feeling guilty or ashamed about it; in this sense, it provides them with a more balanced vision, and thus helps to meet their needs [33, 34]. Likewise, it is important to mention that many young people attend school without any experience of having sexual relations; therefore, the intervention of schools and universities in the context of HIV and AIDS through sex education serves as a pragmatic response to a social need [35].

The risk-taking attitudes with regards to sex among university students involve the consumption of drugs, alcohol, and having several sexual partners, as well as not taking up-to-date contraceptive methods into account in order to avoid unwanted pregnancies or sexually transmitted diseases [36 - 38].

It is important to mention that attitudes and behaviors related to sexuality are a social construct. Attitudes towards sex include beliefs regarding cultural norms, decisions related to having sex, and perceptions about sexual conduct [39].

2. MATERIALS AND METHODS

2.1. Study Location

The study was carried out in 2019 within the Mechanical Engineering Faculty at the National University of Engineering, located in Lima-Peru.

2.2. Design

A cross-sectional quantitative study was carried out with non-experimental design involving a correlation measurement, since knowledge about HIV/AIDS and attitudes towards sexuality were described, and the relationship between these variables was determined.

2.3. Participants

A probability sampling was carried out with a level of 95% confidence interval and an error level of 5%, using equation 1:

$$= \frac{NxZ^2xpxq}{d^2x(N-1) + Z^2xpxq}$$

Where,

N= Population

Z=1.96 at 95% of reliability

p=0.5

q=0.5

d= 5% of error

The study population comprised 1,243 students, with ages ranging between 18 and 26 years. Therefore, a sample of 294 students was obtained.

$$n = \frac{1243x1.96^2x0.5x0.5}{0.05^2(1243-1) + 1.96^2x0.5x0.5} = 294\ students$$

The students completed the questionnaires in August 2019. The distribution and completion process was carried out over a period of two days.

2.4. Data Collection Instruments

For data collection, the survey technique was used, and the questionnaire was used as an instrument. The Statistical Package SPSS was used to verify if there is a relationship between the study variables, taking into consideration Spearman's Rho correlation coefficient.

Two questionnaires were used, based on the instrument by Vargas Ruiz (2007) [40], which itself consists of four dimensions (Sexual health, Reproductive health, HIV/AIDS, Condom use), subdivided into Attitude, Knowledge and Practice. For the present research, only the dimensions of Sexual Health and HIV/AIDS were used, taking into account the Attitude and Knowledge subdimensions for the Sexual Health and HIV/AIDS dimensions, respectively. This selection is due to the fact that these are the dimensions that are most closely related to the variables of our research. Finally, the Sexual Health and HIV/AIDS questionnaires consisted of 28 and 20 items, respectively.

For the reliability of instruments, a pilot test was carried out on 10% of the sample, that is to say, with 30 students, where a reliability score of .884 for the Knowledge about HIV/AIDS questionnaire and .704 for the Attitudes towards Sexuality questionnaire was obtained.

Likewise, for the validation of instruments, the judgment of experts was taken into account, including 3 teachers from a university located in Lima, Peru, with which an Aiken V value was obtained close to the unit. Through this coefficient, it was possible to quantify the relevance of the items of these instruments considering the following criteria: writing, relevance, coherence, appropriateness, and understanding.

3. RESULTS

According to Table **1**, a total sample of 294 students was evaluated. It can be observed that there is a higher percentage of people between 21 and 23 years of age, with 38.3% being female and 36% male. Likewise, according to the academic cycle, a higher percentage is observed in those students belonging to the first cycle (53%).

As can be observed in Table **2**, 54.76% of those surveyed had adequate knowledge about HIV, while 45.24% were unaware of matters related to it.

As can be seen in Table **3**, the attitude towards sexuality was mostly regular in 75.17% of the cases.

Table 1. Characteristics of the sample.

Age			Gender		Total
			Female	Male	
18 a 20	Academic cycle	1 a 4	24	32	56
		5 a 7	14	18	32
		8 a 10	8	8	16
	Total		46	58	104
21 a 23	academic cycle	1 a 4	29	28	57
		5 a 7	17	21	38
		8 a 10	5	9	14
	Total		51	58	109
24 a 26	academic cycle	1 a 4	16	27	43
		5 a 7	15	13	28
		8 a 10	5	5	10
	Total		36	45	81
Total	academic cycle	1 a 4	69	87	156
		5 a 7	46	52	98
		8 a 10	18	22	40
	Total		133	161	294

Table 2. Knowledge about HIV/AIDS.

Knowledge	Frequency	Valid Percentage	Accumulated Percentage
Adequate	161	54,8	54,8
Inadequate	133	45,2	100,0
Total	294	100,0	

Table 3. Attitudes towards sexuality.

Attitude	Frequency	Valid percentage
Bad	49	16.66
Regular	221	75.17
Good	24	8.17
Total	294	100,0

As can be seen in Table **4**, there is sufficient evidence to affirm that the level of knowledge about HIV is associated with attitude towards sexuality.

