

Knowledge, Awareness and Behaviors of Somali Female University Students regarding Cervical Cancer, HPV and the HPV Vaccine: A Cross-Sectional Study

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Abstract

Background: Awareness and knowledge of cervical cancer and human papillomavirus (HPV) are consistently poor in low-resource settings. In addition, there is insufficient evidence about young people's knowledge and understanding of cervical cancer, risk factors, screening and HPV vaccination in these countries. This study was conducted to determine the knowledge, attitudes and behaviors of students studying at a university in Somalia regarding cervical cancer and how to prevent it. **Methods:** This cross-sectional study was conducted among students of the Faculty of Health Sciences at a private university in Mogadishu, Somalia, between January and March 2021. The sample of study consisted of a total of 220 female students. The data of the study were collected using a questionnaire consisting of 32 questions evaluating the knowledge and attitudes of the students regarding cervical cancer, HPV and the HPV vaccine. **Results:** In the study, 59.1% of the participants stated that they had previously heard of cervical cancer, 69.1% did not know that it was fatal, 49.1% stated that it was preventable, 48.2% did not know the causes of cervical cancer, and 2.7% had a family history of cervical cancer. In addition, it was determined that 75.9% of the participants did not know that HPV caused cervical cancer. When the knowledge of the participants about HPV and the HPV vaccine was examined, it was determined that 55% of them had not previously heard of HPV. When asked about how HPV is transmitted they stated that this occurred through kissing (73.2%), sexual intercourse (58.2%) and using items owned by individuals infected with HPV (41.8%). None of the participants had received the HPV vaccine. Of these, 72.3% stated that they had not been vaccinated because they did not know about the vaccine. According to 40.9% of the participants, both boys and girls should be vaccinated; however, 63.6% stated that they did not know at what age individuals should receive a vaccine. In addition, 71.4% of participants said they did not know that the HPV vaccine protects against HPV-related sexually transmitted diseases. There was a statistically significant relationship only between the participants' financial status and the awareness variable ($p < 0.05$). It was concluded that the awareness of those participants whose economic situation was good was statistically high. **Conclusions:** This was our first study on the subject in Somalia and it revealed that the level of knowledge of female university students studying in the field of health sciences regarding cervical cancer, the HPV vaccine and prevention methods were insufficient, as were the vaccination rates. In future research, the reasons for these inadequacies should be revealed through more comprehensive studies.

Keywords: attitudes; cervical cancer; HPV; HPV vaccine; female students; knowledge

1. Introduction

The fourth most frequent form of cancer in women globally is cervical cancer [1]. The great majority of the most prevalent sexually transmitted infections (STIs) in the world are caused by human papillomavirus (HPV) infection. Approximately 70% of instances of cervical cancer are caused by HPV strains 16 and 18 [2,3]. The most common cancer associated with HPV is cervical cancer [2]. In 2018, 311,000 women died from cervical cancer and 570,000 women received a diagnosis of the disease [4]. Most fatalities take place in low-resource settings [5]. The incidences are also higher in low-resource settings, which account for 85% of all cases reported annually [6]. Cervical cancer affects more women in Sub-Saharan Africa than in any other region, but it is also the most prevalent form of cancer, accounting for 13% of all female cancers [7]. In Somalia, cervical cancer is the second most prevalent fe-

male cancer after breast cancer [8]. There are 10.2 cervical cancer deaths per 100,000 females and 13.2 new instances of the disease in Somalia every year [9].

The early stages of cervical cancer are symptomless [10]. Late-stage malignancies and metastasis of the disease are caused by a lack of knowledge about the signs and symptoms of cervical cancer, such as irregular bleeding and low back pain [11,12]. Women have a better chance of surviving cervical cancer if it is discovered early [13]. Pap smear, along with the use of vaccines, is a dual strategy in the prevention of intraepithelial neoplasia and the early diagnosis of cervical cancer, and has the greatest effect on the incidence, outcome and mortality associated with cervical cancer [14,15]. Numerous clinical studies and systematic reviews worldwide have demonstrated the efficacy of the HPV vaccine in preventing up to 90–99% of cervical intraepithelial neoplasia (CIN) [16].



