



**FACULTAD DE CIENCIAS DE LA SALUD**

**CARRERA PROFESIONAL DE ESTOMATOLOGÍA**

**“NIVEL DE CONOCIMIENTO, CONCIENCIA, PRÁCTICA Y SUS  
FACTORES ASOCIADOS SOBRE EL BROTE DEL COVID- 19 EN  
ESTUDIANTES DE PREGRADO DE ODONTOLOGÍA DE UNA  
UNIVERSIDAD PÚBLICA PERUANA”**

Tesis para optar al grado académico de:

**MAESTRO EN ESTOMATOLOGÍA**

Presentado por:

Alexandra Melissa Cadenillas Sueldo (0000-0003-1633-7030)

Asesor:

Frank Roger Mayta Tovalino (0000-0002-3280-0024)

Lima – Perú

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## ACTA DE SUSTENTACIÓN DE TESIS

Lima, 10 de noviembre de 2023.

Los integrantes del Jurado de tesis:

Presidente: Dr. Esp. Fernando Ortiz Culca
Miembro: Mg. Esp. Pedro Luis Tinedo López
Miembro: Dra. Esp. Ann Rosemary Chanamé Marín

Se reúnen para evaluar la tesis titulada:

NIVEL DE CONOCIMIENTO, CONCIENCIA, PRÁCTICA Y SUS FACTORES ASOCIADOS SOBRE EL BROTE DEL COVID-19 EN ESTUDIANTES DE PREGRADO DE ODONTOLOGÍA DE UNA UNIVERSIDAD PÚBLICA PERUANA

Presentada por el estudiante/bachiller:

- Alexandra Melissa Cadenillas Sueldo

Para optar el Grado Académico de Maestro en Estomatología

Asesorada por: Dr. Esp. CD. Frank Mayta Tovalino

Luego de haber evaluado el informe final de tesis y evaluado el desempeño del estudiante de la Carrera de Estomatología en la sustentación, se concluyen de:

Manera unánime ( X )

Por mayoría ( )

Calificar a:

Tesis: Alexandra Melissa Cadenillas Sueldo		Nota (en letras): 15 (quince)	
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Los miembros del jurado firman en señal de conformidad.

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UNIVERSIDAD CIENTÍFICA DEL SUR  
POSGRADO ESTOMATOLOGÍA  
MAESTRÍA EN ESTOMATOLOGÍA

**DECLARACIÓN DE ORIGINALIDAD DE CONTENIDO DE INFORME FINAL DE TESIS <sup>13</sup>**

Lima, 19 de Enero Del 2023

Señor:

Percy Mayta Tristán

**Director General de Investigación, Desarrollo e Innovación**

**Universidad Científica del Sur**

**Presente.-**

De nuestra consideración,

Yo: Alexandra Melissa Cadenillas Sueldo, egresado del Posgrado Estomatología de la Universidad Científica del Sur, en conjunto con el asesor de tesis Dr. Frank Roger Mayta Tovalino, declaramos que este informe final de tesis titulado: *"NIVEL DE CONOCIMIENTO, CONCIENTIZACIÓN, PRÁCTICA Y SUS FACTORES ASOCIADOS SOBRE EL BROTE DEL COVID-19 EN ESTUDIANTES DE PREGRADO DE ODONTOLOGÍA DE UNA UNIVERSIDAD PÚBLICA PERUANA"*, sustentado para obtener el Grado Académico de Maestro en Estomatología, es original.

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DNI: 42896775

<sup>13</sup> En conformidad con la Resolución del Consejo Directivo N° 084-SUNEDU/CD

<sup>14</sup> Los documentos están en: <https://investigacion.cientifica.edu.pe/reglamentos/>

## INFORME DE REVISIÓN DE ORIGINALIDAD

**Título del documento evaluado.** Nivel de conocimiento, conciencia, práctica y sus factores asociados sobre el brote del covid-19 en estudiantes de pregrado de odontología de una universidad pública peruana

**Autores.** Alexandra Melissa Cadenillas Sueldo

**Mecanismo de revisión de originalidad.** Evaluación con Turnitin (ID 2408065913).

**Resultado de la evaluación.** 9%

**Revisado por.** Magaly Kelly Guerrero Huaracallo.

**Comentarios sobre la revisión.** Filtros usados: excluir fuentes de menos de 12 palabras.

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### v.2.0. Nivel de conocimiento

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#### INFORME DE ORIGINALIDAD

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### **Dedicatoria**

Dedico el presente trabajo de investigación a Dios ya que sin él nada sería posible, a mi mamá y hermana por sus consejos, pero en especial a mi querido papá quien siempre me brindó su apoyo y amor incondicional; a mi esposo quien siempre está presente en cada momento de mi vida.

### **Agradecimientos**

Al Doctor Frank Mayta quien me ayudo en el asesoramiento y ejecución del presente trabajo de investigación.

A los docentes de la Universidad Científica del Sur quienes brindaron muy buena información para la ejecución del presente trabajo de investigación.

## RESUMEN

**Objetivo:** Determinar el nivel de conocimiento, concientización, práctica y factores asociados sobre el brote de enfermedad por coronavirus 2019 (COVID-19) en estudiantes de pregrado de odontología de una universidad pública peruana.

**Materiales y método:** Se realizó un estudio observacional, prospectivo, transversal y descriptivo. La población está compuesta por todos los estudiantes de pregrado de la Facultad de Odontología de la Universidad Nacional Federico Villarreal (UNFV) debidamente matriculados en el año académico 2021-2022. Se utilizó el cuestionario previamente validado y estructurado que consta de 31 respuestas predefinidas, incluyendo el nivel de conocimiento, conciencia, práctica y actitudes en diferentes apartados de evaluación. Los datos fueron analizados utilizando el software estadístico Stata® 15.0. Finalmente, se analizaron los factores asociados estableciendo el mejor modelo Logit, y se estableció un nivel de significancia de  $p < 0,05$ .

**Resultados:** En el análisis de regresión logística, no se encontraron variables asociadas con el conocimiento y la conciencia, las prácticas y las actitudes de los estudiantes universitarios de odontología con respecto al brote del COVID-19. Se obtuvieron los siguientes resultados: sexo [odds ratio (OR) = 0.49; intervalo de confianza (IC) del 95%: 0.24-1.0], edad (OR = 1.06; IC: 0.92-1.21), ciclo (OR = 0.94; IC: 0.81-1.09), origen (OR = 0.45; IC: 0.29-60.3).

**Conclusión:** Estudiantes peruanos de odontología de una universidad pública peruana tenían conocimientos, prácticas y actitudes sobre el brote de COVID-19. Además, ninguno de los factores asociados examinados fueron significativos en esta relación.

**Palabras clave:** Enfermedad por coronavirus 2019, odontología, conocimiento.

## ABSTRACT

**Aim:** To determine the level of knowledge, awareness, practice, and associated factors about the coronavirus disease 2019 (COVID-19) outbreak in undergraduate dental students at a Peruvian public university.

**Materials and methods:** An observational, prospective, cross-sectional, and descriptive study was carried out. The population consists of all undergraduate students of the Faculty of Dentistry of the Universidad Nacional Federico Villarreal (UNFV) duly enrolled in the academic year 2021–2022. The previously validated and structured questionnaire consisting of 31 predefined answers, including the level of knowledge, awareness, practice, and attitudes in different evaluation sections, was used. The data were analyzed using Stata® 15.0 statistical software. Finally, the associated factors were analyzed by establishing the best Logit model, and a significance level of  $p < 0.05$  was established.

**Results:** In the logistic regression analysis, no variables were found to be associated with the knowledge and awareness, practices, and attitudes of undergraduate dental students regarding the COVID-19 outbreak. The following results were obtained: sex [odds ratio (OR) = 0.49; 95% confidence interval (CI): 0.24–1.0], age (OR = 1.06; CI: 0.92–1.21), cycle (OR = 0.94; CI: 0.81–1.09), origin (OR = 0.45; CI: 0.29–60.3).

**Conclusion:** Peruvian dental students at a Peruvian public university had knowledge, practices, and attitudes about the COVID-19 outbreak. Furthermore, none of the associated factors examined were significant in this relationship.

**Clinical significance:** This research has clinical relevance because it allowed us to identify the factors that influence the level of knowledge, practices, and attitudes of undergraduate dental students in order to establish strategies to address this problem.

**Keywords:** Coronavirus disease 2019, Dentistry, Knowledge, Pandemic.

## I. VERSIÓN APROBADA PARA PUBLICAR

### Introduction

Coronavirus disease 2019 (COVID-19) is a highly contagious viral disease that has infected millions of people around the world.<sup>1,2</sup> World Health Organization has declared this disease to be of international concern. This infection is caused by a new strain of coronavirus (severe acute respiratory syndrome coronavirus 2), which was first reported in December 2019 in China.<sup>1</sup> The main route of transmission is by airborne aerosols and droplets that are transmitted from person to person.

