DOI 10.18471/rbe.v37.48425 Original Article

NURSING STUDENTS AND KNOWLEDGE ABOUT HUMAN PAPILLOMAVIRUS AND ITS IMMUNIZING: A CROSS-SECTIONAL STUDY

DISCENTES DE ENFERMAGEM E O CONHECIMENTO SOBRE PAPILOMAVIRUS HUMANO E SEU IMUNIZANTE: UM ESTUDO TRANSVERSAL

ESTUDIANTES DE ENFERMERÍA Y CONOCIMIENTOS SOBRE EL PAPILOMAVIRUS HUMANO Y SU INMUNIZACIÓN: UN ESTUDIO TRANSVERSAL

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How to cite this article: Silva Júnior JA, Santos SMP, Bezerra LLO, Freitas JLGS, Bezerra Neta ML. Nursing students and knowledge about human papillomavirus and its immunizing: a cross-sectional study. Rev baiana enferm. 2023;37:e48425.

Objective: to identify the factors associated with the knowledge of nursing students about the Human Papilloma Virus and its immunization. Method: this is a cross-sectional study, with a quantitative approach, with a sample of 112 participants. Data were collected in June 2017 through a structured questionnaire, applied to students of all periods of the course. Bivariate analysis was performed between the knowledge about the infection caused by the Human Papilloma Virus and its immunization and the academic variables. Results: there was satisfactory knowledge about the theme investigated, especially the knowledge about the most expressive immunization among students. Students from more advanced periods had significant knowledge about the symptomatology of infection by Human Papilloma Virus and the availability of its immunizer. Conclusions: in general, the participants presented satisfactory knowledge, especially students with more course time and more experience in women's health care.

Descriptors: Education, Nursing. Knowledge. Papillomavirus Vaccines**.** Papillomavirus Infections. Communicable Disease Control.

Objetivo: identificar os fatores associados ao conhecimento dos discentes de Enfermagem acerca do Papiloma Vírus Humano e seu imunizante. Método: trata-se de um estudo transversal, de abordagem quantitativa, com uma amostra de 112 participantes. Os dados foram coletados em junho de 2017 mediante um questionário estruturado, aplicado aos discentes de todos os períodos do curso. Foi realizada análise bivariada entre o conhecimento acerca

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da infecção causada pelo Papiloma Vírus Humano e seu imunizante e as variáveis acadêmicas. Resultados: houve conhecimento satisfatório quanto a temática investigada, com destaque para o conhecimento acerca do imunizante mais expressivo entre os discentes. Os discentes de períodos mais avançados tinham significativo conhecimento sobre a sintomatologia da infecção pelo Papiloma Vírus Humano e a disponibilidade do seu imunizante. Conclusões: de modo geral, os participantes apresentaram conhecimento satisfatório, com destaque para os discentes com mais tempo de curso e mais experiência na atenção à saúde da mulher.

Descritores: Educação em Enfermagem. Conhecimento. Vacinas contra Papillomavirus. Infecções por Papillomavírus. Controle de Doenças Transmissíveis.

Objetivo: identificar los factores asociados al conocimiento de los estudiantes de Enfermería acerca del Papiloma Virus Humano y su inmunizante. Método: se trata de un estudio transversal, de enfoque cuantitativo, con una muestra de 112 participantes. Los datos fueron recogidos en junio de 2017 mediante un cuestionario estructurado, aplicado a los estudiantes de todos los períodos del curso. Se realizó un análisis bivariado entre el conocimiento acerca de la infección causada por el Virus del Papiloma Humano y su inmunizante y las variables académicas. Resultados: hubo conocimiento satisfactorio en cuanto a la temática investigada, con destaque para el conocimiento acerca del inmunizante más expresivo entre los discentes. Los estudiantes de períodos más avanzados tenían conocimiento significativo sobre la sintomatología de la infección por el Virus del Papiloma Humano y la disponibilidad de su inmunizante. Conclusiones: de modo general, los participantes presentaron conocimiento satisfactorio, con destaque para los discentes con más tiempo de curso y más experiencia en la atención a la salud de la mujer.