In Sub-Saharan Africa, only 10% of women had been screened for cervical cancer, according to data from the 2017 World Health Survey. Moreover, in four West African nations, less than 1% of women had had a cervical cancer screening [17]. Cervical cancer is the second most frequent cancer in women in Somalia, and at the same time there is no early detection, screening, or immunization program [18]. These findings demonstrate that promoting and putting into practice cervical cancer screening services is difficult in many countries [19,20]. Many studies have identified the reasons why these services are not accepted and the difficulties encountered. One of the main reasons is thought to be a lack of comprehensive and appropriate information about cervical cancer, as well as negative attitudes towards the HPV vaccination and screening [21–23]. One out of every 20 young individuals are at danger of developing a sexually transmitted disease, according to studies, and this risk increases every year [24]. Even among young adults, awareness of HPV is typically poor in most nations, despite its high incidence [25]. In one prior study, female college students between the ages of 18 and 24 in Washington State were found to be at risk of HPV infection [26]. According to a study conducted in Nigeria, only a small percentage of university students were aware of HPV infection (17.7%) and HPV vaccination (14.4%) [27]. In a survey with Turkish female nursing students, it was discovered that more than half of them had no awareness of HPV and the majority of them had never heard of it [28]. According to a study conducted in India, just 6.8% of medical and paramedical students had received the HPV vaccine, whereas 44.9% had good knowledge of it [29].

Low-resource settings continually have low rates of cervical cancer and HPV vaccine awareness and education. However, detailed evidence about young people's awareness and comprehension of cervical cancer, risk factors, screening, and HPV vaccination in these nations is also lacking [30]. The sources of information from which people in less developed nations can learn about cervical cancer are still scarce [30]. It is critical for students to be informed about, and aware of, cervical cancer so they are motivated to attend premalignant cervical lesion screening and take other preventative measures [31]. Therefore, educating adolescents about cervical cancer is a crucial strategy for care and prevention of the disease [17]. No study could be found in the literature that examined Somali university students' knowledge, attitudes, and behaviors regarding cervical cancer and preventative strategies. On the basis of the information given above, this study was designed with the objective of assessing the knowledge, attitudes, and behaviors of students enrolled at a university in Somalia regarding cervical cancer and its prevention.

2. Materials and Methods

2.1 Study Area, Designed Period

This descriptive study was conducted among students of the Faculty of Health Sciences at a private university in Mogadishu, Somalia, between 1 January and 30 March 2021.

2.2 Study Population

The study population consisted of students attending the Faculty of Health Sciences of a Turkish university in Mogadishu, Somalia. Due to the security problem in Mogadishu, the researchers were not allowed to go outside the campus, so they could only reach the students in this faculty. The sample was selected from among the students who agreed to participate in the study.

2.3 Eligibility Criteria

- Volunteering to participate in the study.
- Being 18 years of age or older.

2.4 Exclusion Criteria

- Not volunteering to participate in the research.
- Not completing the data collection tools.

2.5 Sample Size Determination

The population of the study consisted of 400 students enrolled in the Faculty of Health Sciences and the preparatory class. The required sample size was calculated as 197 students (calculated at http://www.raosoft.com/sample_size.html). The student who answered the questionnaire allowed the level of knowledge to be estimated with a margin of error of 95% and $\pm 5\%$. The study was completed with the participation of 220 students.

2.6 Data Collection

The data collection tool, which had 32 questions, was created by the researchers as a result of a literature review [1,17,32–35]. Sociodemographic information was obtained about the participant, including their age, class, and family history of cervical cancer. In addition, questions were included about the knowledge, attitudes and behavior of the participants regarding cervical cancer, HPV and the HPV vaccine. The information was interpreted in terms of the participants' awareness of HPV infection, its association with cervical cancer, its asymptomatic nature, its mode of transmission, its prevention, vaccine availability and accessibility, and Pap testing. The survey questions prepared were tested on 10 participants in a pilot application after the opinions of five specialist health personnel had been taken into account. The results obtained from this were not included in the final study. It took each participant approximately 15–20 minutes to fill out the questionnaire. Participants who answered the questions in the information section of the questionnaire correctly were considered to be knowledgeable. Attitude was interpreted in terms of the partici-

pants' perception of the disease (positive or negative), and their willingness to have a Pap test and get the HPV vaccine.

Table 1. Sociodemographic characteristics of the participants (n = 220).