This disease has an incubation period of approximately 2–14 days. The severity of its symptoms varies from asymptomatic to life-threatening in some cases, patients are asymptomatic, and in others, even life-threatening.<sup>3,4</sup> Diagnosis is often difficult in asymptomatic patients, and prevention is the best way to avoid infection.<sup>5-7</sup>

Generally, after infection, medical students can hardly recognize the symptoms, especially in the first days of the disease. This increases transmission and is a great threat, especially for dental personnel. Therefore, dentists must be very aware of making a correct front to avoid contamination and the spread of this disease.<sup>2</sup>

Although the behavior of the virus was not well known in the beginning, it is now much better understood. Research has made this possible, putting healthcare workers at a lower risk of infection. From the beginning of the pandemic, healthcare professionals were the group of people who were at constant and increased risk.

Especially in the dental office, a high likelihood of cross-infection was identified. For this reason, it is important to identify the factors associated with this disease to avoid contagion.<sup>3</sup>

In relation to dental practices, the American Dental Association recognized dentistry as a high-risk profession and recommended guidelines for controlling COVID-19 infection in the dental office. These recommendations include the use of personal protective equipment, aerosol control, use of wadding, operating room ventilation and constant hand washing, etc.<sup>5-10</sup>

It has been shown that the COVID-19 virus can remain on surfaces for hours and days, depending on the surface, humidity, etc.<sup>5,11-14</sup> It is important that health personnel and students are aware of the high risk to which they are exposed, especially dental students.<sup>15,16</sup> For this reason, it is very important to implement biosafety protocols for the management of infection in dental practices.

It is recommended that future professionals wear biosafety measures (masks, goggles, etc.) to protect themselves from droplets/aerosols generated during dental procedures.<sup>17-</sup>  
<sup>19</sup> However, the scientific community still does not fully understand the exact behavior of the virus, so students and health personnel are the most vulnerable.

The purpose of this research is to evaluate the level of knowledge, awareness, practice, and associated factors about the COVID-19 outbreak in undergraduate dental students at a Peruvian public university.

## **Materials and methods**

### **Study Design and Sample Size**

The present study was a cross-sectional, prospective, observational design. The population size was calculated using the Open Epi software with the formula to estimate a sample for the frequency in a finite population. A hypothetical frequency (p) of 50%  $\pm$  5 and an absolute error of 5% was used. A minimum sample size of 235 students was determined; however, it was decided to evaluate 300 subjects from the Faculty of Dentistry of the Universidad Nacional Federico Villarreal (UNFV).

The study was carried out between November 2021 and February 2022. The Strengthening the Report of Observational Studies in Epidemiology guidelines were used for the writing of this manuscript.

### **Inclusion Criteria**

- Students who wish to participate in the virtual survey.
- Students with internet access.
- Students of the Faculty of Dentistry UNFV correctly enrolled in the year 2021–2022.

### **Exclusion Criteria**

- Students who do not sign the informed consent form.
- Students who are minors.
- Students who do not have digital means of communication.
- Students from other Peruvian Schools of Dentistry.

### **Associated Factors**

The associated factors evaluated were the sex, cycle, and geographic origin of the undergraduate dental student. All these factors were analyzed and evaluated by means of a logistic regression model to determine which are intervening variables with a  $p < 0.05$ .

### **Data Collection and Measurements**

Authorization was requested from the Dean's Office of the Faculty of Dentistry, UNFV. Then all students who were duly enrolled in the 2021–2022 academic year were identified. A total of 300 undergraduate students were identified and evaluated in the study. Each participant was asked to sign informed consent because participation was free and voluntary. A questionnaire previously validated by Ahmed et al.<sup>1</sup> was used, and data were collected using this structured questionnaire consisting of 31 predefined questions, including the level of knowledge, awareness, and practice in different assessment sections. This questionnaire previously had an internal consistency of responses with a Cronbach's  $\alpha$  of 0.71.

The first section contains six closed questions on demographic details and in relation to education levels and occupational aspects. The second section has 11 questions focused on the level of knowledge, including etiology, awareness, transmission, incubation period, signs and symptoms, duration, treatment options, and other factors. The third section has 14 questions related to attitude and practice about COVID-19. The surveys were online via Google Surveys, where the links were forwarded through institutional emails. The online questionnaire link was sent through social media, including Facebook, WhatsApp, and Twitter of UNFV. Finally, all participant data was kept anonymous.

## **Ethical Considerations**

The project was presented to the Ethics Committee of the Universidad Científica del Sur and was approved by the resolution of the Ethics Committee, 293-CIEI-CIENTIFICA-2021.

## **Data Analysis**

The data were stored and analyzed using Stata® 15.0 statistical software (Texas, United States of America). The descriptive analysis was evaluated with frequencies and percentages of qualitative variables. Finally, the associated factors will be analyzed by establishing the best Logit model through logistic regression, where the odds ratios of the confounding variables are obtained. A significance level of  $p < 0.05$  was established.

## **Results**

It was found that the female sex was the most prevalent 175 (58.3%). In relation to the academic cycle of the dental students, the majority, 57 (19%), belonged to the tenth cycle, while only 19 (6.3%) belonged to the fifth cycle. Finally, most of the students, 254 (84.6%), belonged to the capital Lima, while only 46 (15.3%) were from the provinces (Table 1).

Table 2 shows that in relation to the level of knowledge and awareness of the students evaluated, it was found that only Q8 (which age group is most affected by COVID-19?) had a statistically significant association with sex with a  $p = 0.03$ . However, in the rest of the questions Q1–P7, Q9–P11, no associations were found between the level of knowledge and awareness with the sex of the students  $p > 0.05$ .

**Table 1:** Sociodemographic characteristics

Groups		<i>n</i>	%
Gender	Female	175	58.33
	Male	125	41.67
Origin	Lima	254	84.67
	Province	46	15.33
	Media		DS
Age		22.42	3.51
Cycle		6.09	3.02

\*The variables, age and cycle were measured quantitatively (mean and standard deviation)

Table 3 shows that, regarding attitudes and practices, only questions P15 (do you know if the virus can affect humans more than once?), P20 (have you attended any lecture/course/workshop on COVID-19?), P23 (do you use an N-95 mask when having contact with your patients?), and P25 (do you use sodium hypochlorite as a surface disinfectant?) were associated with the sex of the students with a  $p < 0.05$ .

In the logistic regression analysis, no variables associated with the knowledge and awareness, practices, and attitudes of undergraduate dental students regarding the COVID-19 outbreak were found. The following results were obtained: sex [odds ratio (OR) = 0.49; 95% confidence interval (CI): 0.24–1.0], age (OR = 1.06; CI: 0.92–1.21), cycle (OR = 0.94; CI: 0.81–1.09), origin (OR = 0.45; CI: 0.29–60.3) (Table 4).

## Discussion

In the present study, it was observed that 58.3% of the participants were female and 41.6% were male, while the cycle with the highest number of participants was the tenth and eighth cycles, with 19 and 14.3%. The origin of the participants was higher in the case of Lima, with 84.6%, compared to the provinces, with 15.3%. This study evidences the importance of this scenario, especially in the process and attitude that health sciences

students should have during vaccination against COVID-19. On the other hand, since in Peru, most students belong to the female gender, and according to the published scientific literature, it was decided to analyze if this tendency influences the attitudes and knowledge that a deontology student has. On the other hand, the academic year was also analyzed, and no influence of this variable on the practices and attitudes of students toward COVID-19 was found.

Also, in the present investigation, a multivariate logistic regression was performed to identify the associated factors that influence the knowledge and perceptions of dental students about COVID-19. No influence was found of associated factors such as sex, age, cycle, or origin on the knowledge and perception of COVID-19, results like the studies of De Stefani et al.<sup>5</sup> conducted in Italy, Ahmed et al.<sup>7</sup> in Jordan, Papagiannis et al.<sup>8</sup> developed in Greece, and Consolo et al.<sup>10</sup> where there were no significant differences according to sex. However, in the present study, significant differences were found ( $p = 0.026$ ) in the association of greater participation of the female sex in talks, courses or workshops on COVID-19 in addition to a significantly greater knowledge of the signs and symptoms of COVID-19 ( $p = 0.006$ ), which is consistent with the results of the study by De Stefani et al.<sup>5</sup> which found in female participants a significantly higher perceived danger of COVID-19 ( $p < 0.001$ ), confidence in treating suspected contagion ( $p < 0.001$ ) and on the perception of not having prepared sufficiently for the resumption of clinical activities ( $p < 0.001$ ). In the present study, significant differences were also found in the greater use of surface disinfectants such as sodium hypochlorite in the female participants ( $p = 0.001$ ). It is important to mention that studies such as that of Quadri et al.<sup>12</sup> show that educational interventions have a favorable impact on the reduction of knowledge and attitude gaps in dental interns ( $p < 0.001$ ), making them recommendable activities in educational institutions.