Descriptores: Educación en Enfermería. Conocimiento. Vacunas contra Papillomavirus. Infecciones por Papillomavirus. Control de Enfermedades Transmisibles.

Introduction

Cervical cancer (CC) is a health problem that is mainly caused by infection by the Human Papilloma Virus (HPV). CC is subdivided into squamous cell carcinoma, the most frequent type that attacks squamous epithelium, and adenocarcinoma, the rarest type, that affects the glandular epithelium[1]. Despite the reduction in mortality in recent years, this is one of the main public health problems in Brazil in the female population[2]. For the year 2022, in Brazil, the incidence rate of CC was 7.0% and the mortality rate was 6.1%, which places this neoplasm as the fourth cause of death in women in the country[3].

Precursor and CC lesions are primarily caused by chronic and asymptomatic HPV infection[1]. The lesions, when evidenced, affect the genitals of both sexes and are clinically characterized as conspicuous explicit or subclinical warts[4].

HPV infection occurs mainly through sexual intercourse in unprotected contact with previously infected people, which characterizes it as a Sexually Transmitted Infection (STI)[4]. Therefore, prevention strategies are expressed as the most effective means to contain the contagion by the virus and reverse the high incidence of CC[5].

Effective control of CC occurs through some forms of prevention, such as primary prevention, which encompasses the stage at which the virus has not yet been able to infect the individual. Therefore, the actions aim to reduce the risk of first contact with the agent, such as immunization, health education focused on healthy sexuality, and the distribution of condoms[1,4].

Of all the means available for the prevention of HPV, immunization is the most efficient and promising to eradicate the disease in the next generations, because it is capable of making the virus unfeasible in the body[6]. In this sense, Brazil has an immunization scheme offered by the Unified Health System (UHS) consisting of two doses of the vaccine with a minimum interval of six months between them[6]. The target audience is women aged between 9 and 14 years and men aged between 11 and 14 years, as well as young people aged between 9 and 26 years with HIV/AIDS, who require a 3-dose regimen[6].

The effective implementation of health actions to control HPV infection depends on the knowledge of health professionals and students about the forms of prevention and unfavorable outcomes for the population, including the CC.

In this context, a study in several university courses pointed to the existence of different levels of knowledge about the risk factors for HPV, and veteran students were those who had a greater domain regarding the indication of vaccination according to sex[7].

A study observed that the introduction of the theme on aspects related to the form of prevention of CC and the characteristics directly linked to vaccination against HPV directly influenced the learning process of future health professionals[8]. Having said that, it is understood that investigating the aspects that favor learning on the subject related to HPV since graduation through an efficient educational process is fundamental for the professional training of the individual[9].

In the perspective presented, especially regarding the importance of knowledge of future nursing professionals, it is evident the need to understand the knowledge of students in the area on the theme of CC and HPV. Thus, the objective was to identify the factors associated with the knowledge of nursing students about HPV and its immunization.

Method

This is a cross-sectional study, with a quantitative approach, elaborated from a research linked to the Scientific Initiation Program entitled "Health Care with a Focus on Cervical Cancer: Knowledge of Nursing Students". For the construction of this article, the steps of the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) were followed. The population was composed of students enrolled in the undergraduate nursing course of a reference Public Institution of Higher Education in the state of Paraíba, Brazil.

Students of both sexes, aged 18 years or older, regardless of the course period, were included. Of the 160 students enrolled in the course, those who were not present at the time of collection, those who refused to answer the questionnaire and those who were part of the group involved in this study were excluded, resulting in a final sample of 112 participants.

Data were collected in June 2017 through a structured questionnaire, self-administered by the students, according to the course period, in a predefined time with the students, under the supervision of one of the study team members. For students up to the eighth period of the course, the questionnaires were delivered during class time, being previously requested to the teacher the space of a few minutes. For the ninth and tenth period students, the questionnaire was made available in different places, as these were in supervised internship in different health services. The instrument was developed based on guides and guidelines[1,4] regarding the control of the CC and presented the following thematic axes: personal information, academic information, general and specific knowledge on the investigated theme.

