

COMPARATIVE ANALYSIS OF THE KNOWLEDGE OF NURSING STUDENTS ON HIV/AIDS AND SYPHILIS

ANÁLISE COMPARATIVA DO CONHECIMENTO DE ESTUDANTES DE ENFERMAGEM SOBRE HIV/AIDS E SÍFILIS

ANÁLISIS COMPARATIVO DEL CONOCIMIENTO DE LOS ESTUDIANTES DE ENFERMERÍA SOBRE EL VIH/SIDA Y LA SÍFILIS

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Objective: to analyze the knowledge of nursing students from different undergraduate grades in relation to HIV/AIDS and syphilis. **Method:** descriptive-exploratory research, developed with 65 nursing students from a university in southern Brazil. Data were collected by an instrument adapted from the World Health Organization. Kruskal-Wallis test and fisher significant minimum difference was applied for comparison. **Results:** there was a significant difference in knowledge between the series in specific aspects of infections, such as: HIV immunological window, aids pathophysiology, mode of transmission of syphilis, undetectable method = non-transferable of HIV and characterization of syphilis phases. **Conclusion:** the acquisition of knowledge about HIV/AIDS and syphilis among nursing students tends to evolve throughout graduation, since the last grades presented better scores. However, the previous knowledge of the students of the initial grades was evident and, at times, it was not inferior in relation to the other ones.

Descriptors: Sexually Transmitted Diseases. Syphilis. HIV. Students, Nursing. Knowledge.

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Objetivo: analisar o conhecimento de estudantes de enfermagem de diferentes séries da graduação em relação ao HIV/aids e sífilis. Método: pesquisa quantitativa, desenvolvida com 65 acadêmicos de enfermagem de uma universidade do Sul do Brasil. Os dados foram coletados por instrumento adaptado da Organização Mundial da Saúde. Aplicou-se teste de Kruskal-Wallis e da diferença mínima significativa de Fisher para a comparação. Resultados: houve diferença significativa do conhecimento entre as séries em aspectos específicos das infecções, como: janela imunológica do HIV, fisiopatologia da aids, modo de transmissão da sífilis, método indetectável = intransmissível do HIV e caracterização das fases da sífilis. Conclusão: a aquisição de saberes sobre HIV/aids e sífilis entre estudantes de enfermagem tende a evoluir ao longo da graduação, visto que as últimas séries apresentaram melhores escores. Todavia, o conhecimento prévio dos estudantes das séries iniciais ficou evidente e, por vezes, não se inferiorizou em relação às demais.

Descritores: Infecções Sexualmente Transmissíveis. Sífilis. HIV. Estudantes de Enfermagem. Conhecimento.

Objetivo: analizar el conocimiento de los estudiantes de enfermería de diferentes grados de pregrado en relación con el VIH/SIDA y la sífilis. Método: investigación descriptiva-exploratoria, desarrollada con 65 estudiantes de enfermería de una universidad del sur de Brasil. Los datos fueron recolectados por un instrumento adaptado de la Organización Mundial de la Salud. Se aplicó la prueba de Kruskal-Wallis y la diferencia mínima significativa del pescador para la comparación. Resultados: hubo una diferencia significativa en el conocimiento entre las series en aspectos específicos de las infecciones, tales como: ventana inmunológica del VIH, fisiopatología del sida, modo de transmisión de la sífilis, método indetectable = intransferible del VIH y caracterización de las fases de sífilis. Conclusión: la adquisición de conocimientos sobre VIH/SIDA y sífilis entre los estudiantes de enfermería tiende a evolucionar a lo largo de la graduación, ya que los últimos grados presentaron mejores puntajes. Sin embargo, el conocimiento previo de los alumnos de las notas iniciales era evidente y, en ocasiones, no era inferior en relación a los demás.

Descriptores: Enfermedades de Transmisión Sexual. Sífilis. VIH. Estudiantes de Enfermería. Conocimiento.

Introduction

Currently, sexually transmitted infections (STIs) have become a worldwide phenomenon and one of the main public health problems⁽¹⁾. Among these, we highlight human immunodeficiency virus infection/acquired immunodeficiency syndrome (HIV/AIDS) and syphilis, which presented in Brazil in 2019, according to bulletins from the Ministry of Health, detection rates of 17.8 and 72.8 new cases per 100,000 inhabitants, respectively.