**Table 2:** Knowledge and awareness assessment of dental students

Question	Answer	Female, n (%)	Male, n (%)	p*
Q1: What is the virus that causes COVID-19?	1	16 (50)	16 (50)	0.385
	2	14 (50)	14 (50)	
	3	0 (0)	0 (0)	
	4	143 (60.85)	92 (39.15)	
	5	2 (40)	3 (60)	
Q2: What is the etiology of COVID-19?	1	171 (57.97)	124 (42.03)	0.233
	2	2 (100)	0 (0)	
	3	1 (100)	0 (0)	
	4	2 (100)	0 (0)	
	5	0 (0)	0 (0)	
Q3: What do you think is the mode of transmission?	1	57 (57.58)	42 (42.42)	0.174
	2	0 (0)	2 (100)	
	3	3 (100)	0 (0)	
	4	115 (58.67)	81 (41.33)	
	5	0 (0)	0 (0)	
Q4: How did you learn about COVID-19?	1	15 (48.39)	16 (51.61)	0.442
	2	6 (66.67)	3 (33.33)	
	3	42 (60)	28 (40)	
	4	3 (100)	0 (0)	
	5	109 (58.29)	78 (41.71)	
Q5: What is the incubation period of COVID-19?	1	168 (57.53)	124 (42.47)	0.11
	2	6 (100)	0 (0)	
	3	1 (50)	1 (50)	
	4	0 (0)	0 (0)	
Q6: Do you know the signs and symptoms of COVID-19?	1	114 (54.29)	96 (45.71)	0.154
	2	0 (0)	0 (0)	
	3	3 (75)	1 (25)	
	4	57 (67.06)	28 (32.94)	
	5	1 (100)	0 (0)	
Q7: Do you know how many days COVID-19 can survive outside the body?	1	16 (47.06)	18 (52.94)	0.107
	2	44 (65.67)	23 (34.33)	
	3	52 (64.20)	29 (35.80)	
	4	24 (46.15)	28 (53.85)	
	5	39 (59.09)	28 (53.85)	
Q8: What age group is most affected by COVID-19?	1	0 (0)	0 (0)	0.03
	2	1 (50)	1 (50)	
	3	13 (92.86)	1 (7.14)	
	4	160 (57.14)	120 (42.86)	
	5	1 (25)	3 (75)	
Q9: Do you know the mortality rate of COVID-19?	1	44 (53.66)	38 (46.34)	0.416
	2	22 (52.38)	20 (47.62)	
	3	28 (60.87)	18 (39.13)	
	4	13 (76.47)	4 (23.53)	
	5	68 (60.18)	45 (39.82)	
Q10: How can we prevent COVID-19?	1	3 (42.86)	4 (57.14)	0.358
	2	3 (75)	1 (25)	
	3	4 (100)	0 (0)	
	4	163 (57.60)	120 (42.40)	
	5	1 (100)	0 (0)	
Q11: What are the available treatment alternatives for patients with COVID-19?	1	13 (59.09)	9 (40.91)	0.539
	2	8 (47.06)	9 (52.94)	
	3	5 (50)	5 (50)	
	4	8 (80)	2 (20)	
	5	141 (58.51)	100 (41.49)	

\*Chi-square test

On the other hand, the results differ from those of Cagetti et al.,<sup>11</sup> who found significant differences according to the level of COVID-19 alert according to the region of origin, while the present study does not show such differences.

**Table 3:** Attitude and practice assessment of dental students

Question	Answer	Female, n (%)	Male, n (%)	p*
Q12: Is COVID-19 contagious, and should it be contained?	Yes	151 (58.30)	108 (41.70)	0.865
	No	15 (55.56)	12 (44.44)	
	Do not know	9 (64.29)	5 (35.71)	
Q13: Do you think we should prevent its spread as it is a cause of morbidity and mortality?	Yes	170 (58.62)	120 (41.38)	0.675
	No	4 (57.14)	3 (42.86)	
	Do not know	1 (33.33)	2 (66.67)	
Q14: Do you think the virus is transmitted from animals to humans and vice versa?	Yes	35 (53.85)	30 (46.15)	0.280
	No	106 (57.30)	79 (42.70)	
	Do not know	34 (68)	16 (32)	
Q15: Do you know if the virus can affect humans more than once?	Yes	169 (58.28)	121 (41.72)	0.042
	No	0 (0)	3 (100)	
	Do not know	6 (85.71)	1 (14.29)	
Q16: Are there vaccines available?	Yes	168 (57.73)	123 (42.27)	0.374
	No	5 (71.43)	2 (28.57)	
	Do not know	2 (100)	0 (0)	
Q17: Do you consider it a threat to our community?	Yes	164 (57.54)	121 (42.46)	0.344
	No	9 (69.23)	4 (30.77)	
	Do not know	2 (100)	0 (0)	
Q18: Have you followed the Centers for Disease Control and Prevention guidance recommendations for patient care?	Yes	144 (59.26)	99 (40.74)	0.732
	No	15 (51.72)	14 (48.28)	
	Do not know	16 (57.14)	12 (42.86)	
Q19: Have you ever encountered a patient with COVID-19?	Yes	134 (56.78)	102 (43.22)	0.075
	No	38 (69.09)	17 (30.91)	
	Do not know	3 (33.3)	6 (66.67)	
Q20: Have you attended any lectures/courses/workshops on COVID-19?	Yes	116 (64.09)	65 (35.91)	0.026
	No	58 (49.15)	60 (50.85)	
	Do not know	1 (100)	0 (0)	
Q21: Do you wash your hands before and after contact with your patients?	Yes	171 (58.36)	122 (41.64)	0.905
	No	2 (50)	2 (50)	
	Do not know	2 (66.67)	1 (33.33)	
Q22: Do you use a surgical mask when having contact with your patients?	Yes	150 (58.37)	107 (41.63)	0.953
	No	23 (57.50)	17 (42.50)	
	Do not know	2 (66.67)	1 (33.33)	
Q23: Do you wear an N-95 mask when having contact with your patients?	Yes	162 (60.67)	105 (39.33)	0.036
	No	9 (34.62)	17 (65.38)	
	Do not know	4 (57.14)	3 (42.86)	
Q24: Do you take universal infection control precautions?	Yes	165 (58.72)	116 (41.28)	0.612
	No	6 (46.15)	7 (53.85)	
	Do not know	4 (66.67)	2 (33.33)	
Q25: Do you use sodium hypochlorite as a surface disinfectant?	Yes	158 (63.20)	92 (36.80)	0.001
	No	15 (33.33)	30 (66.67)	
	Do not know	2 (40)	3 (60)	

\*Chi-square test

The main strengths of this study were that it provides scientific evidence of the possible practices of Peruvian health science students regarding vaccination against COVID-19, as well as identifying attitudes and associated factors that may influence vaccination against COVID-19 in this population, which due to the nature of their activities is exposed to a high risk of contagion of this disease. In addition, educational and communication strategies can be established to provide the necessary information to students, with the purpose of absolving doubts, possible fears, or possible adverse attitudes to vaccination against COVID-19 in this important group that may be exposed to the risk of contagion. Finally, it helps to improve the scope of vaccination in Peruvian university students and in the community in general to reach higher levels of collective immunity.

**Table 4:** Multifactorial logistic regression analysis of perception and Knowledge of undergraduate health sciences students about COVID-19

<i>Associated factors</i>	<i>Frequency n (%)</i>	<i>OR</i>	<i>95% CI</i>
<b>Gender</b>			
Female	175 (58.33)	Ref.	
Male	125 (41.67)	0.49	0.24–0.99
Age	22.4 (3.5)	1.06	0.92–1.21
Cycle	6.09 (3.0)	0.94	0.81–1.09
<b>Origin</b>			
Lima	254 (84.67)	Ref.	
Provinces	46 (15.33)	0.45	0.29–60.3

This research had a theoretical strength in improving the understanding of the literature on the level of knowledge, practices, and attitudes of Peruvian dental students. Therefore, it provided the profession with solid evidence of the impact of COVID-19 on Peruvian undergraduate dental students. It also had clinical importance because students should be informed about the management of potentially infected patients, as well as the clinical implications of this disease in the oral cavity since this has been shown to be the main

source of infection. Finally, this study had a social impact since patients could directly benefit from a clear and effective protocol for dental care according to the COVID-19 context, avoiding contagion or cross-contamination between operators, students, and patients.

The main limitation of the present research study is the small number of manuscripts with national data published in the scientific evidence. Another limitation is that there may be subjectivity on the part of the students when surveyed since the variable knowledge, awareness, and practices may vary with respect to race, age, culture, level of education, etc.

## **Conclusion**

Peruvian dental students at a national public university had knowledge, practices, and attitudes about the COVID-19 outbreak. Furthermore, none of the associated factors examined were significant in this relationship.

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### III. VERSIÓN EN ESPAÑOL

#### Introducción

La enfermedad por coronavirus 2019 (COVID-19) es una enfermedad viral altamente contagiosa que ha infectado a millones de personas en todo el mundo.<sup>1,2</sup> La Organización Mundial de la Salud ha declarado que esta enfermedad es de preocupación internacional. Esta infección es causada por una nueva cepa de coronavirus (coronavirus 2 del síndrome respiratorio agudo severo), que se informó por primera vez en diciembre de 2019 en China.<sup>1</sup> La principal ruta de transmisión es a través de aerosoles y gotitas en el aire que se transmiten de persona a persona.