Characteristics	n	%
Age (years)		
18–20	142	64.5
21–25	78	35.5
Parents' income		
>\$100	70	31.8
=\$100	120	54.5
<\$100	30	13.7
Marital status		
Married	26	11.8
Never married	194	88.2
Class		
Preparatory Grade	96	43.6
1. Grade	75	34.1
2. Grade	49	22.3

2.7 Recruitment Process

Data were collected by the designated researchers and the participants were selected using a systematic random sampling technique. The questionnaires were administered using the students' timetable during appropriate class hours. After 15 participants were fully informed about the study and had signed the informed consent form, the pilot application was conducted; these participants were then excluded from the study. The questionnaires were prepared in such a way that the participants could easily fill in by themselves. The questionnaire ensured the anonymity of the participants, the authenticity of the information and the protection of confidentiality at all times. Data were collected until the desired sample size was reached. Analysis was then carried out. All students were given the opportunity to participate or to decline to participate, and volunteerism was accepted as the basis for the study. No identifying information was requested or recorded. Informed consent was included on the first page of the questionnaire and it was ensured that the students had given their consent to participate in the study.

2.8 Data Analysis

In evaluating the data the SPSS 22.0 package program by IBM Corp was used (Released 2013. IBM SPSS Statistics for Windows, Version 22.0. IBM Corp., Armonk, NY, USA). Sociodemographic characteristics were defined using descriptive statistics (frequency, percentage, mean and standard deviation). In order to determine the distribution of the data, skewness and kurtosis coefficients, coefficient of variation, histogram, normal and detrend plots, the Kolmogorov-Smirnov test was applied. In the evaluation, it was observed that the data were not normally distributed.

The Mann-Whitney U test was used to compare independent paired groups, and Kruskal-Wallis analysis was used for comparison of more than two groups. The statistical significance limit was accepted as 0.05. Answering "Yes" to questions 4, 6, 7, 8, 10, 12, 13, 14, 20, 23, 24 and 28 in the questionnaire indicated that the person had awareness about cervical cancer and HPV. With the help of these questions, the rate of answering "Yes" to these questions was calculated as a variable for the awareness of the participants. The variable calculated was "Awareness" and it had continuous values between 0 and 1. The Mann-Whitney U and Kruskal-Wallis tests, which are among the non-parametric tests, were used to investigate whether there was a statistically significant difference between this variable and the sub-categories of the variables (age, class, marital status and financial status of their families) showing the sociodemographic status of the participants.

3. Results

Of the participants, 64.5% were in the 18–20 age range, 54.5% had a medium economic status, 88.2% were single and 43.6% were studying in the preparatory class (Table 1).

The status of the participants' knowledge about cervical cancer is given in Table 2. Of the participants, 59.1% stated that they had previously heard of cervical cancer, 69.1% did not know that it could cause death, 49.1% stated that it was preventable, 48.2% did not know the causes of cervical cancer, and 2.7% had a family history of cervical cancer. In addition, 75.9% of the participants did not know that HPV causes cervical cancer, and 89.1% stated that mothers should be informed about cervical cancer. 77.3% of the participants stated that education about cervical cancer should be given in schools, and this education should cover how to prevent cervical cancer (48.6%), treatment (46.8%), transmission routes (40%), symptoms (39.5%) and nutrition (31.4%). Of the participants, 86.8% stated that they had not heard of the Pap smear, while only 1.4% stated that they had previously had this test (Table 2).

The status of the participants' knowledge regarding HPV and the HPV vaccine is given in Table 3. It was determined that 55% of the participants had not previously heard of HPV. When asked about how HPV is transmitted, they reported that it could be transmitted by kissing (73.2%), sexual intercourse (58.2%), and using items owned by individuals infected with HPV (41.8%). None of the participants had received the HPV vaccine, and 72.3% of them stated that not knowing about it was the reason they had not been vaccinated. 40.9% stated that both boys and girls should be vaccinated, and 63.6% stated that they did not know at what age they should be vaccinated. In addition, 71.4% stated that they did not know that the HPV vaccine protects against sexually transmitted diseases. 65.5% of the participants stated that the programs to prevent cervical cancer would be effective, 86.3% of them wanted to receive information about HPV vaccine, and 57.3% of them stated

Table 2. Knowledge of participants regarding cervical cancer (n = 220).