Syphilis is an infection caused by the chronic and curable *Treponema pallidum* bacteria, transmitted by unprotected sexual intercourse and vertically to the child during the pregnancy or delivery of an untreated or inadequately treated pregnant woman. Most people with syphilis are asymptomatic and live with the latent form. However, if left untreated, it can evolve into severe forms, with nervous and cardiovascular impairment⁽²⁾.

HIV is transmitted through contact with infected or piercing-contaminated body fluids,

unprotected sexual intercourse and during pregnancy, childbirth or breastfeeding in the case of a carrier mother. The infection has an acute phase, with nonspecific signs and symptoms, and an asymptomatic phase, which can last for years, depending on the immune response and viral load. The emergence of opportunistic infections and neoplasms defines AIDS⁽²⁾.

In recent years, the increase in these infections among young people has been noticeable, having repercussions for adulthood and contributing to the transmission chain. In Brazil, according to data from the Ministry of Health, in 2020, the population aged 13 to 19 years corresponded to 10.7% of new cases of acquired syphilis and 5.1% of HIV cases. When considering the beginning of adulthood (up to 29 years), the cases of syphilis and HIV came to correspond to 49.5% and 43.2%, respectively.

In this context, health education emerges as a strategy to build and disseminate knowledge, enabling emancipatory education

and strengthening health practices⁽³⁾. Nurses stand out in this scenario, because they have pedagogical practices that aim to provide information and elucidate doubts of the person and/or family member, prevent diseases or injuries and promote adaptation to self-care and better quality of life⁽³⁻⁵⁾.

In the scope of STIs, nurses are paramount and act through health education actions focused on prevention and immunization, breaking the transmission chain, rapid testing and early detection, counseling with active listening, treating the person and contacts, clinical and therapeutic monitoring, actively seeking partners and supporting decision-making⁽⁶⁻⁸⁾.

Therefore, it is essential that it receives the necessary knowledge during its training, since health education is an important ally in the prevention of STIs. However, in the scenario of the nursing professional's formative process, there is a fragility regarding the study on STIs, which tends to happen in a transversal way in grid disciplines and is not always present in the undergraduate curricula of the course⁽⁶⁾.

In view of the increase in cases of HIV/AIDS and syphilis, especially in the young population, and the relevance of the nursing professional in the health education of society for the prevention of STIs, it was considered important to know the evolution of the knowledge of nursing students on the theme during the formative process. Thus, it was intended to answer the question: Does the knowledge of nursing students about HIV/AIDS and syphilis differ during graduation?

Therefore, this study aimed to analyze the knowledge of nursing students from different undergraduate grades in relation to HIV/AIDS and syphilis.

Method

Descriptive-exploratory study, with a quantitative approach, carried out with students

of the bachelor's degree in nursing at the *Universidade Estadual de Maringá* (UEM), Maringá, Paraná, Brazil. The population consisted of 120 nursing students regularly enrolled and attending in the 2020 school year. Considering the 95% confidence level and sampling error of 5%, the sample was defined with 81 individuals.

The minimum age of 18 years was limited due to ethical aspects about consent and maximum of 25 years, considering that the collection instrument is intended for the young population⁽⁹⁾. Because of this, 13 students were excluded because they did not have the minimum age and 9 because they exceeded the maximum. The study included 65 students. The researchers were not informed about the reasons for refusal of the other students (n=33).

The nursing course of UEM has its pedagogical project based on the axis of integral care and is structured in four series, which develop annually consecutively, as the basic conditions are obtained for the student to ascend from one series to another. Each year, about 45 new students enter and around 30, complete the graduation.

The course aims to train nurses with technical-scientific and political competence in the areas of care, administrative, educational and scientific. Thus, these are prepared to perform activities aimed at promoting, protecting, preventing, maintaining and recovering health with individuals, families and social groups, through a practice based on a critical reflection of the health-disease process, with a sense of social responsibility and commitment to citizenship.