Esta enfermedad tiene un período de incubación de aproximadamente 2 a 14 días. La gravedad de sus síntomas varía desde asintomáticos hasta potencialmente mortales en algunos casos, los pacientes son asintomáticos y, en otros, incluso potencialmente mortales.<sup>3,4</sup> El diagnóstico suele ser difícil en pacientes asintomáticos y la prevención es la mejor manera de evitar la infección.<sup>5-7</sup>

Generalmente, después de la infección, los estudiantes de medicina apenas pueden reconocer los síntomas, especialmente en los primeros días de la enfermedad. Esto aumenta la transmisión y es una gran amenaza, especialmente para el personal dental. Por ello, los odontólogos deben estar muy pendientes de realizar un frente correcto para evitar la contaminación y la propagación de esta enfermedad.<sup>2</sup>

Aunque al principio no se conocía bien el comportamiento del virus, ahora se comprende mucho mejor. Las investigaciones lo han hecho posible, lo que reduce el riesgo de infección de los trabajadores sanitarios. Desde el comienzo de la pandemia, los

profesionales de la salud fueron el grupo de personas que estaban en riesgo constante y mayor.

Especialmente en el consultorio dental se identificó una alta probabilidad de infección cruzada. Por esta razón, es importante identificar los factores asociados a esta enfermedad para evitar el contagio.<sup>3</sup>

En relación con las prácticas odontológicas, la Asociación Dental Estadounidense reconoció la odontología como una profesión de alto riesgo y recomendó pautas para controlar la infección por COVID-19 en el consultorio dental. Estas recomendaciones incluyen el uso de equipos de protección personal, control de aerosoles, uso de guantes, ventilación del quirófano y lavado constante de manos, etc.<sup>5-10</sup>

Se ha demostrado que el virus COVID-19 puede permanecer en las superficies durante horas y días, dependiendo de la superficie, humedad, etc.<sup>5,11-14</sup> Es importante que el personal sanitario y los estudiantes sean conscientes del alto riesgo al que corren, están expuestos, especialmente los estudiantes de odontología.<sup>15,16</sup> Por esta razón, es muy importante implementar protocolos de bioseguridad para el manejo de la infección en las consultas odontológicas.

Se recomienda que los futuros profesionales utilicen medidas de bioseguridad (mascarillas, gafas, etc.) para protegerse de las gotitas/aerosoles generados durante los procedimientos odontológicos.<sup>17-19</sup> Sin embargo, la comunidad científica aún no comprende del todo el comportamiento exacto del virus, por lo que los estudiantes y el personal de salud son los más vulnerables.

El propósito de esta investigación es evaluar el nivel de conocimiento, concientización, práctica y factores asociados sobre el brote de COVID-19 en estudiantes de pregrado de odontología de una universidad pública peruana.

## **Materiales y métodos**

### **Diseño del estudio y tamaño de la muestra**

El presente estudio fue un diseño observacional, prospectivo y transversal. El tamaño de la población se calculó utilizando el software Open Epi con la fórmula para estimar una muestra para la frecuencia en una población finita. Se utilizó una frecuencia hipotética (p) del  $50\% \pm 5$  y un error absoluto del 5%. Se determinó un tamaño de muestra mínimo de 235 estudiantes; sin embargo, se decidió evaluar a 300 sujetos de la Facultad de Odontología de la Universidad Nacional Federico Villarreal (UNFV).

El estudio se llevó a cabo entre noviembre de 2021 y febrero de 2022. Para la redacción de este manuscrito se utilizaron las directrices de Fortalecimiento del Informe de Estudios Observacionales en Epidemiología.

### **Criterios de inclusión**

- Estudiantes que deseen participar en la encuesta virtual.
- Estudiantes con acceso a internet.
- Estudiantes de la Facultad de Odontología de la UNFV matriculados correctamente en el año 2021-2022.

### **Criterio de exclusión**

- Estudiantes que no firmen el formulario de consentimiento informado.

- Estudiantes menores de edad.
- Estudiantes que no cuentan con medios de comunicación digitales.
- Estudiantes de otras Facultades de Odontología del Perú.

### **Factores asociados**

Los factores asociados evaluados fueron el sexo, ciclo y origen geográfico del estudiante de odontología. Todos estos factores fueron analizados y evaluados mediante un modelo de regresión logística para determinar cuáles son variables intervinientes con una  $p < 0,05$ .

### **Recopilación de datos y mediciones**

Se solicitó autorización al Decanato de la Facultad de Odontología, UNFV. Luego se identificaron todos los estudiantes que se encontraban debidamente matriculados en el año académico 2021-2022. En el estudio se identificaron y evaluaron un total de 300 estudiantes universitarios. A cada participante se le pidió que firmara un consentimiento informado porque la participación fue libre y voluntaria. Se utilizó un cuestionario previamente validado por Ahmed et al.<sup>1</sup> y se recogieron datos mediante este cuestionario estructurado que consta de 31 preguntas predefinidas, incluyendo el nivel de conocimiento, conciencia y práctica en diferentes secciones de evaluación. Este cuestionario anteriormente tenía una consistencia interna de respuestas con un  $\alpha$  de Cronbach de 0,71.

La primera sección contiene seis preguntas cerradas sobre detalles demográficos y en relación con los niveles educativos y aspectos ocupacionales. La segunda sección tiene 11 preguntas centradas en el nivel de conocimiento, incluida la etiología, el conocimiento,

la transmisión, el período de incubación, los signos y síntomas, la duración, las opciones de tratamiento y otros factores. La tercera sección tiene 14 preguntas relacionadas con la actitud y la práctica sobre el COVID-19. Las encuestas se realizaron en línea a través de Google Surveys, donde los enlaces se reenviaron a través de correos electrónicos institucionales. El enlace del cuestionario en línea se envió a través de las redes sociales, incluidas Facebook, WhatsApp y Twitter de la UNFV. Finalmente, todos los datos de los participantes se mantuvieron anónimos.

### **Consideraciones éticas**

El proyecto fue presentado al Comité de Ética de la Universidad Científica del Sur y fue aprobado mediante resolución del Comité de Ética, 293-CIEI-CIENTIFICA-2021.

### **Análisis de los datos**

Los datos fueron almacenados y analizados utilizando el software estadístico Stata® 15.0 (Texas, Estados Unidos de América). El análisis descriptivo se evaluó con frecuencias y porcentajes de variables cualitativas. Finalmente, se analizarán los factores asociados estableciendo el mejor modelo Logit mediante regresión logística, donde se obtienen los odds ratios de las variables de confusión. Se obtuvo un nivel de significancia de  $p < 0,05$ .

Tabla 1: Características sociodemográficas

Grupos	---	%
Género femenino	175	58,33
Masculino	125	41,67
Origen		
Lima	254	84,67
Provincia	46	15,33
	Media de edad	DS
Edad	22.42	3.51
Ciclo	6.09	3.02

\*Las variables edad y ciclo se midieron cuantitativamente (media y desviación estándar)

En la Tabla 3 se muestra que, en cuanto a actitudes y prácticas, solo las preguntas P15 (¿sabe si el virus puede afectar a los humanos más de una vez?), P20 (¿ha asistido a alguna conferencia/curso/taller sobre COVID-19?), P23 (¿Usas mascarilla N-95 al tener contacto con tus pacientes?), y P25 (¿Utilizas hipoclorito de sodio como desinfectante de superficies?), se asociaron con el sexo de los estudiantes con una  $p < 0,05$ .

En el análisis de regresión logística no se encontraron variables asociadas con el conocimiento y la conciencia, las prácticas y las actitudes de los estudiantes de odontología frente al brote de COVID-19. Se obtuvieron los siguientes resultados: sexo [odds ratio (OR) = 0,49; Intervalo de confianza (IC) del 95%: 0,24-1,0], edad (OR = 1,06; IC: 0,92-1,21), ciclo (OR = 0,94; IC: 0,81-1,09), origen (OR = 0,45; IC: 0,29-0,60,3) (Tabla 4).

## Discusión

En el presente estudio se observó que el 58,3% de los participantes fueron de género femenino y el 41,6% masculino, mientras que el ciclo con mayor número de participantes fue el décimo y octavo ciclo, con 19% y 14,3%. La procedencia de los participantes fue mayor en el caso de Lima, con un 84,6%, frente a las provincias, con un 15,3%. Este estudio evidencia la importancia de este escenario, especialmente en el proceso y actitud que deben tener los estudiantes de ciencias de la salud durante la vacunación contra el

COVID-19. Por otro lado, dado que en el Perú la mayoría de los estudiantes pertenecen al género femenino, y de acuerdo a la literatura científica publicada, se decidió analizar si esta tendencia influye en las actitudes y conocimientos que tiene un estudiante de odontología. Por otro lado, también se analizó el año académico y no se encontró influencia de esta variable en las prácticas y actitudes de los estudiantes hacia el COVID-19.