The dependent variables were classified into two perspectives of knowledge: characteristics of HPV infection and immunization against HPV. The independent variables were: participation in extracurricular activities during graduation in nursing not specifically on women's health (yes; no); course period (group 1; group 2); and assistance to women with emphasis on CC (yes; no).

The variable on participation in extracurricular activities at graduation was included: participation in scientific initiation activities, university extension, academic leagues and/or in some Health Work Education Program (*PET-Saúde*).

When considering the knowledge gathered during the graduation, the participants were organized into two groups: group 1, composed of the students matriculated from the first to the fourth period of the course; and group 2, formed by the students matriculated from the fifth to the tenth period of the course. The participants included in the second group had taken advantage of the curricular component of Women's Health and Women's Health Practice, offered in the fifth period, and had completed other disciplines that occasionally contemplated the theme of the study.

Regarding the variable related to the assistance provided to women with emphasis on CC, all health care activities of a practical

nature were considered, developed in health services, with direct assistance to women during the graduation, such as participation in nursing consultations and health education, in practical classes and internships.

For the analysis, the statistical software Epi Info version 7.2.2.2 was used, with double data entry. For descriptive statistics, the absolute and relative frequencies were calculated. For inferential statistics, the association between categorical variables was verified, using Pearson's chi-square test and Fisher's exact test.

The study was approved by the Research Ethics Committee of the *Hospital Universitário Alcides Carneiro da Universidade Federal de Campina Grande* on May 30, 2017, under Opinion n. 2.091.521, Certificate of Presentation of Ethical Assessment (CAEE) 682017.5.0000.5182. The research team met the requirements of Resolution n. 466/2012 of the National Health Council (CNS).

Results

There was a predominance of female students (76.8%), aged 18 to 23 years (77.7%), single and without stable union (88.3%), who started sexual activity (68.8%) and had an active sex life (55.4%). As for academic training, most comprised group 2 (62.5%), students enrolled from the fifth to the tenth period of the course, who had provided assistance to women with emphasis on CC during graduation (51.8%) and who had participated in some extracurricular activity (75.9%).

Tables 1a and 1b show the association between knowledge about HPV infection and academic variables.

Table 1a – Association between knowledge about Human Papilloma Virus infection and students' academic variables. Campina Grande, Paraíba, Brazil, 2017. (N=112)

(continued)

Variables	Can the Human Papilloma Virus cause cervical cancer?			Human Papilloma Virus infection most often is:		
	Right n(%)	Wrong n(%)	P (1)	Asymptomatic n(%)	Symptomatic n(%)	p
Gender						
Female	83(96.5)	3(3.5)	0.329	62(72.1)	24(27.9)	0.511
Male	24(92.3)	2(7.7)		17(65.4)	9(34.6)	
Age group						
Between 18 and 23 years	83(95.4)	4(4.6)	1.000	59(67.8)	28(32.2)	0.239
24 years or more	24(96.0)	1(4.0)		20(80.0)	5(20.0)	
Marital status						
Single	95(96.0)	4(4.0)	0.442	70(70.7)	29(29.3)	1.000(1)
Married or Stable Union	11(91.7)	1(8.3)		9(75.0)	3(25.0)	
Have you already begun sexual life?						
Yes	73(94.8)	4(5.2)	1.000	54(70.1)	23(29.9)	0.889
No	34(97.1)	1(2.9)		25(71.4)	10(28.6)	
Do you have an active sexual life?						
Yes	59(95.2)	3(4.8)	1.000	43(69.4)	19(30.6)	0.760
No	48(96.0)	2(4.0)		36(72.0)	14(28.0)	
Do you participate in any extracurricular activity in graduation?						
Yes	25(92.6)	2(7.4)	0.592	14(51.9)	13(48.1)	0.015