Data were collected between November 2020 and February 2021 via Google Forms due to the COVID-19 pandemic. For this purpose, an instrument adapted from a questionnaire of the World Health Organization⁽⁹⁾ was used to perceive the health of adolescents. The instrument had 30 statements divided into three blocks: personal aspects, knowledge about HIV/AIDS and knowledge about syphilis (Chart 1).

Chart 1 – Identification of issues related to personal aspects, knowledge about HIV/AIDS and syphilis of the data collection instrument (continued)

| Personal aspects | |
|---------------------------------|--|
| Q1 | What's your sex? |
| Q2 | How old are you? |
| Q3 | In which graduation period are you matriculated? |
| Q4 | What is your religious belief? |
| Q5 | Do you discuss issues related to puberty, sex or sexually transmitted infections with your parents and/or guardians? |
| Q6 | Do you find it easy to talk to your parents and/or guardians about these matters? |
| Q7 | During sexual intercourse (vaginal, anal or oral), which contraceptive method do you usually use with your partner? |
| Q8 | Have you ever had a sexually transmitted infection? |
| Knowledge about HIV/AIDS | |
| Q9 | The acquired immunodeficiency syndrome (AIDS) is the disease caused by the infection of the human immunodeficiency virus (HIV), which leaves the individual with greater chances of opportunistic infections and some types of cancer. |
| Q10 | The acute phase of HIV infection is characterized by a high viral load and reduced levels of CD4+ T lymphocytes, making the individual highly infective. |
| Q11 | People living with HIV (PLHIV) on antiretroviral treatment (ART) and with an undetectable viral load do not transmit the virus sexually and are known by the term undetectable = untransmissible (I = I). |
| Q12 | A person can be HIV positive, but not develop AIDS or transmit the virus to other people. |
| Q13 | HIV transmission occurs through unprotected sexual intercourse, transfusion of infected blood, accidents with contaminated needle-sharp objects, sharing syringes between infected people, vertical transmission and breastfeeding. |
| Q14 | People can take a rapid test two weeks after they suspect exposure to the virus to find out if they are HIV positive. |
| Q15 | In addition to infections and non-infectious manifestations, HIV can cause disease through direct damage to certain organs or through inflammatory processes. |
| Q16 | People with AIDS often look sick or tired. |
| Q17 | There are two pharmacological preventive methods for HIV: one before contact (PrEP) and one after contact (PEP). Both are available to the general population. |
| Q18 | Currently, antiretrovirals (ARVs) have been combined into a single pill in order to increase adherence to treatment. |
| Q19 | AIDS is characterized by a blood increase in the rate of CD4+ T lymphocytes, which attack the body, causing the syndrome's complications. |
| Knowledge about syphilis | |
| Q20 | In addition to HIV/AIDS, there are other sexually transmitted infections that both men and women can acquire, and I know of some. |
| Q21 | Syphilis is a systemic, acute, incurable and exclusive human infection. |
| Q22 | Syphilis can be transmitted through unprotected sexual intercourse and to the baby during pregnancy or delivery. |
| Q23 | Syphilis is characterized by the presence of warts in the genital and inguinal regions. |
| Q24 | The infection goes through four stages, and in all of them there are characteristic signs and symptoms, such as fever, malaise and sore throat. |
| Q25 | The transmissibility of syphilis is greatest in the early stages (primary and secondary syphilis), decreasing gradually over time (late latent syphilis). |
| Q26 | The tests used for the diagnosis of syphilis are divided into two categories: direct tests and immunological tests. |

Chart 1 – Identification of issues related to personal aspects, knowledge about HIV/AIDS and syphilis of the data collection instrument (conclusion)

| | |
|-----|---|
| Q27 | The best way to prevent syphilis, HIV/AIDS and other sexually transmitted infections is condoms. |
| Q28 | Syphilis is a disease caused by the fungus called <i>Treponema pallidum</i> , which, in most cases, is symptomatic and can progress to severe forms. |
| Q29 | A person can have syphilis and not know it, as the disease has phases with clinical manifestations. However, it can remain latent in the body, becoming asymptomatic. |
| Q30 | If a pregnant woman has confirmed syphilis, there are no drugs that prevent vertical transmission from mother to fetus in the womb or to the newborn during delivery. |

Source: Created by the authors.