Además, en la presente investigación se realizó una regresión logística multivariada para identificar los factores asociados que influyen en el conocimiento y las percepciones de los estudiantes de odontología sobre el COVID-19. No se encontró influencia de factores asociados como el sexo, la edad, el ciclo o el origen, en el conocimiento y percepción de la COVID-19, resultados como los estudios de De Stefani et al.<sup>5</sup> realizados en Italia, Ahmed et al.<sup>7</sup> en Jordania, Papagiannis et al.<sup>8</sup> desarrollaron en Grecia, y Consolo et al.<sup>10</sup> donde no hubo diferencias significativas según sexo. Sin embargo, en el presente estudio se encontraron diferencias significativas ( $p = 0,026$ ) en la asociación de una mayor participación del sexo femenino en charlas, cursos o talleres sobre COVID-19 además de un conocimiento significativamente mayor de los signos y síntomas de la COVID-19 ( $p = 0,006$ ), lo que concuerda con los resultados del estudio de De Stefani et al.<sup>5</sup> que encontró en las participantes de género femenino una percepción de peligro significativamente mayor de COVID-19 ( $p < 0,001$ ), confianza en el tratamiento del contagio sospechoso ( $p < 0,001$ ) y en la percepción de no haberse preparado suficientemente para la reanudación de las actividades clínicas ( $p < 0,001$ ). En el presente estudio también se encontraron diferencias significativas en el mayor uso de desinfectantes de superficies como el hipoclorito de sodio en las participantes de género femenino ( $p = 0,001$ ). Es importante mencionar que estudios como el de Quadri et al.<sup>12</sup> muestran que las intervenciones educativas impactan favorablemente en la reducción de brechas de conocimientos y

actitudes en los internos de odontología ( $p < 0,001$ ), lo que las convierte en actividades recomendables en las instituciones educativas.

Tabla 2: Evaluación de conocimientos y conciencia de los estudiantes de odontología.

Pregunta	Respuesta	Mujer, n (%)	Hombre, n (%)	p*
P1: ¿Cuál es el virus que causa el COVID-19?	1	16 (50)	16 (50)	0,385
	2	(50)		
	3	0 (0)	0 (0)	
	4	143 (60,85)	92 (39,15)	
	5	2 (40)	3 (60)	
P2: ¿Cuál es la etiología del COVID-19?	1	171 (57,97)	124 (42,03)	0,233
	2	2 (100)	0 (0)	
	3	1 (100)	0 (0)	
	4	2 (100)	0 (0)	
	5	0 (0)	0 (0)	
P3: ¿Cuál crees que es el modo de transmisión?	1	57 (57,58)	42 (42,42)	0,174
	2	0 (0)	2 (100)	
	3	3 (100)	0 (0)	
	4	115 (58,67)	81 (41,33)	
	5	0 (0)	0 (0)	
P4: ¿Cómo se enteró del COVID-19?	1	15 (48,39)	16 (51,61)	0,442
	2	6 (66,67)	3 (33,33)	
	3	42 (60)	28 (40)	
	4	3 (100)	0 (0)	
	5	109 (58,29)	78 (41,71)	
P5: ¿Cuál es el período de incubación del COVID-19?	1	168 (57,53)	124 (42,47)	0,11
	2	6 (100)	0 (0)	
	3	1 (50)	1 (50)	
	4	0 (0)	0 (0)	
P6: ¿Conoce los signos y síntomas del COVID-19?	1	114 (54,29)	96 (45,71)	0,154
	2	0 (0)	0 (0)	
	3	3 (75)	1 (25)	
	4	57 (67,06)	28 (32,94)	
	5	1 (100)	0 (0)	
P7: ¿Sabe cuántos días puede sobrevivir el COVID-19 fuera del cuerpo?	1	16 (47,06)	18 (52,94)	0,107
	2	44 (65,67)	23 (34,33)	
	3	52 (64,20)	29 (35,80)	
	4	24 (46,15)	28 (53,85)	
	5	39 (59,09)	28 (53,85)	
P8: ¿Qué grupo de edad es el más afectado por el COVID-19?	1	0 (0)	0 (0)	0,03
	2		1 (50)	
	3	13 (92,86)	1 (7,14)	
	4	160 (57,14)	120 (42,86)	
	5	1 (25)	3 (75)	
P9: ¿Conoce la tasa de mortalidad de COVID-19?	1	44 (53,66)	38 (46,34)	0,416
	2	22 (52,38)	20 (47,62)	
	3	28 (60,87)	18 (39,13)	
	4	13 (76,47)	4 (23,53)	
	5	68 (60,18)	45 (39,82)	
P10: ¿Cómo podemos prevenir el COVID-19?	1	3 (42,86)	4 (57,14)	0,358
	2	3 (75)	1 (25)	
	3	4 (100)	0 (0)	
	4	163 (57,60)	120 (42,40)	
	5	1 (100)	0 (0)	
P11: ¿Cuáles son las alternativas de tratamiento disponibles para pacientes con COVID-19?	1	13 (59,09)	9 (40,91)	0,539
	2	8 (47,06)	9 (52,94)	
	3	5 (50)	5 (50)	
	4	8 (80)	2 (20)	
	5	141 (58,51)	100 (41,49)	

\*Prueba de chi-cuadrado

Por otro lado, los resultados difieren de los de Cagetti et al. <sup>11</sup>, quienes encontraron diferencias significativas según el nivel de alerta de COVID-19 según la región de origen, mientras que el presente estudio no muestra tales diferencias.

Las principales fortalezas de este estudio fueron que proporciona evidencia científica de las posibles prácticas de los estudiantes peruanos de ciencias de la salud respecto a la vacunación contra el COVID-19, así como identificar actitudes y factores asociados que pueden influir en la vacunación contra el COVID-19 en esta población, lo que debido a la naturaleza de sus actividades está expuesto a un alto riesgo de contagio de esta enfermedad. Además, se podrán establecer estrategias educativas y de comunicación para brindar la información necesaria a los estudiantes, con el propósito de absolver dudas, posibles miedos o posibles actitudes adversas a la vacunación contra el COVID-19 en este importante grupo que puede estar expuesto al riesgo de contagio. Finalmente, ayuda a mejorar los alcances de la vacunación en los estudiantes universitarios peruanos y en la comunidad en general para alcanzar mayores niveles de inmunidad colectiva.

Esta investigación tuvo una fortaleza teórica al mejorar la comprensión de la literatura sobre el nivel de conocimientos, prácticas y actitudes de los estudiantes de odontología peruanos. Por lo tanto, brindó a la profesión evidencia sólida del impacto del COVID-19 en los estudiantes universitarios de odontología peruanos. También tuvo importancia clínica porque se debía informar a los estudiantes sobre el manejo de pacientes potencialmente infectados, así como las implicaciones clínicas de esta enfermedad en la cavidad bucal ya que se ha demostrado que esta es la principal fuente de infección. Finalmente, este estudio tuvo un impacto social ya que los pacientes podrían beneficiarse directamente de un protocolo claro y efectivo de atención odontológica acorde al contexto

COVID-19, evitando contagio o contaminación cruzada entre operadores, estudiantes y pacientes.

La principal limitación del presente estudio de investigación es el pequeño número de manuscritos con datos nacionales publicados en la evidencia científica. Otra limitación es que puede haber subjetividad por parte de los estudiantes al ser encuestados ya que la variable conocimientos, conciencias y prácticas pueden variar con respecto a raza, edad, cultura, nivel de educación, etc.

### **Conclusión**

Los estudiantes peruanos de odontología de una universidad pública nacional tienen conocimientos, prácticas y actitudes ante el brote de COVID-19. Además, ninguno de los factores asociados examinados fue significativo en esta relación.

Tabla 3: Conocimientos, prácticas y actitudes sobre el COVID-19

Tabla 3: Evaluación de actitudes y prácticas de estudiantes de odontología.

Pregunta	Respuesta	Mujer, n (%)	Hombre, n (%)	sig*
P12: ¿Es contagioso el COVID-19 y debería contenerse?	Sí	151 (58,30)	108 (41,70)	0,865
	No	15 (5,56)	12 (4,44)	
	No lo sé	9 (6,29)	5 (3,71)	
P13: ¿Cree que deberíamos prevenir su propagación ya que es una causa de morbilidad y mortalidad?	Sí	170 (58,62)	120 (41,38)	0,675
	No	4 (57,14)	3 (42,86)	
	No lo sé	1 (33,33)	2 (66,67)	
P14: ¿Crees que el virus se transmite de animales a humanos y viceversa?	Sí	35 (53,85)	30 (46,15)	0,280)
	No	106 (57,30)	79 (42,70)	
	No lo sé	34 (68)	16 (32)	
P15: ¿Sabes si el virus puede afectar a los humanos más de una vez? Sí	No	169 (58,28)	121 (41,72)	0,042
	No lo sé	0 (0)	3 (100)	
	No lo sé	6 (85,71)	1 (14,29)	
P16: ¿Hay vacunas disponibles?	Sí	168 (57,73)	123 (42,27)	0,374
	No	5 (71,43)	2 (28,57)	
	No lo sé	2 (100)	0 (0)	
P17: ¿Lo considera una amenaza para nuestra comunidad?	Sí	164 (57,54)	121 (42,46)	0,344
	No	9 (69,23)	4 (30,77)	
	No lo sé	2 (100)	0 (0)	
P18: ¿Ha seguido las recomendaciones de orientación de los Centros para el Control y la Prevención de Enfermedades para la atención al paciente?	Sí	144 (59,26)	99 (40,74)	0,732
	No	15 (51,72)	14 (48,28)	
	No lo sé	16 (57,14)	12 (42,86)	
P19: ¿Alguna vez se ha encontrado con un paciente con COVID-19?	Sí	134 (56,78)	102 (43,22)	0,075
	No	38 (69,09)	17 (30,91)	
	No lo sé	3 (33,3)	6 (66,67)	
P20: ¿Ha asistido a alguna conferenciacurso/taller sobre ¿COVID-19?	Sí	116 (64,09)	65 (35,91)	0,026
	No	58 (49,15)	60 (50,85)	
	No lo sé	1 (100)	0 (0)	
P21: ¿Se lava las manos antes y después del contacto con sus pacientes?	Sí	171 (58,36)	122 (41,64)	0,905
	No	2 (50)	2 (50)	
	No lo sé	2 (66,67)	1 (33,33)	
P22: ¿Utiliza mascarilla quirúrgica cuando tiene contacto con sus pacientes?	Sí	150 (58,37)	107 (41,63)	0,953
	No	23 (57,50)	17 (42,50)	
	No lo sé	2 (66,67)	1 (33,33)	
P23: ¿Utiliza mascarilla N-95 cuando tiene contacto con sus pacientes?	Sí	162 (60,67)	105 (39,33)	0,036
	No	9 (34,62)	17 (65,38)	
	No lo sé	4 (57,14)	3 (42,86)	
P24: ¿Toma precauciones universales para el control de infecciones?	Sí	165 (58,72)	116 (41,28)	0,612
	No	6 (46,15)	7 (53,85)	
	No lo sé	4 (66,67)	2 (33,33)	
P25: ¿Utiliza hipoclorito de sodio como desinfectante de superficies?	Sí	158 (63,20)	92 (36,80)	0,001
	No	15 (33,33)	30 (66,67)	
	No lo sé	2 (40)	3 (60)	