Table 1a – Association between knowledge about Human Papilloma Virus infection and students' academic variables. Campina Grande, Paraíba, Brazil, 2017. (N=112) (conclusion)

Variables	Can the Human Papilloma Virus cause cervical cancer?			Human Papilloma Virus infection most often is:		
	Right n(%)	Wrong n(%)	P (1)	Asymptomatic n(%)	Symptomatic n(%)	p
No	82(96.5)	3(3.5)		65(76.5)	20(23.5)	
Course period						
Group 1	38(90.5)	4(9.5)	0.065	23(54.8)	19(45.2)	0.005
Group 2	69(98.6)	1(1.4)		56(80.0)	14(20.0)	
Assistance to women with emphasis on cervival cancer?						
Once or more times	57(98.2)	1(1.8)	0.194	47(81.0)	11(19.0)	0.012
Never assisted	50(92.6)	4(7.4)		32(59.2)	22(40.8)	

Source: created by the authors.

Note: (1) Fisher's Exact Test.

Table 1b – Association between knowledge about Human Papilloma Virus infection and students' academic variables. Campina Grande, Paraíba, Brazil, 2017. (N=112). (continued)

Variables	Does Human Papilloma Virus Infection cause genital warts?			Is there a cure for Human Papilloma Virus infection?		
	Right n(%)	Wrong n(%)	p	Right n(%)	Wrong n(%)	p
Gender						
Female	67(77.9)	19(22.1)	0.196	56(65.1)	30(34.9)	0.259
Male	17(65.4)	9(34.6)		20(76.9)	6(23.1)	
Age group						
Between 18 and 23 years	60(69.0)	27(31.0)	0.006	58(66.7)	29(33.3)	0.615
24 years or more	24(96.0)	1(4.0)		18(72.0)	7(28.0)	
Marital status						
Single	72(72.7)	27(27.3)	0.037 (1)	69(69.7)	30(30.3)	0.198 (1)
Married or Stable Union	12(100)	-		6(50.0)	6(50.0)	
Have you already begun sexual life?						
Yes	62(80.5)	15(19.5)	0.045	49(63.6)	28(36.4)	0.156
No	22(62.9)	13(37.1)		27(77.1)	8(22.9)	
Do you have an active sexual life?						
Yes	51(82.3)	11(17.7)	0.048	42(67.7)	20(32.3)	0.977
No	33(66.0)	17(34.0)		34(68.0)	16(32.0)	
Do you participate in any extracurricular activity in graduation?						
Yes	15(55.6)	12(44.4)	0.007	18(66.7)	9(33.3)	0.879
No	69(81.2)	16(18.8)		58(68.2)	27(31.8)	
Course period						
Group 1	21(50.0)	21(50.0)	<0.001	28(66.7)	14(33.3)	0.838
Group 2	63(90.0)	7(10.0)		48(68.6)	22(31.4)	

Table 1b – Association between knowledge about Human Papilloma Virus infection and students' academic variables. Campina Grande, Paraíba, Brazil, 2017. (N=112). (conclusion)

Variables	Does Human Papilloma Virus Infection cause genital warts?			Is there a cure for Human Papilloma Virus infection?		
	Right n(%)	Wrong n(%)	p	Right n(%)	Wrong n(%)	p
Assistance to women with emphasis on cervival cancer?						
Once or more times	52(89.7)	6(10.3)	<0.001	37(63.8)	21(36.2)	0.340
Never assisted	32(59.2)	2(40.8)		39(72.2)	15(27.8)	

Source: created by the authors.

Notes: Conventional sign used

- Numeric data equal to zero not resulting from rounding.

(1) Fisher's Exact Test.

Knowledge about HPV infection as a cause for CC did not show a significant statistical association with any of the academic and sociodemographic variables analyzed. However, it is emphasized that, among the students, the knowledge about this relationship was higher than 90.0%.

Regarding the symptomatology related to HPV infection, there was an association with all the variables analyzed. It is worth noting that the correct answer was the alternative that addressed HPV as asymptomatic in most cases. There was a higher proportion of correct answers among students who did not participate in any extracurricular activity during graduation (76.5%), who were included in group 2 (80.0%) and who had provided assistance to women with emphasis on CC (81.0%).