The adaptation consisted of the selection of questions about personal aspects and STIs, with inclusions to focus on HIV/AIDS and syphilis. It was evaluated by three judges, two of whom were experts on the subject, linked to the Department of Chronic Diseases and Sexually Transmitted Infections, of the Ministry of Health and, the third, was the deputy coordinator of the course, for adequacy and final formatting. The questions in which there were suggestions formulated by the majority (two) of the judges were changed⁽¹⁰⁾.

The Likert scale was used because it allowed the participant to inform the degree of agreement or disagreement of his opinion. In this case, it was cast: Totally agree; I agree a lot, but not totally; little agree, but not entirely; I totally disagree; and I cannot give an opinion. For the analysis, a score was assigned for each alternative of the questions of blocks 2 and 3.

In correct statements, 4 = totally agree; 3 = I agree a lot, but not totally; 2 = I agree little, but not totally; 1 = I totally disagree; and 0 = I cannot give an opinion. For incorrect, it was assigned: 1 = totally agree; 2 = I agree a lot, but not totally; 3 = I agree little, but not totally; 4 = I totally disagree; and 0 = I cannot give an opinion. Thus, the higher the score, the more correct the answer was.

The data were compiled and tabulated in the Microsoft Office Excel® 2016 software, in which the mean (Me) and median (Md) score

of each question were calculated. The answers with a score equal to zero were considered, because it was understood that there was neutrality regarding the degree of agreement or disagreement.

The Kruskal-Wallis nonparametric test was applied to evidence the difference between the scores. For the cases in which there was statistical significance, a comparison was made by the fisher minimum difference (LSD) test to compare the difference between the series. The levels of 5% and 10% significance ($p < 0.05$ and $p < 0.10$) were adopted and the analyses were performed in R version 4.0.4.

The participants signed the Informed Consent Form (ICF). The study was authorized by the UEM Research Ethics Committee, under Opinion n. 4,334,971/2020 and Certificate of Presentation of Ethical Appreciation (CAAE) n. 34788820.7.0000.0104, and followed the norms and guidelines of Resolutions n. 466/2012 and n. 510/2016 of the National Health Council.

Results

The participants were 65 (54.17%) students from the nursing course of UEM. Regarding the series, 17 (26.2%) attended the first grade, 17 (26.2%) the second, 18 (27.6%) the third and 13 (20.0%) the fourth. The mean age was 20.60 years. Table 1 presents the personal aspects of the participants.

Table 1 – Personal aspects of nursing students according to the graduation series. Maringá, Paraná, Brazil – Nov. 2020-Feb. 2021. (N=65)

(continued)