\*Prueba de chi-cuadrado

Tabla 4: Análisis de regresión logística multifactorial de percepción y Conocimientos de estudiantes de pregrado en ciencias de la salud sobre el COVID-19

Factores asociados	Frecuencia n (%)	O	IC del 95%
<b>Género</b>			
Femenino	175 (58,33)	Árbitro.	
Masculino	125 (41,67)	0,49	0,24–0,99
Edad	22,4 (3,5)	1,06	0,92–1,21
Ciclo	6,09 (3,0)	0,94	0,81–1,09
<b>Origen</b>			
Lima	254 (84,67)	Árbitro.	
Provincias	46 (15,33)	0,45	0,29–60,3

# ANEXOS

## PRUEBA DE IMPRENTA DEL ARTÍCULO

### ORIGINAL RESEARCH

# Knowledge, Awareness, Practice, Attitudes, and Their Associated Factors about COVID-19 Outbreak in Dental Students

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### ABSTRACT

**Aim:** To determine the level of knowledge, awareness, practice, and associated factors about the coronavirus disease 2019 (COVID-19) outbreak in undergraduate dental students at a Peruvian public university.

**Materials and methods:** An observational, prospective, cross-sectional, and descriptive study was carried out. The population consists of all undergraduate students of the Faculty of Dentistry of the Universidad Nacional Federico Villarreal (UNFV) duly enrolled in the academic year 2021–2022. The previously validated and structured questionnaire consisting of 31 predefined answers, including the level of knowledge, awareness, practice, and attitudes in different evaluation sections, was used. The data were analyzed using Stata® 15.0 statistical software. Finally, the associated factors were analyzed by establishing the best Logit model, and a significance level of  $p < 0.05$  was established.

**Results:** In the logistic regression analysis, no variables were found to be associated with the knowledge and awareness, practices, and attitudes of undergraduate dental students regarding the COVID-19 outbreak. The following results were obtained: sex [odds ratio (OR) = 0.49; 95% confidence interval (CI): 0.24–1.0], age (OR = 1.06; CI: 0.92–1.21), cycle (OR = 0.94; CI: 0.81–1.09), origin (OR = 0.45; CI: 0.29–0.63).

**Conclusion:** Peruvian dental students at a Peruvian public university had knowledge, practices, and attitudes about the COVID-19 outbreak. Furthermore, none of the associated factors examined were significant in this relationship.

**Clinical significance:** This research has clinical relevance because it allowed us to identify the factors that influence the level of knowledge, practices, and attitudes of undergraduate dental students in order to establish strategies to address this problem.

**Keywords:** Coronavirus disease 2019, Dentistry, Knowledge, Pandemic.

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### INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a highly contagious viral disease that has infected millions of people around the world.<sup>1,2</sup> World Health Organization has declared this disease to be of international concern. This infection is caused by a new strain of coronavirus (severe acute respiratory syndrome coronavirus 2), which was first reported in December 2019 in China.<sup>1</sup> The main route of transmission is by airborne aerosols and droplets that are transmitted from person to person.

This disease has an incubation period of approximately 2–14 days. The severity of its symptoms varies from asymptomatic to life-threatening in some cases, patients are asymptomatic, and in others, even life-threatening.<sup>3,4</sup> Diagnosis is often difficult in asymptomatic patients, and prevention is the best way to avoid infection.<sup>5–7</sup>

Generally, after infection, medical students can hardly recognize the symptoms, especially in the first days of the disease. This increases transmission and is a great threat, especially for dental personnel. Therefore, dentists must be very aware of making a correct front to avoid contamination and the spread of this disease.<sup>2</sup>

Although the behavior of the virus was not well known in the beginning, it is now much better understood. Research has made this possible, putting healthcare workers at a lower risk of infection. From the beginning of the pandemic, healthcare professionals were the group of people who were at constant and increased risk.

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Especially in the dental office, a high likelihood of cross-infection was identified. For this reason, it is important to identify the factors associated with this disease to avoid contagion.<sup>3</sup>

In relation to dental practices, the American Dental Association recognized dentistry as a high-risk profession and recommended guidelines for controlling COVID-19 infection in the dental office. These recommendations include the use of personal protective equipment, aerosol control, use of wadding, operating room ventilation and constant hand washing, etc.<sup>5–10</sup>

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Knowledge, Practice, and Attitudes about COVID-19

It has been shown that the COVID-19 virus can remain on surfaces for hours and days, depending on the surface, humidity, etc.<sup>5,11-14</sup> It is important that health personnel and students are aware of the high risk to which they are exposed, especially dental students.<sup>15,16</sup> For this reason, it is very important to implement biosafety protocols for the management of infection in dental practices.

It is recommended that future professionals wear biosafety measures (masks, goggles, etc.) to protect themselves from droplets/aerosols generated during dental procedures.<sup>17-19</sup> However, the scientific community still does not fully understand the exact behavior of the virus, so students and health personnel are the most vulnerable.

The purpose of this research is to evaluate the level of knowledge, awareness, practice, and associated factors about the COVID-19 outbreak in undergraduate dental students at a Peruvian public university.

**MATERIALS AND METHODS**

**Study Design and Sample Size**

The present study was a cross-sectional, prospective, observational design. The population size was calculated using the Open Epi software with the formula to estimate a sample for the frequency in a finite population. A hypothetical frequency (*p*) of 50% ± 5 and an absolute error of 5% was used. A minimum sample size of 235 students was determined; however, it was decided to evaluate 300 subjects from the Faculty of Dentistry of the Universidad Nacional Federico Villarreal (UNFV).

The study was carried out between November 2021 and February 2022. The Strengthening the Report of Observational Studies in Epidemiology guidelines were used for the writing of this manuscript.

**Inclusion Criteria**

- Students who wish to participate in the virtual survey.
- Students with internet access.
- Students of the Faculty of Dentistry UNFV correctly enrolled in the year 2021–2022.

**Exclusion Criteria**

- Students who do not sign the informed consent form.
- Students who are minors.
- Students who do not have digital means of communication.
- Students from other Peruvian Schools of Dentistry.

**Associated Factors**

The associated factors evaluated were the sex, cycle, and geographic origin of the undergraduate dental student. All these factors were analyzed and evaluated by means of a logistic regression model to determine which are intervening variables with a *p* < 0.05.

**Data Collection and Measurements**

Authorization was requested from the Dean's Office of the Faculty of Dentistry, UNFV. Then all students who were duly enrolled in the 2021–2022 academic year were identified. A total of 300 undergraduate students were identified and evaluated in the study. Each participant was asked to sign informed consent because participation was free and voluntary. A questionnaire previously validated by Ahmed et al.<sup>1</sup> was used, and data were collected using

this structured questionnaire consisting of 31 predefined questions, including the level of knowledge, awareness, and practice in different assessment sections. This questionnaire previously had an internal consistency of responses with a Cronbach's  $\alpha$  of 0.71.

The first section contains six closed questions on demographic details and in relation to education levels and occupational aspects. The second section has 11 questions focused on the level of knowledge, including etiology, awareness, transmission, incubation period, signs and symptoms, duration, treatment options, and other factors. The third section has 14 questions related to attitude and practice about COVID-19. The surveys were online via Google Surveys, where the links were forwarded through institutional emails. The online questionnaire link was sent through social media, including Facebook, WhatsApp, and Twitter of UNFV. Finally, all participant data was kept anonymous.

**Ethical Considerations**

The project was presented to the Ethics Committee of the Universidad Científica del Sur and was approved by the resolution of the Ethics Committee, 293-CIEI-CIENTÍFICA-2021.

**Data Analysis**

The data were stored and analyzed using Stata® 15.0 statistical software (Texas, United States of America). The descriptive analysis was evaluated with frequencies and percentages of qualitative variables. Finally, the associated factors will be analyzed by establishing the best Logit model through logistic regression, where the odds ratios of the confounding variables are obtained. A significance level of *p* < 0.05 was established.