Regarding knowledge about HPV infection causing genital warts, there was a significant statistical association with the sociodemographic variables of age group (p=0.006), marital status (p=0.037), if had already started sexual activity (p=0.045), if had an active sexual life (p=0.048) and the dependent variables of participation in extracurricular activity (p=0.007), course period (p<0.001) and assistance to some woman with emphasis on CC (p<0.001).

Regarding the possibility of cure of HPV infection, there was no significant association between any of the variables analyzed. The percentages of error and accuracy in these analyzed variables were similar in all groups.

Tables 2a and 2b show the association between knowledge about immunization against HPV and academic variables.

Table 2a – Association between knowledge about immunization against the Human Papilloma Virus and students' academic variables. Campina Grande, Paraiba, Brazil. (N=112) (continued)

Variables	Ever heard of the immunizer anti-Human Papilloma Virus?			Is immunization included in the Ministry of Health calendar?		
	Yes n(%)	No n(%)	p (1)	Right n(%)	Wrong n(%)	p (1)
Gender						
Female	85(98.8)	1(1.2)	0.038	81(94.2)	5(5.8)	0.663
Male	23(88.5)	3(11.5)		24(92.3)	2(7.7)	
Age group						
Between 18 and 23 years	83(95.4)	4(4.6)	0.573	80 (92.0)	7(8.0)	0.346
24 years or more	25(100)	-		25(100)	-	

Table 2a – Association between knowledge about immunization against the Human Papilloma Virus and students' academic variables. Campina Grande, Paraiba, Brazil. (N=112) (conclusion)

Variables	Ever heard of the immunizer anti-Human Papilloma Virus?			Is immunization included in the Ministry of Health calendar?		
	Yes n(%)	No n(%)	p (1)	Right n(%)	Wrong n(%)	p (1)
Marital status						
Single	96(97.0)	3(3.0)	0.371	94(94.9)	5(5.1)	0.166
Married or Stable Union	11(91.7)	1(8.3)		10 (83.3)	2(16.7)	
Have you already begun sexual life?						
Yes	75(97.4)	2(2.6)	0.588	71(92.2)	6(7.8)	0.431
No	33(94.3)	2(5.7)		34(97.1)	1(2.9)	
Do you have an active sexual life?						
Yes	61(98.4)	1(1.6)	0.323	58(93.5)	4(6.5)	1.000
No	47(94.0)	3(6.0)		47(94.0)	3(6.0)	
Do you participate in any extracurricular activity in graduation?						
Yes	25(92.6)	2(7.4)	0.245	24(88.9)	3(11.1)	0.356
No	83(97.7)	2(2.3)		81(95.3)	4(4.7)	
Course period						
Group 1	38(90.5)	4(9.5)	0.018	37(88.1)	5(11.9)	0.101
Group 2	70(100)	-		68(97.1)	2(2.9)	
Assistance to women with emphasis on cervival cancer?						
Once or more times	58(100)	-	0.051	56(96.6)	2(3.4)	0.259
Never assisted	50(92.6)	4(7.4)		49(90.8)	5(9.2)	

Source: created by the authors.

Notes: Conventional sign used:

- Numeric data equal to zero not resulting from rounding.

(1) Fisher's Exact Test.

Table 2b – Association between knowledge about immunization against the Human Papilloma Virus and students' academic variables. Campina Grande, Paraiba, Brazil. (N=112) (continued)

Variables	Is the vaccine approved for individuals who have not had contact with the Human Papilloma Virus?			Who can use the immunizer?		
	Right n(%)	Wrong n(%)	p (1)	Right n(%)	Wrong n(%)	p
Gender						
Female	78(90.7)	8(9.3)	1.000	61(70.9)	25(29.1)	0.321
Male	24(92.3)	2(7.7)		21(80.8)	5(19.2)	
Age group						
Between 18 and 23 years	77(88.5)	10(11.5)	0.113	59(67.8)	28(32.2)	0.016
24 years or more	25(100)	-		23(92.0)	2(8.0)	