| Characteristics | Graduation series | | | | | | | | General | |
|----------------------------------|-------------------|-------|--------|------|-------|-------|--------|------|---------|------|
| | First | | Second | | Third | | Fourth | | N | % |
| | n | % | n | % | n | % | n | % | | |
| Sex | | | | | | | | | | |
| Female | 14 | 82.4 | 14 | 82.4 | 15 | 83.3 | 12 | 92.3 | 55 | 84.6 |
| Male | 3 | 17.6 | 3 | 17.6 | 3 | 16.7 | 1 | 7.7 | 10 | 15.4 |
| Religious belief | | | | | | | | | | |
| Catholic | 7 | 41.2 | 5 | 29.4 | 11 | 61.1 | 3 | 23.1 | 29 | 44.6 |
| Evangelical | 4 | 23.5 | 3 | 17.7 | 6 | 33.3 | 8 | 61.5 | 18 | 27.7 |
| Spiritist | - | - | - | - | - | - | - | - | - | - |
| Other | 2 | 11.8 | 4 | 23.5 | - | - | 2 | 15.4 | 8 | 12.3 |
| No religion/atheism | 4 | 23.5 | 5 | 29.4 | 1 | 5.6 | - | - | 10 | 15.4 |
| Frequency of discussions | | | | | | | | | | |
| Never | 1 | 5.9 | 3 | 17.6 | 5 | 27.8 | 5 | 38.5 | 14 | 21.5 |
| Rarely | 7 | 41.1 | 7 | 41.2 | 6 | 33.3 | 5 | 38.5 | 25 | 38.5 |
| Frequently | 8 | 47.1 | 6 | 35.3 | 6 | 33.3 | 3 | 23.0 | 23 | 35.4 |
| Always | 1 | 5.9 | 1 | 5.9 | 1 | 5.6 | - | - | 3 | 4.6 |
| Difficulty in discussions | | | | | | | | | | |
| Very easy | 1 | 5.9 | 1 | 5.9 | 3 | 16.7 | - | - | 5 | 7.7 |
| Easy | - | - | 4 | 23.5 | 2 | 11.1 | 2 | 15.4 | 8 | 12.3 |
| Normal | 12 | 70.5 | 6 | 35.4 | 6 | 33.3 | 4 | 30.7 | 28 | 43.1 |
| Difficult | 2 | 11.8 | 3 | 17.6 | 5 | 27.8 | 5 | 38.5 | 15 | 23.1 |
| Very difficult | 2 | 11.8 | 3 | 17.6 | 2 | 11.1 | 2 | 15.4 | 9 | 13.8 |
| STI history | | | | | | | | | | |
| Yes | - | - | 1 | 5.9 | - | - | 1 | 7.7 | 2 | 3.1 |
| No | 17 | 100.0 | 15 | 88.2 | 18 | 100.0 | 12 | 92.3 | 62 | 95.4 |
| Not sure | - | - | 1 | 5.9 | - | - | - | - | 1 | 1.5 |
| Contraceptive methods | | | | | | | | | | |
| Condom | 11 | 64.7 | 8 | 47.1 | 8 | 44.4 | 8 | 61.5 | 35 | 53.8 |
| Morning after pill | - | - | 2 | 11.8 | - | - | - | - | 2 | 3.1 |
| Oral contraceptive | 6 | 35.3 | 8 | 47.1 | 10 | 55.6 | 5 | 38.5 | 29 | 44.6 |
| Injectable contraceptive | 2 | 11.8 | 1 | 5.9 | - | - | - | - | 3 | 4.6 |
| Others | - | - | 2 | 11.8 | 2 | 11.1 | 2 | 15.4 | 6 | 9.2 |
| None | 1 | 5.9 | 3 | 17.6 | - | - | - | - | 4 | 6.2 |
| Never related | 3 | 17.6 | 3 | 17.6 | 4 | 22.2 | 1 | 7.7 | 11 | 16.9 |
| Age (years) | | | | | | | | | | |
| Mean | 18.71 | | 20.76 | | 21.17 | | 22.08 | | 20.60 | |
| Standard deviation | 1.36 | | 2.08 | | 1.50 | | 1.32 | | 1.99 | |

Source: Created by the authors.

Note: Conventional sign used:

- Numerical data equal to zero not resulting from rounding.

Information about the frequency and difficulty of discussions related to puberty, sex or STIs with parents and/or guardians, as well as the behavioral characteristics of the research

participants, are described in Table 1. Table 2 shows the Me and Md scores of knowledge about HIV/AIDS and syphilis according to the undergraduate series.

Table 2 – Mean and median scores of knowledge about HIV/AIDS and syphilis of nursing students according to the undergraduate series. Maringá, Paraná, Brazil – Nov. 2020-Feb. 2021. (N=65)