Questions	n	%
Have you heard of cervical cancer?		
Yes	130	59.1
No	90	40.9
Does cervical cancer cause death?		
Yes	54	24.5
No	14	6.4
I don't know	152	69.1
Is cervical cancer preventable?		
Yes	108	49.1
No	13	5.9
I don't know	99	45.0
Do you know the causes of cervical cancer?		
Yes	41	18.6
No	73	33.2
I don't know	106	48.2
Do you have a family history of cervical cancer?		
Yes	6	2.7
No	214	97.3
Does human papillomavirus (HPV) cause cervical cancer?		
Yes	30	13.6
No	23	10.5
I don't know	167	75.9
Should mothers be given information about cervical cancer?		
Yes	196	89.1
No	24	10.9
Should education about cervical cancer be given at school?		
Yes	170	77.3
No	50	22.7
What topics should education about cervical cancer include?		
Ways it is transmitted		
Yes	88	40
No	132	60
Ways to prevent it		
Yes	107	48.6
No	113	51.4
Symptoms of cervical cancer		
Yes	87	39.5
No	133	60.5
Treatment		
Yes	103	46.8
No	117	53.2
Nutrition		
Yes	69	31.4
No	151	68.6
Have you heard about the Pap smear?		
Yes	29	13.2
No	191	86.8
Have you had a Pap smear?		
Yes	3	1.4
No	217	98.6

that they wanted to get this information from the nurse. Finally, it was determined that they wanted to get information about the effectiveness (47.7%), side effects (47.7%) and protection (43.6%) of the HPV vaccine (Table 3).

The results show that there was a statistically significant relationship only between the economic situation and

the awareness variable ($p < 0.05$). It was concluded that the awareness of the participants whose economic situation was good was statistically high. Differences in age, class and marital status were not statistically significant difference in terms of awareness of cancer ($p > 0.05$) (Table 4).

Table 3. Knowledge of participants regarding HPV and the HPV vaccine (n = 220).

Questions	n	%
Have you heard of HPV?		
Yes	99	45.0
No	121	55.0
What do you think are the transmission routes of HPV?		
Sexual intercourse		
Yes	128	58.2
No	92	41.8
Using the infected person's belongings		
Yes	92	41.8
No	128	58.2
Kissing		
Yes	161	73.2
No	59	26.8
Have you heard of the HPV vaccine?		
Yes	61	27.7
No	159	72.3
Have you had the HPV vaccine?		
Yes	0	0
No	220	100
Why have you not had the HPV vaccine?		
I don't know anything about it	159	72.3
I don't have the financial means	20	9.1
I don't think it is necessary	25	11.4
Other	16	7.3
Who should get the HPV vaccine?		
Boys	12	5.5
Girls	77	35.0
Both boys and girls	90	40.9
Neither boys nor girls	23	10.5
Other	18	8.2
At what age should the HPV vaccine be given?		
2 years or less	5	2.3
12–26 years	24	10.9
27–50 years	31	14.1
51 years or more	4	1.8
All ages	16	7.3
I don't know	140	63.6
Does the HPV vaccine protect against sexually transmitted diseases?		
Yes	47	21.4
No	16	7.3
I don't know	157	71.4
Can cervical cancer screening programs and education be effective in preventing cervical cancer?		
Yes, they can be very effective	144	65.5
They might be a little effective	51	23.2
No, they won't have any effect	25	11.4
Would you like to receive information about the HPV vaccine?		
Yes	190	86.3
No	30	13.7

4. Discussion

This study is the first to examine the knowledge, awareness and behavior of Somali female university stu-

Table 3. Continued.

Questions	n	%
Who would you like to speak to about the HPV vaccine?		
Nurse		
Yes	126	57.3
No	94	42.7
Doctor		
Yes	84	38.2
No	136	61.8
Teacher		
Yes	106	48.2
No	114	51.8
What would you like to learn about the HPV vaccine?		
What does the HPV vaccine prevent		
Yes	96	43.6
No	124	56.4
Efficacy of the HPV vaccine		
Yes	105	47.7
No	115	52.3
Side effects of the HPV vaccine		
Yes	105	47.7
No	115	52.3
Level of protection of the HPV vaccine		
Yes	64	29.1
No	156	70.9

Table 4. Examination of students' sociodemographic characteristics according to their average awareness scores (n = 220).