**RESULTS**

It was found that the female sex was the most prevalent 175 (58.3%). In relation to the academic cycle of the dental students, the majority, 57 (19%), belonged to the tenth cycle, while only 19 (6.3%) belonged to the fifth cycle. Finally, most of the students, 254 (84.6%), belonged to the capital Lima, while only 46 (15.3%) were from the provinces (Table 1).

Table 2 shows that in relation to the level of knowledge and awareness of the students evaluated, it was found that only Q8 (which age group is most affected by COVID-19?) had a statistically significant association with sex with a *p* = 0.03. However, in the rest of the questions Q1–P7, Q9–P11, no associations were found between the level of knowledge and awareness with the sex of the students *p* > 0.05.

**Table 1:** Sociodemographic characteristics

Groups	n	%	
Gender	Female	175	58.33
	Male	125	41.67
Origin	Lima	254	84.67
	Province	46	15.33
	Media		DS
Age	22.42	3.51	
Cycle	6.09	3.02	

\*The variables, age and cycle were measured quantitatively (mean and standard deviation)



Knowledge, Practice, and Attitudes about COVID-19

**Table 2:** Knowledge and awareness assessment of dental students

Question	Answer	Female, n (%)	Male, n (%)	p*
Q1: What is the virus that causes COVID-19?	1	16 (50)	16 (50)	0.385
	2	14 (50)	14 (50)	
	3	0 (0)	0 (0)	
	4	143 (60.85)	92 (39.15)	
	5	2 (40)	3 (60)	
Q2: What is the etiology of COVID-19?	1	171 (57.97)	124 (42.03)	0.233
	2	2 (100)	0 (0)	
	3	1 (100)	0 (0)	
	4	2 (100)	0 (0)	
	5	0 (0)	0 (0)	
Q3: What do you think is the mode of transmission?	1	57 (57.58)	42 (42.42)	0.174
	2	0 (0)	2 (100)	
	3	3 (100)	0 (0)	
	4	115 (58.67)	81 (41.33)	
	5	0 (0)	0 (0)	
Q4: How did you learn about COVID-19?	1	15 (48.39)	16 (51.61)	0.442
	2	6 (66.67)	3 (33.33)	
	3	42 (60)	28 (40)	
	4	3 (100)	0 (0)	
	5	109 (58.29)	78 (41.71)	
Q5: What is the incubation period of COVID-19?	1	168 (57.53)	124 (42.47)	0.11
	2	6 (100)	0 (0)	
	3	1 (50)	1 (50)	
	4	0 (0)	0 (0)	
Q6: Do you know the signs and symptoms of COVID-19?	1	114 (54.29)	96 (45.71)	0.154
	2	0 (0)	0 (0)	
	3	3 (75)	1 (25)	
	4	57 (67.06)	28 (32.94)	
	5	1 (100)	0 (0)	
Q7: Do you know how many days COVID-19 can survive outside the body?	1	16 (47.06)	18 (52.94)	0.107
	2	44 (65.67)	23 (34.33)	
	3	52 (64.20)	29 (35.80)	
	4	24 (46.15)	28 (53.85)	
	5	39 (59.09)	28 (53.85)	
Q8: What age group is most affected by COVID-19?	1	0 (0)	0 (0)	0.03
	2	1 (50)	1 (50)	
	3	13 (92.86)	1 (7.14)	
	4	160 (57.14)	120 (42.86)	
	5	1 (25)	3 (75)	
Q9: Do you know the mortality rate of COVID-19?	1	44 (53.66)	38 (46.34)	0.416
	2	22 (52.38)	20 (47.62)	
	3	28 (60.87)	18 (39.13)	
	4	13 (76.47)	4 (23.53)	
	5	68 (60.18)	45 (39.82)	
Q10: How can we prevent COVID-19?	1	3 (42.86)	4 (57.14)	0.358
	2	3 (75)	1 (25)	
	3	4 (100)	0 (0)	
	4	163 (57.60)	120 (42.40)	
	5	1 (100)	0 (0)	
Q11: What are the available treatment alternatives for patients with COVID-19?	1	13 (59.09)	9 (40.91)	0.539
	2	8 (47.06)	9 (52.94)	
	3	5 (50)	5 (50)	
	4	8 (80)	2 (20)	
	5	141 (58.51)	100 (41.49)	

\*Chi-square test

Table 3 shows that, regarding attitudes and practices, only questions P15 (do you know if the virus can affect humans more than once?), P20 (have you attended any lecture/course/workshop on COVID-19?), P23 (do you use an N-95 mask when having contact with your patients?), and P25 (do you use sodium hypochlorite as a surface disinfectant?) were associated with the sex of the students with a  $p < 0.05$ .

In the logistic regression analysis, no variables associated with the knowledge and awareness, practices, and attitudes of undergraduate dental students regarding the COVID-19 outbreak were found. The following results were obtained: sex [odds ratio (OR) = 0.49; 95% confidence interval (CI): 0.24–1.0], age (OR = 1.06; CI: 0.92–1.21), cycle (OR = 0.94; CI: 0.81–1.09), origin (OR = 0.45; CI: 0.29–0.63) (Table 4).

**DISCUSSION**

In the present study, it was observed that 58.3% of the participants were female and 41.6% were male, while the cycle with the highest number of participants was the tenth and eighth cycles, with 19 and 14.3%. The origin of the participants was higher in the case of Lima, with 84.6%, compared to the provinces, with 15.3%. This study evidences the importance of this scenario, especially in the process and attitude that health sciences students should have during vaccination against COVID-19. On the other hand, since in Peru, most students belong to the female gender, and according to the published scientific literature, it was decided to analyze if this tendency influences the attitudes and knowledge that a deontology student has. On the other hand, the academic year was also analyzed, and no influence of this variable on the practices and attitudes of students toward COVID-19 was found.

Also, in the present investigation, a multivariate logistic regression was performed to identify the associated factors that influence the knowledge and perceptions of dental students about COVID-19. No influence was found of associated factors such as sex, age, cycle, or origin on the knowledge and perception of COVID-19, results like the studies of De Stefani et al.<sup>5</sup> conducted in Italy, Ahmed et al.<sup>7</sup> in Jordan, Papagiannis et al.<sup>8</sup> developed in Greece, and Consolo et al.<sup>10</sup> where there were no significant differences according to sex. However, in the present study, significant differences were found ( $p = 0.026$ ) in the association of greater participation of the female sex in talks, courses or workshops on COVID-19 in addition to a significantly greater knowledge of the signs and symptoms of COVID-19 ( $p = 0.006$ ), which is consistent with the results of the study by De Stefani et al.<sup>5</sup> which found in female participants a significantly higher perceived danger of COVID-19 ( $p < 0.001$ ), confidence in treating suspected contagion ( $p < 0.001$ ) and on the perception of not having prepared sufficiently for the resumption of clinical activities ( $p < 0.001$ ). In the present study, significant differences were also found in the greater use of surface disinfectants such as sodium hypochlorite in the female participants ( $p = 0.001$ ). It is important to mention that studies such as that of Quadri et al.<sup>12</sup> show that educational interventions have a favorable impact on the reduction of knowledge and attitude gaps in dental interns ( $p < 0.001$ ), making them recommendable activities in educational institutions.

On the other hand, the results differ from those of Cagetti et al.,<sup>11</sup> who found significant differences according to the level of COVID-19 alert according to the region of origin, while the present study does not show such differences.