Table 2b – Association between knowledge about immunization against the Human Papilloma Virus and students' academic variables. Campina Grande, Paraiba, Brazil. (N=112) (conclusion)

Variables	Is the vaccine approved for individuals who have not had contact with the Human Papilloma Virus?			Who can use the immunizer?		
	Right n(%)	Wrong n(%)	p (1)	Right n(%)	Wrong n(%)	p
Marital status						
Single	89(89.9)	10(10.1)	0.597	70(70.7)	29(29.3)	0.175 (1)
Married or Stable Union	12(100)	-		11(91.7)	1(8.3)	
Have you already begun sexual life?						
Yes	70(90.9)	7(9.1)	1.000	57(74.0)	20(26.0)	0.820 (1)
No	32(91.4)	3(8.6)		25(71.4)	10(28.6)	
Do you have an active sexual life?						
Yes	59 (95.2)	3(4.8)	0.107	48(77.4)	14(22.6)	0.263
No	43 (86.0)	7(14.0)		34(68.0)	16(32.0)	
Do you participate in any extracurricular activity in graduation?						
Yes	23(85.2)	4(14.8)	0.250	13(48.1)	14(51.9)	0.001
No	79(92.9)	6(7.1)		69(81.1)	16(18.9)	
Course period						
Group 1	32(76.2)	10(23.8)	<0.001	18(42.9)	24(57.1)	<0.001
Group 2	70(100)	-		64(91.4)	6(8.6)	
Assistance to women with emphasis on cervival cancer?						
Once or more times	58(100)	-	<0.001	55(94.8)	3(5.2)	<0.001
Never assisted	44(81.5)	10(18.5)		27(50.0)	27(50.0)	

Source: created by the authors.

Notes: Conventional sign used:

- Numeric data equal to zero not resulting from rounding.

(1) Fisher's Exact Test.

In the analysis regarding knowledge about the existence of an immunizer against HPV, there was an association with the participants' gender (p=0.038), the course period (p=0.018) and a predominant proportion among those who were included in group 2 (100%) which can be justified by previous contact with the curricular component of Women's Health, which addresses this issue in detail.

Regarding knowledge about the inclusion of immunization in the calendar of the Brazilian Ministry of Health, there was no significant statistical association with academic variables, but a significant success was observed among the participants.

Regarding the approval of immunization for individuals who did not have contact with HPV, it was found that the proportion between students in group 2 (100%) and those who had experience with the care of women with a focus on prevention of CC (100%) had significantly greater knowledge.

In relation to the knowledge about which public can use immunization against HPV, there was a statistical association between students who had participated in some extracurricular

activity during graduation (p=0.001) with the course period (p<0.001) and with the assistance to women with emphasis on CC (p<0.001).

Discussion

It is estimated that approximately nine out of ten cases of CC are caused by HPV and the most effective ways of prevention are through vaccination and cervical cytology or Pap smears[10]. Therefore, knowing the HPV and its forms of prevention is a fundamental aspect for undergraduate students in nursing, given that they will be health professionals who will take care of the population, strategies for the diagnosis of CC.

The knowledge of the students about the relationship of HPV as a risk factor for the development of CC was noticeable, because, in both groups, there was a considerable proportion of correct answers. A study conducted with nursing students in Italian universities showed that most of the participants related the development of CC with HPV infection[11].

In this study, knowledge about the asymptomatic form of HPV was satisfactory, but other studies with university students in the health area or in other areas have identified that knowledge about this specific aspect of HPV is still weakened[12-13]. On the other hand, it is possible to show that having theoretical/practical experience reflected in a higher success rate when asked about the asymptomatic presentation of HPV infection. Therefore, stimulating the knowledge of professionals in the process of training in order to make them fundamental actors in the process of caring since college is a very important role of teachers.