| Questions | Graduation series | | | | | | | | p value (1) |
|-----------|-------------------|-----|--------|-----|-------|-----|--------|-----|-------------|
| | First | | Second | | Third | | Fourth | | |
| | Me | Ma | Me | Ma | Me | Ma | Me | Ma | |
| Q9 | 3.4 | 4.0 | 3.3 | 3.5 | 3.2 | 4.0 | 3.7 | 4.0 | 0.5794 |
| Q10 | 3.5 | 4.0 | 3.4 | 4.0 | 4.0 | 4.0 | 3.4 | 4.0 | 0.1059 |
| Q11 | 2.5 | 3.0 | 2.7 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 0.0963 |
| Q12 | 3.1 | 3.5 | 3.1 | 3.5 | 3.7 | 4.0 | 2.5 | 3.0 | 0.0063 |
| Q13 | 3.6 | 4.0 | 3.8 | 4.0 | 3.7 | 4.0 | 4.0 | 4.0 | 0.1349 |
| Q14 | 1.2 | 1.0 | 2.4 | 3.0 | 2.1 | 2.0 | 2.8 | 3.0 | 0.0102 |
| Q15 | 3.4 | 4.0 | 3.1 | 4.0 | 3.8 | 4.0 | 3.8 | 4.0 | 0.1662 |
| Q16 | 3.1 | 3.0 | 3.3 | 4.0 | 3.3 | 4.0 | 3.2 | 4.0 | 0.8884 |
| Q17 | 1.9 | 1.0 | 1.5 | 1.0 | 2.1 | 1.5 | 1.9 | 1.0 | 0.5669 |
| Q18 | 3.1 | 4.0 | 2.8 | 3.0 | 3.5 | 4.0 | 2.5 | 2.0 | 0.2244 |
| Q19 | 2.8 | 3.0 | 2.5 | 2.0 | 3.4 | 4.0 | 2.0 | 1.5 | 0.0330 |
| Q20 | 4.0 | 4.0 | 3.8 | 4.0 | 4.0 | 4.0 | 3.8 | 4.0 | 0.0875 |
| Q21 | 3.0 | 4.0 | 3.1 | 3.0 | 3.6 | 4.0 | 3.2 | 3.0 | 0.2464 |
| Q22 | 3.2 | 3.5 | 3.6 | 4.0 | 3.9 | 4.0 | 3.8 | 4.0 | 0.0172 |
| Q23 | 1.9 | 1.0 | 2.1 | 2.0 | 2.5 | 2.5 | 1.9 | 1.0 | 0.6406 |
| Q24 | 1.7 | 1.5 | 1.9 | 2.0 | 2.6 | 2.5 | 2.5 | 2.0 | 0.0799 |
| Q25 | 2.7 | 3.0 | 2.6 | 3.0 | 2.6 | 3.0 | 3.3 | 4.0 | 0.3884 |
| Q26 | 3.7 | 4.0 | 3.1 | 3.0 | 3.3 | 4.0 | 3.8 | 4.0 | 0.2040 |
| Q27 | 3.9 | 4.0 | 3.9 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 0.5788 |
| Q28 | 2.6 | 3.0 | 2.8 | 3.0 | 2.2 | 1.0 | 1.6 | 1.0 | 0.2839 |
| Q29 | 3.8 | 4.0 | 3.5 | 4.0 | 3.2 | 4.0 | 3.5 | 4.0 | 0.4433 |
| Q30 | 2.6 | 2.0 | 3.6 | 4.0 | 3.1 | 4.0 | 3.4 | 4.0 | 0.3260 |

Source: Created by the authors.

(1) Value by Kruskal-Wallis test.

The results indicated that the acquisition of knowledge about the listed STIs tends to evolve throughout the undergraduate course, since the last grades, especially the third, presented better scores in relation to the first two. On the other hand, it was evident the previous knowledge of the students of the initial grades, which, sometimes, was not inferior in relation to the others.

There was a statistically significant difference for questions 12, 14, 19 and 22 ($p < 0.05$). Questions 11, 20 and 24 presented marginally significant p-value ($p < 0.10$). Thus, we chose to keep them in the comparisons considering the level of 10% significance. The results of multiple comparisons are shown in Table 3.

Table 3 – Multiple comparisons of the average scores of knowledge about HIV/AIDS and syphilis of nursing students, according to the undergraduate series. Maringá, Paraná, Brazil – Nov. 2020-Feb. 2021. (N=65) (continued)

| Questions | Graduation series | | | | p value (1) |
|-----------|-------------------|--------|--------|--------|-------------|
| | First | Second | Third | Fourth | |
| Q11 | 2.5 b | 2.7 b | 3.5 a | 3.0 ab | 0.0963(4) |
| Q12 | 3.1 a | 3.1 a | 3.7 a | 2.5 b | 0.0063(2) |
| Q14 | 1.2 b | 2.4 a | 2.1 ab | 2.8 a | 0.0102(3) |
| Q19 | 2.8 ab | 2.5 ab | 3.4 a | 2.0 b | 0.0330(3) |

Table 3 – Multiple comparisons of the average scores of knowledge about HIV/AIDS and syphilis of nursing students, according to the undergraduate series. Maringá, Paraná, Brazil – Nov. 2020-Feb. 2021. (N=65) (conclusion)

| Questions | Graduation series | | | | p value (1) |
|-----------|-------------------|--------|-------|--------|-------------|
| | First | Second | Third | Fourth | |
| Q20 | 4.0 a | 3.8 b | 4.0 a | 3.8 b | 0.0875(4) |
| Q22 | 3.2 b | 3.6 ab | 3.9 a | 3.8 a | 0.0172(3) |
| Q24 | 1.7 b | 1.9 ab | 2.6 a | 2.5 a | 0.0799(4) |

Source: Created by the authors.