Characteristics	Awareness	
	Mean	Statistics; <i>p</i> -value
Age (years)		
17–20	105.6	$Z = -1.729$; 0.084
21–25	120.40	
Parents' income		
>\$100	130.36	$\chi^2 = 1.225$; 0.006
=\$100	101.40	
<\$100	100.57	
Marital status		
Married	126.40	$Z = -1.422$; 0.155
Never married	107.79	
Class		
Preparatory Grade	107.93	$\chi^2 = 2.868$; 0.238
1. Grade	105.15	
2. Grade	123.73	

Z = Mann-Whitney U test, χ^2 = Kruskal-Wallis test, $p < 0.001$.

dents regarding cervical cancer, HPV and the HPV vaccine. The study revealed that the majority of participants were unaware of cervical cancer, HPV and the HPV vaccine. More than half the participants in our study had heard of cervical cancer, but only a quarter were aware that it could be fatal. More than 90% of new cervical cancer cases and related deaths worldwide occur in low- and middle-income coun-

tries. Poor knowledge and awareness of cervical cancer screening and vaccination are significant barriers to effective cervical cancer prevention in these nations. This was revealed when the knowledge levels of the students on cervical cancer were investigated. Once more, approximately half of the participants claimed to be unaware of the causes of cervical cancer and the fact that it is preventable. Only a quarter of the participants in our study were aware that the HPV virus caused cervical cancer. The most significant gynecological cancer that can be prevented through early detection using screening tests is cervical cancer. It is thus crucial to be aware of the causes of cancer. When we look at the literature, the results obtained from many Muslim countries show that the knowledge and awareness levels of university students regarding cervical cancer are low [36–38]. This situation was also revealed in this study that the knowledge level of the participating students was insufficient. Numerous factors are known to contribute to the low level of knowledge and awareness concerning cervical cancer. The main causes include the absence of a national cancer screening program, the difficulty women have accessing health services, an underdeveloped economy, inadequacies in the management of screening programs and other health services, and inadequate educational and follow-up programs.

According to our research, only a very small proportion of the participants had a family history of cervical cancer. Recent research has shown that those with a family history of cancer are more likely to develop cervical can-

cer, particularly women whose mother and sister have the disease [39]. The majority of participants stated that mothers should be made aware of cervical cancer. It is difficult to fully explain the situation in this specific sample due to the lack of epidemiological data [40]. In our study, more than three-quarters of the participants stated that education about cervical cancer should be given at school, and that this should include how to prevent cervical cancer, as well as its treatment, transmission and symptoms. The early acquisition of this knowledge, especially by students majoring in the health sciences, will enable them to better protect themselves and their future patients. In terms of preventing cervical cancer, it is crucial for women to avoid the risk factors before the disease manifests itself. Monogamous sexual behavior, using condoms to prevent infections, planning fertility, avoiding early sexual activity and pregnancy, and being aware of early warning signs and prevention are all vital. For instance, abnormal out-of-cycle bleeding and discharge, particularly spotting blood after coitus, should be watched closely, as these could be early signs of cancer. Women should be knowledgeable about personal cleanliness, particularly vulvar hygiene, and should abstain from using alcohol and tobacco. Protecting against risk factors, including carcinogens, and engaging in vaccination strategies and health education all contribute to primary prevention. Primary prevention also places importance on health education. As a result, it is imperative that the general public is well informed at all times. People should be educated about good health practices by offering health counseling and gathering relevant data. It is crucial to educate those who are at risk about how to prevent cancer and how to detect symptoms at an early stage. Secondary prevention should emphasize the value of routine health checks and early diagnosis [4,10].

In the study, more than half of the participants had never heard of HPV. The majority of the participants also stated that they had never heard of the Pap smear. Other research on the subject conducted in African nations produced similar findings [2,5]. Research involving Turkish university students has also revealed a low prevalence of HPV awareness [38]. According to studies conducted in European nations, there is a high rate of awareness of HPV. It was also found that the rates of hearing and knowing about HPV increased noticeably as a result of the “National HPV Immunization Program” put in place in the United States [41].

Sexual contact is the most frequent way that HPV, the most common cause of cervical cancer, is spread. Additionally, contaminated surfaces, skin sores, and the birth canal can all cause direct or indirect transfer. The number of sexual partners and age at which the illness was contracted are the most crucial determinants in sexual transmission. According to the participants in the present study, kissing, sexual contact, and using items owned by HPV-positive people are the three main ways that HPV is transmitted. The participants thus misunderstood HPV transmission to a certain

extent. In studies conducted with students in developed nations, the rates of recognition of HPV risk factors and transmission channels were a high level, while the rates in underdeveloped countries were not at the desired level [36–39]. We believe that measures should be taken to ascertain the degree of students’ knowledge of HPV and to raise awareness, particularly in low-resource settings.