As can be seen in Table **5**, the significance .000 is less than .05; thus, there is enough evidence to affirm that the level of knowledge about HIV correlates with the attitude of adolescents towards sexuality. Consequently, the more adequate the knowledge about HIV, the less students present risk-taking attitudes towards sexuality.

As can be seen in Table **6**, the significance is greater than .05; thus, there is sufficient evidence to deny any correlation between Knowledge about HIV/AIDS and age.

As can be seen in Table **7**, there is enough evidence to affirm that age positively correlates with attitude towards sexuality, since its significance is less than 0.01.

After analyzing the results shown in Table **8**, it is concluded that a minority of people engage in high-risk sexual behavior at different ages. However, the respondents corresponding to the age range of 21-23 years are most engages in regular risk level sexual behavior.

As can be seen in Table **9** , according to the opinion of the students, the item with the greatest impact in terms of knowledge about HIV was "most sexually transmitted infections can be totally cured with timely and adequate treatment".

As can be seen in Table **10** , according to the opinion of the students, the item with the greatest impact in terms of attitude towards sexuality was " Masturbation causes acne".

4. DISCUSSION

Of the total sample analyzed (n = 294), the majority was male; n = 161 (55%). The age range between 21 and 23 years was the most representative of the sample, being 37% of the total. Likewise, according to the academic cycle, a higher percentage of students belonging to the first cycle was observed (53%). In the same way, 75% of the students were found to have a regular attitude towards sexuality, followed by 17% having a bad attitude and, finally, the lowest percentage corresponded to the students with a good attitude towards sexuality represented by 8% of the sample. It was found that only 54.8% of the students had adequate knowledge about HIV/AIDS (Table **2**), unlike the findings reported previously [25], which indicated that Iranian students have low knowledge accompanied by erroneous beliefs, which generates a greater risk of contagion.

Table 4. Chi-cuadrado test.

Value		df	Asymptotic Significance (Bilateral)
Pearson Chi-squared test	28.240a	2	.000

[df=] degrees of freedom of Chi-squared

Table 5. Relationship between Knowledge about HIV/AIDS and Attitude towards Sexuality.

			Knowledge about HIV/AIDS	Attitude Towards Sexuality
Rho de Spearman	Knowledge about HIV/AIDS	Correlation coefficient	1.000	-.304**
		Significance (bilateral)	.	.000
		N	294	294
	Attitude about Sexuality	Correlation coefficient	-.304**	1.000
		Significance (bilateral)	.000	.
		N	294	294

** The correlation is significant at level 0.01 (bilateral)

Table 6. Relationship between Knowledge about HIV/AIDS and age.

			Age	Knowledge about HIV/AIDS
Rho de Spearman	Age	Correlation coefficient	1.000	-.015
		Significance (bilateral)	.	.799
		N	294	294
	Knowledge about HIV/AIDS	Correlation coefficient	-.015	1.000
		Significance (bilateral)	.799	.
		N	294	294

Table 7. Relationship between Attitudes about Sexuality and age.

			Age	Attitude Towards Sexuality
Rho de Spearman	Age	Correlation coefficient	1.000	.152**
		Significance (bilateral)	.	.009
		N	294	294
	Attitude towards Sexuality	Correlation coefficient	.152**	1.000
		Significance (bilateral)	.009	.
		N	294	294

** The correlation is significant at level 0.01 (bilateral).

Table 8. Crosstable - Attitudes towards Sexuality and age.

Attitude towards Sexuality	Age			Total
	18 a 20	21 a 23	24 a 26	
Bad	25	18	6	49
Regular	71	83	67	221
Good	8	8	8	24
Total	104	109	81	294

Table 9. Item of greatest relevance to the instrument Knowledge about HIV/AIDS.

			Knowledge about HIV	Most sexually transmitted infections can be completely cured, with timely and adequate treatment.
Rho de Spearman	Knowledge about HIV	Correlation coefficient	1.000	.735**
		Significance (bilateral)	.	.000
		N	294	294
	Most sexually transmitted infections can be completely cured, with timely and adequate treatment.	Correlation coefficient	.735**	1.000
		Significance (bilateral)	.000	.
		N	294	294

** The correlation is significant at level 0.01 (bilateral).

Table 10. Item of greatest relevance to the instrument Attitude towards Sexuality.

			Attitude Towards Sexuality	Masturbation Causes Acne
Rho de Spearman	Attitude towards Sexuality	Correlation coefficient	1.000	.418**
		Significance (bilateral)	.	.000
		N	294	294
	Masturbation causes acne	Correlation coefficient	.418**	1.000
		Significance (bilateral)	.000	.
		N	294	294

** The correlation is significant at level 0.01 (bilateral)..

Table 11. Frequency of knowledge about HIV/AIDS and attitude towards sexuality.

Attitude Towards Sexuality		Knowledge about HIV/AIDS					
		Adequate	%	Inadequate	%	Total	
Bad Regular Good	Recount	11	7	38	28	49	16.7
	Recount	131	81	90	68	221	75.2
	Recount	19	12	5	4	24	8.1
Total	Recount	161	100	133	100	294	100

It is important to highlight that as a result of the bibliographic review, young people and adolescents were found to have misconceptions about HIV, thinking that it is transmitted by a handshake, by witchcraft or that HIV has a quick cure [24].