In cases where there is the appearance of genital warts, an expressive knowledge domain was observed among students with more theoretical-assistance experiences and previous sexual activity, corroborating the results of other studies[8,14]. Regarding this same association with genital warts, in contrast to the present study, it has already been noted that there is no association between age and knowledge about its relationship with HPV[15]. In the literature consulted, there was no relationship between marital status and the aforementioned theme.

The discussion about the possibility of cure for HPV infection was analyzed in a study that identified the understanding of undergraduate health students about the incurability of this type of infection[16] which is important for possible interventions with the population on the subject.

It was possible to identify among participants that knowledge about immunization against HPV was considerable, even among those who had no specific theoretical or practical experience on the subject during graduation. Regarding gender, the women in this study showed more knowledge about the existence of the vaccine.

Another study showed a significant association between the female gender and the history of vaccination against HPV, when compared to males, who showed lower adherence to immunization[7]. Unlike the results presented in this research, studies conducted with students of nursing, pharmacy and medicine courses in other educational institutions, public or private, showed that knowledge about HPV vaccination is fragile[16-19].

Unsatisfactory results were also identified in other regions of the world. A study conducted in India with 998 undergraduate students showed that just over half of the participants had knowledge about HPV immunization before the research, statistically associated with the course, year of training and economic situation[13]. A study conducted in Nepal showed an even more divergent result, since only 11.3% of the undergraduate students participating in this study had knowledge about the immunization against HPV[20].

As a primary prevention strategy for CC and other types of cancer, HPV immunization is available to adolescents through the SUS, guided by the premise that they have not yet had primary sexual contact with the virus and can thus prevent infection[6]. Therefore, we highlight the importance of implementing actions in order to strengthen and disseminate better information on this subject, especially in academia.

Another important point highlighted was the observation of greater knowledge of students with longer graduation time about the possibility of both male and female people being able to be immunized against HPV. In other realities, it is possible to see the considerable knowledge of university students in different areas about the importance of vaccination of both sexes, as a strategy for the prevention of CC[13], although men are not seen as eligible for HPV vaccination[19].

Given the above, it was found that graduation contributed to the appropriation of knowledge about CC and immunization against HPV. However, it is important to highlight the need to invest in training processes that complement knowledge on the subject, in order to increase the training of professionals able to intervene for health promotion and prevention of this important problem.

The limited sample, which made it impossible to compare the results of other variables, such as public or private institutions, can be considered as a study limitation. However, the results contribute to enrich the scientific collection on nursing education and the knowledge of students on the subject, especially to delimit the relevance of training for specific knowledge about HPV infection and its immunization.

Conclusion

The study identified factors associated with the knowledge of nursing students about HPV and its immunizer, identifying greater knowledge in relation to the immunizer than the HPV itself. Still, it was possible to observe that, in general, the participants presented satisfactory knowledge, especially the students with more course time and more experience in women's health care.

In addition, it is necessary to think strategies to provide the opportunity for teaching on the subject from the beginning of the course, mainly through extracurricular activities, such as research and extension projects and academic leagues.

Collaborations:

1 – conception and planning of the project: José Antonio da Silva Júnior and Sheila Milena Pessoa dos Santos;

2 – analysis and interpretation of data: José Antonio da Silva Júnior, Sheila Milena Pessoa dos Santos, Luana Larissa Oliveira Bezerra and Javanna Lacerda Gomes da Silva Freitas;

3 – writing and/or critical review: José Antonio da Silva Júnior, Sheila Milena Pessoa dos Santos, Luana Larissa Oliveira Bezerra, Javanna Lacerda Gomes da Silva Freitas and Maria Lúcia Bezerra Neta;

4 – approval of the final version: José Antonio da Silva Júnior, Sheila Milena Pessoa dos Santos, Luana Larissa Oliveira Bezerra, Javanna Lacerda Gomes da Silva Freitas and Maria Lúcia Bezerra Neta.

Conflicts of interests

There are no conflicts of interests.

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Received: March 17, 2022

Approved: May 31, 2023

Published: July 26, 2023