Three-quarters of the participants in the present study had never heard of the HPV vaccine and none of the participants had received the HPV vaccine. The absence of a widespread HPV vaccination program in Somalia is one of the main causes of this [40]. Approximately three-quarters of the participants stated that their lack of vaccination was due to their lack of knowledge about it. Nearly half of the participants stated that both girls and boys should be vaccinated, while more than half of them stated that they were not sure about the appropriate age for vaccination. Due to the fact that vaccination is the least expensive and most effective public health measure against cervical cancer, the World Health Organization (WHO) advises immunizing primarily girls between the ages of 9 and 13 [42]. The majority of the participants stated that they wanted more information about the HPV vaccine, and more than half of those who wanted information stated that the information requested should be given by nurses. The participants stated that they would like to learn more about the effectiveness of the HPV vaccine, its side effects and the level of protection it provides. Only three-fifths of the participants stated that cervical cancer screening programs and education could be very effective in preventing cervical cancer. This may be due to the lack of health education programs regarding cervical cancer, HPV and HPV vaccine, which is considered to be a problem in most developing countries. The WHO has recommended comprehensive prevention and control strategies for cervical cancer [4]. These include primary, secondary and tertiary prevention strategies, such as community education, social mobilization, vaccination, screening, treatment and palliative care [4]. In the present study, no statistically significant difference was found among the participants in terms of cancer awareness according to age, class and marital status ($p > 0.05$). Only the relationship between well informed economic situation and the awareness variable was statistically significant. It was determined that the participants whose financial status was good had a statistically high level of awareness ($p < 0.05$).

There are some limitations to the study. First, being single-centered and using a questionnaire format may have led to issues with the reliability of the answers given. On the other hand, the strength of the study is that, as far as we know, it is the first to measure the knowledge, attitudes and behaviors of female students studying in the field of health sciences in Somalia regarding cervical cancer, HPV and HPV vaccine.

5. Conclusions

In this study, female university students studying health sciences were found to have low levels of knowledge about cervical cancer, its prevention and the HPV vaccine. There is a need for primary and secondary prevention to reduce cervical cancer morbidity and mortality in Somalia. While secondary prevention through national screening programs has contributed significantly to reducing cervical cancer incidence and mortality in high-income countries, constraints in implementing and sustaining similar programs in Somalia have limited the effectiveness of screening. Primary prevention of cervical cancer through HPV vaccination is a cost-effective preventive measure that is currently being implemented in many countries around the world. In our study, none of the students had received the HPV vaccine and did not have sufficient information about the vaccine. Many factors, such as the country's low level of economic development, lack of health education programs, and lack of a HPV vaccination and cervical cancer screening program, contribute to low cancer awareness and knowledge. Establishing national cervical cancer screening and prevention strategies and planning health education programs on HPV and the HPV vaccine will help increase awareness and reduce the incidence of cervical cancer.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Contributions

ŞZA supervised the research and helped in writing the protocol and the first draft of this manuscript. ŞZA, ŞHM analyzed data. ŞZA and ŞHM completed data collection and data entry. ŞZA, ŞHM reviewed the final draft of this manuscript. Finally, both authors read and approved the manuscript.

Ethics Approval and Consent to Participate

The research was approved by the Ethics Committees of Somalia Mogadishu Recep Tayyip Erdoğan Training and Research Hospital (Decision No: MSTH/5359/2021/309). It was performed in collaboration with the Mogadishu Recep Tayyip Erdoğan Faculty of Health Sciences. Written information was provided to the participants with information on the research objectives, methodological procedures adopted, possible risks and the contact they would have with the researcher. Their anonymity and the confidentiality of the study were guaranteed. Additionally, participants attended a face-to-face meeting with the research team before the questionnaires were applied, when this information was repeated, and doubts were clarified. Students were informed that participation was voluntary, and they could express their refusal to participate through direct contact with

the research team at the face-to-face meeting. Informed written consent was obtained from all participants. All methods were carried out in accordance with the relevant guidelines and regulations (the Helsinki Declaration).

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Conflict of Interest

The authors declare no conflict of interest.

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