An inverse and significant relationship was found between the level of knowledge about HIV and the attitude that adolescents have towards sexuality, with a p = .000 and an r = -. 304, which indicates that the more adequate the knowledge is of HIV, the less adolescents' attitudes towards sexuality will be based on risk-taking.

The results obtained in this study correspond to those obtained earlier [24], which found a significant association between attitudes towards sexuality and knowledge, reporting that participants who had inadequate knowledge about HIV manifested negative attitudes and participated in risky practices that could lead to HIV contraction.

Among the results obtained in this study, a greater number of students' knowledge, n=131 (81%), about HIV / AIDS was adequate and they had a regular attitude towards (Table **4**), which, although true, is neither positive nor negative. These results coincide in a certain way with a study conducted earlier [21], which demonstrated students with greater knowledge about HIV to present low-risk sexual behavior.

Regardless of the level of knowledge that students had regarding HIV, they could engage in risky sexual behaviours, as evidenced in the results shown in Table **11**. For example, students with adequate knowledge indicated having a regular attitude towards sexuality 81% of the time, and in turn, students who demonstrated inadequate knowledge indicated having a regular attitude towards sexuality 68% of the time. However, it should be noted that the percentage of students with adequate knowledge who reported having a good attitude towards sexuality (12%) was higher compared to students with inadequate knowledge and having a good attitude towards sexuality (4%).

This variability of results between knowledge about HIV and behavior towards sexuality has been explained from different points of view by authors [16], who have pointed out that there exists no significant relationship between knowledge about sexual health and risky sexual conduct exercised by adolescents. Many young people start having sexual relations at an early age whilst being aware of pregnancy and STDs; however, despite being aware of STDs, they have little knowledge about methods of prevention. On the other hand, a research work [41] stated that the grade of familiarity with respect to HIV/AIDS and its prevention does not correspond to patterns of sexual conduct, which was reflected in the students when engaging in riskier sexual behavior For instance, in a study [27], 65% of the young people and adolescents surveyed had regular knowledge of STIs, however, there was no indication of significance between this knowledge and the practice of risky sexual conduct. Aditionally, Duyan [42] found university students in Turkey to have scarce awareness regarding sexuality, and that this knowledge is not related to attitudes towards sex. Likewise, a study by Abuabat *et al*. [28] found no significant difference between the variables of knowledge and attitudes towards STIs in medical students. On the other hand, Folasayo *et al*. [19] observed that there is a lack of knowledge regarding the causes of STDs not related to HIV and that there is a high rate of risk-taking behavior amongst sexually active students in Malaysia, 66.7% of which revealed to have multiple sexual partners and 18% of which engaged in relations with sex workers. Besides, 17.4% were found to consume alcohol and 9.4% drugs before having sex.

Regarding attitude towards sexuality in the results obtained in our study, the most relevant item was "masturbation causes acne", while the item with the greatest impact in terms of knowledge about HIV was "most sexually transmitted infections can be totally cured with timely and adequate treatment". The latter coincides with the results of Folasayo *et al*. [19], who indicated that the majority of respondents affirmed that treatment should be sought immediately if they or their partners present symptoms.

Regarding attitude towards sexuality and age, a positive relationship was found between these two variables, with an r = .152 and a p = .009, and it was concluded that a minority of people engage in high-risk sexual behaviour within the different age groups. However, the respondents corresponding to the age range of 21-23 years were the ones who most engaged in sexual behaviour with a regular level of risk. However, a study [24] found a significant association between risky sexual practices and the age range of 15 to 19 years.

CONCLUSION

An inverse and significant relationship was found between the level of knowledge about HIV and the attitude that adolescents have towards sexuality. Likewise, a positive relationship was found between attitude towards sexuality and age; the respondents corresponding to the age range of 21-23 years were most found to be engaged in regular risk level sexual practices.

Given that only 54.76% of those surveyed had adequate knowledge about HIV and evidence of risky sexual behaviour was found in all age groups, as well as a significant number of participants engaged in regular risk sexual behaviour, we suggest that universities implement sex education programs

permanently as well as safe sex practices should be promoted regardless of the academic cycle.

This study recommends the authorities of the Peruvian health and education sector to take measures regarding the promotion of school-based health programs, given that there is a lack of information regarding the health needs of Peruvian students. As evidenced in the scientific literature consulted, in the results of this study, and also according to data obtained from the Ministry of Health, there are concerning difficulties in ascertaining the situation regarding STDs in Peru.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by a committee of ethical research by UNIVERSIDAD NACIONAL DE INGENIERÍA in October 2019 under the project identification code: 0007-FIM-UNI.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or research committee, and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

All participants were verbally informed of the objective of the study, the dissemination of the data, the voluntary nature of their participation, as well as the confidentiality of the data obtained. Verbal consent was obtained for participation in the study.

STANDARDS OF REPORTING

STROBE guidelines were followed in this study.

AVAILABILITY OF DATA AND MATERIALS

Not applicable.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

The authors thank the students who participated in this research.

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