Note: Mean scores followed by the same letter on the line do not differ from each other by Fisher's test (LSD).

(1) Value by Kruskal-Wallis test, significant at (2) $p < 0.01$; (3) $p < 0.05$; or (4) $p < 0.10$.

The questions in which a significant difference was observed between the series relate to specific aspects of each infection, such as: HIV immunological window period, pathophysiology of AIDS, mode of transmission of syphilis, prevention of HIV by the undetectable method = non-transferable (I = D) and characterization of the phases of syphilis.

Discussion

The study converges with others, by aiming at a description of the knowledge of young university students⁽¹¹⁻¹³⁾ of the nursing course⁽¹⁴⁻¹⁶⁾ about STIs. However, it stands out for not only analyzing the knowledge on the subject, but also commencing them between the undergraduate series, evidencing the evolution of knowledge during the formative process of the nursing professional.

Regarding the personal aspects of the participants, the results corroborate other studies, showing an average age of 20-21 years^(12,17-18), predominance of women^(14,16-19) and Catholics⁽¹⁷⁾ among nursing students. A study conducted with 186 nursing students observed a prevalence of Protestant (evangelical)⁽¹⁵⁾ belief, which was the second most informed in this study (27.7%).

The frequency of discussions in the family environment about sexuality and the like contrasted between frequent and rarely. A study conducted with mothers of adolescents showed that there are still numerous difficulties in the dialogue with their children on the theme⁽²⁰⁾. On the other hand, most respondents considered

it normal to have these discussions, similar to findings in some studies^(19,21-22) and contrasting with others⁽²³⁻²⁴⁾.

Regarding the history of STIs among the participants, the minority had some infection, as observed in other studies^(17,19), which can be justified by greater access to information on STIs in the university environment, especially in health courses^(17,19). In addition, it was evidenced that more than half of the respondents used condoms as a contraceptive method in sexual intercourse⁽¹⁹⁾, which, in addition to avoiding pregnancy, prevents contamination by STIs.

Nurses work in comprehensive care to people with STIs, therefore, it is necessary to analyze the knowledge of students, since they must be trained, during their training, to develop actions that raise the needs of people susceptible to STIs and recognize the vulnerabilities to which they are exposed^(12,18). Moreover, they should be able to develop preventive practices aimed at users of the public health system⁽²⁵⁾.

Undergraduate nursing courses were historically organized in line with the public policies of the time, and the STI level approach has been present since the beginning of public health. However, this study is usually associated with specific situations, witnessed in the health scenario at moments transversal to other disciplines, evidencing the need to link in the curriculum of specific disciplines for this theme⁽⁶⁾.

The findings indicate that knowledge differs during graduation, especially in more specific issues of infections listed for the analysis. In the educational institution of the study, the discipline

directed to infectious diseases occurs in the third grade of the course, which is notorious in most of the questions in which it was perceived that the highest scores were found in the last grades of the undergraduate course.

This suggests that, despite previous knowledge from other means, the insertion in higher education tends to add information and knowledge to students about STIs, especially those in the last grades⁽¹⁴⁾. Moreover, the highest scores of the third grade in relation to the fourth indicate a potential situation of knowledge construction based on collective discussions during classes.

There were also questions in which there was no significant difference between the series and situations in which the initial ones obtained better scores when compared to the last one. Among the reasons, it can be thought that the previous knowledge of the initial series is related to the greater discussion of the theme in the school and family environments, considered as great influencers in the construction of knowledge⁽¹⁴⁾.

Depending on the above, it was observed that the fourth grade concentrated the highest number of responses in which the frequency of discussions with parents and/or guardians varied between never and rarely. As for the degree of difficulty, most of the students in the last grade pointed out that these discussions used to be difficult or very difficult. This suggests barriers to be overcome, since dialogues in the school and family context seem to be fundamental in informal sex education.

Another possible reason may be related to the fact that the majority of fourth-grade students are from the evangelical religion, unlike the other series, in which there was a predominance of Catholicism. The Protestant religion seems to be associated with a lower accumulation of knowledge in relation to the preventive methods of STIs when compared to the Catholic one⁽¹⁵⁾, which could explain the results evidenced in this study.

The realization of an investigation that is based on the understanding of the influence of discussions within the family environment and

religious beliefs on the knowledge and practices of students about STIs is necessary to understand their impact on the acquisition of knowledge in the university environment. Moreover, it is suggested to conduct research in other areas to better unveil the results found.

It should be noted that there are still few studies that are dedicated to analyzing the knowledge and behavior of young university students regarding reproductive and sexual health, especially those of health courses. The findings indicate a lack of knowledge about STIs, the adoption of unsafe sexual behaviors and low self-perception of risk in relation to sexual life^(12,18), characterizing vulnerability of this public to STIs.

This investigation becomes even more important in the interface of nursing education, since they will be directly linked in the identification of care needs, health promotion and prevention of population problems^(14,18). A study conducted with 75 nursing students in the state of São Paulo showed that knowledge about STIs was adequate; however, situations of vulnerability of students to STIs were noted. Nevertheless, the results showed no difference in the answers between the periods of the course⁽¹⁸⁾.

As limitations of the study, it is possible to highlight the reduced sample size analyzed in relation to the course population, preventing the generalization of the findings. Moreover, it is punctuated the possibility of consultation for the answers, the making of errors at the time of selection of alternatives in Google Forms and the delimitation of academics from a single educational institution to make up the study.

Nevertheless, by analyzing and comparing the knowledge of nursing students from different grades, this research provides pertinent and necessary information to adapt and/or elaborate curriculum and/or educational actions that aim to improve and prepare the academic for his professional performance in the control of HIV/AIDS and syphilis, especially in the specific issues of each infection that still appear to be a reason for doubt between the series.

Thus, it is understood that this study brings significant contributions to the qualification of future nurses with regard to the campaigns and education strategies to be implemented in the context of STIs, both in the formative and professional spheres. In addition, the results evidenced aggregate the existing scientific literature on the theme.

Conclusion

It was possible to analyze the knowledge of nursing students in relation to HIV/AIDS and syphilis, evidencing that knowledge tends to advance during graduation, supposedly as a result of the formative process, especially in the series in which the study on STIs considered in this research takes place, which reaffirms the importance of qualified university education for the training of professionals of excellence.

However, previous knowledge seems to play an important role in education, since the knowledge of the initial series was evident and sometimes did not differ from the others. In addition, it was observed that discussions about the theme in the family environment and the social control exercised by religions seem to influence the acquisition of knowledge of university students. However, further studies are needed to better understand these results.

Moreover, there are ways to adapt the contents discussed in the process of training nursing professionals based on the findings of this study. It points to the need to analyze knowledge about these and other STIs through new investigations, given the importance of nurses in the face of these injuries, especially in health education, aiming at the interruption of the transmission chain and, consequently, the control of STIs.

Collaborations

1 – conception and planning of the project: Lucas Vinícius de Lima, Pedro Henrique Paiva Bernardo, Vanessa Denardi Antoniassi Baldissera and Nelly Lopes de Moraes Gil;

2 – analysis and interpretation of data: Lucas Vinícius de Lima and Carla Franciele Höring;

3 – writing and/or critical review: Lucas Vinícius de Lima, Pedro Henrique Paiva Bernardo, Vanessa Denardi Antoniassi Baldissera, Nelly Lopes de Moraes Gil, Gabriela Tavares Magnabosco and Débora Regina de Oliveira Moura;

4 – approval of the final version: Lucas Vinícius de Lima, Vanessa Denardi Antoniassi Baldissera, Nelly Lopes de Moraes Gil, Gabriela Tavares Magnabosco and Débora Regina de Oliveira Moura.

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