Knowledge, Practice, and Attitudes about COVID-19

**Table 3:** Attitude and practice assessment of dental students

Question	Answer	Female, n (%)	Male, n (%)	p*
Q12: Is COVID-19 contagious, and should it be contained?	Yes	151 (58.30)	108 (41.70)	0.865
	No	15 (55.56)	12 (44.44)	
	Do not know	9 (64.29)	5 (35.71)	
Q13: Do you think we should prevent its spread as it is a cause of morbidity and mortality?	Yes	170 (58.62)	120 (41.38)	0.675
	No	4 (57.14)	3 (42.86)	
	Do not know	1 (33.33)	2 (66.67)	
Q14: Do you think the virus is transmitted from animals to humans and vice versa?	Yes	35 (53.85)	30 (46.15)	0.280
	No	106 (57.30)	79 (42.70)	
	Do not know	34 (68)	16 (32)	
Q15: Do you know if the virus can affect humans more than once?	Yes	169 (58.28)	121 (41.72)	0.042
	No	0 (0)	3 (100)	
	Do not know	6 (85.71)	1 (14.29)	
Q16: Are there vaccines available?	Yes	168 (57.73)	123 (42.27)	0.374
	No	5 (71.43)	2 (28.57)	
	Do not know	2 (100)	0 (0)	
Q17: Do you consider it a threat to our community?	Yes	164 (57.54)	121 (42.46)	0.344
	No	9 (69.23)	4 (30.77)	
	Do not know	2 (100)	0 (0)	
Q18: Have you followed the Centers for Disease Control and Prevention guidance recommendations for patient care?	Yes	144 (59.26)	99 (40.74)	0.732
	No	15 (51.72)	14 (48.28)	
	Do not know	16 (57.14)	12 (42.86)	
Q19: Have you ever encountered a patient with COVID-19?	Yes	134 (56.78)	102 (43.22)	0.075
	No	38 (69.09)	17 (30.91)	
	Do not know	3 (33.3)	6 (66.67)	
Q20: Have you attended any lectures/courses/workshops on COVID-19?	Yes	116 (64.09)	65 (35.91)	0.026
	No	58 (49.15)	60 (50.85)	
	Do not know	1 (100)	0 (0)	
Q21: Do you wash your hands before and after contact with your patients?	Yes	171 (58.36)	122 (41.64)	0.905
	No	2 (50)	2 (50)	
	Do not know	2 (66.67)	1 (33.33)	
Q22: Do you use a surgical mask when having contact with your patients?	Yes	150 (58.37)	107 (41.63)	0.953
	No	23 (57.50)	17 (42.50)	
	Do not know	2 (66.67)	1 (33.33)	
Q23: Do you wear an N-95 mask when having contact with your patients?	Yes	162 (60.67)	105 (39.33)	0.036
	No	9 (34.62)	17 (65.38)	
	Do not know	4 (57.14)	3 (42.86)	
Q24: Do you take universal infection control precautions?	Yes	165 (58.72)	116 (41.28)	0.612
	No	6 (46.15)	7 (53.85)	
	Do not know	4 (66.67)	2 (33.33)	
Q25: Do you use sodium hypochlorite as a surface disinfectant?	Yes	158 (63.20)	92 (36.80)	0.001
	No	15 (33.33)	30 (66.67)	
	Do not know	2 (40)	3 (60)	

\*Chi-square test

The main strengths of this study were that it provides scientific evidence of the possible practices of Peruvian health science students regarding vaccination against COVID-19, as well as identifying attitudes and associated factors that may influence vaccination against COVID-19 in this population, which due to the nature of their activities is exposed to a high risk of contagion of this disease. In addition, educational and communication strategies can be established to provide the necessary information to students, with the purpose of absolving doubts, possible fears, or possible adverse

attitudes to vaccination against COVID-19 in this important group that may be exposed to the risk of contagion. Finally, it helps to improve the scope of vaccination in Peruvian university students and in the community in general to reach higher levels of collective immunity.

This research had a theoretical strength in improving the understanding of the literature on the level of knowledge, practices, and attitudes of Peruvian dental students. Therefore, it provided the profession with solid evidence of the impact of COVID-19 on Peruvian undergraduate dental students. It also had clinical importance



Knowledge, Practice, and Attitudes about COVID-19

**Table 4:** Multifactorial logistic regression analysis of perception and Knowledge of undergraduate health sciences students about COVID-19

Associated factors	Frequency n (%)	OR	95% CI
<b>Gender</b>			
Female	175 (58.33)	Ref.	
Male	125 (41.67)	0.49	0.24–0.99
Age	22.4 (3.5)	1.06	0.92–1.21
Cycle	6.09 (3.0)	0.94	0.81–1.09
<b>Origin</b>			
Lima	254 (84.67)	Ref.	
Provinces	46 (15.33)	0.45	0.29–60.3

because students should be informed about the management of potentially infected patients, as well as the clinical implications of this disease in the oral cavity since this has been shown to be the main source of infection. Finally, this study had a social impact since patients could directly benefit from a clear and effective protocol for dental care according to the COVID-19 context, avoiding contagion or cross-contamination between operators, students, and patients.

The main limitation of the present research study is the small number of manuscripts with national data published in the scientific evidence. Another limitation is that there may be subjectivity on the part of the students when surveyed since the variable knowledge, awareness, and practices may vary with respect to race, age, culture, level of education, etc.

## CONCLUSION

Peruvian dental students at a national public university had knowledge, practices, and attitudes about the COVID-19 outbreak. Furthermore, none of the associated factors examined were significant in this relationship.

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## COPIAS DEL DOCUMENTO DE APROBACIÓN DEL COMITÉ DE ÉTICA

COMITÉ INSTITUCIONAL DE ÉTICA EN  
INVESTIGACIÓN



### CONSTANCIA N° 293-CIEI-CIENTÍFICA-2021

El presidente del Comité Institucional de Ética en Investigación de la Universidad Científica del Sur (CIEI-CIENTÍFICA) da constancia que el proyecto de investigación, cuyos datos se registran a continuación, ha sido **aprobado** por el CIEI-CIENTÍFICA.

Código de registro: **517-2020-POS99**

Título: **Nivel de conocimiento, concientización, práctica y sus factores asociados sobre el brote del COVID-19 en estudiantes de pregrado de odontología de una universidad pública peruana**

Investigador(a): **Alexandra Melissa Cadenillas Sueldo**

La aprobación del proyecto de investigación implica que el documento presentado a evaluación cumple con los lineamientos de Universidad en materia de investigación y ética, los cuales se sustentan en la normativa internacional vigente. Adicionalmente, en el contexto de la pandemia de enfermedad por COVID-19, le recomendamos cumplir con las normas publicadas por el estado peruano (accesos, medidas de bioseguridad, etc.) y tener los permisos de las instituciones en las que realizará el estudio antes de ejecutarlo.

En tal sentido, esta aprobación carecerá de valor si es que el proyecto de investigación arriba indicado es modificado de cualquier forma. Toda enmienda, añadido, eliminación o eventualidad (eventos adversos, etc.) posterior a la fecha de aprobación debe ser reportado al CIEI-CIENTÍFICA.

La vigencia de la aprobación de este documento es de dieciocho (18) meses (**hasta el 17 de febrero del 2023**), periodo en el que puede desarrollarse el proyecto. Cualquier trámite para su renovación deberá ser enviado antes del término de la vigencia de este documento, debiendo suspenderse todo desarrollo hasta que la renovación sea aprobada. La presente aprobación será ratificada en la sesión del CIEI más próxima.

Villa El Salvador, 18 de agosto de 2021




Mg. Fulton Paul Rivera Albinagorta  
Presidente

Comité Institucional de Ética en Investigación

**COMITÉ INSTITUCIONAL DE ÉTICA EN  
INVESTIGACIÓN**



**Constancia**

Luego de la revisión de la solicitud, el presidente del Comité Institucional de Ética en Investigación de la Universidad Científica del Sur (CIEI-CIENTÍFICA) hace constar que el CIE-CIENTÍFICA ha aprobado de forma expedita la **renovación** del proyecto de investigación que se detalla continuación:

Código de registro: **517-2020-POS99**

Título: **Nivel de conocimiento, concientización, práctica y sus factores asociados sobre el brote del COVID-19 en estudiantes de pregrado de odontología de una universidad pública peruana**

Investigador(es): **Alexandra Melissa Cadenillas Sueldo**

Constancia de aprobación: **CONSTANCIA N° 293-CIEI-CIENTÍFICA-2021**

Por consiguiente, se otorga:

**Renovación de vigencia del periodo de aprobación ética.** Vista la solicitud, **se renueva** la vigencia de la aprobación ética por un periodo de seis meses; es decir, hasta el **10 de febrero del 2024**. El proyecto solo podrá ejecutarse entre los periodos detallados en este documento y el **investigador** tendrá que realizar la solicitud de una nueva ampliación 30 días antes de finalizar esta renovación de la aprobación.

Dejando constancia que hay un periodo de ventana (entre el 17 de febrero del 2023 hasta el 10 de agosto de 2023) que toda actividad de investigación estuvo suspendida, sin el amparo del comité.

Todas las demás características de la investigación descritas en el proyecto original permanecen; por lo que cualquier otra modificación deberá informarse a este Comité, para su evaluación.

Lima, 10 de agosto de 2023



Mg. Cinthya Ruth Chipana Herquinio  
Presidente  
Comité Institucional de Ética en Investigación

## COPIA DE RESOLUCIÓN DIRECTORAL DE APROBACIÓN DEL PROYECTO DE TESIS



### RESOLUCIÓN DIRECTORAL DE ACEPTACIÓN DEL PROYECTO DE TESIS Y NOMBRAMIENTO DEL ASESOR

#### RESOLUCIÓN DIRECTORAL DE LA CARRERA DE ESTOMATOLOGÍA N° 065-DACE-DAFCS-U. CIENTÍFICA-2021

Lima, 07 de octubre del 2021

**VISTO:**

El informe técnico del Comité Institucional de Ética en Investigación de la Universidad Científica del Sur con código **N° 517-2020-POS99**, se aprueba el proyecto de Tesis Titulado: **“NIVEL DE CONOCIMIENTO, CONCIENTIZACIÓN, PRÁCTICA Y SUS FACTORES ASOCIADOS SOBRE EL BROTE DEL COVID-19 EN ESTUDIANTES DE PREGRADO DE ODONTOLOGÍA DE UNA UNIVERSIDAD PÚBLICA PERUANA”** presentado por **ALEXANDRA MELISSA CADENILLAS SUELDO**.

**CONSIDERANDO:**

Que, de acuerdo al Reglamento General de la Universidad Científica del Sur y los reglamentos de pre/posgrado para obtener el Grado Académico de **MAESTRO EN ESTOMATOLOGÍA** en la Carrera de Estomatología de la Universidad Científica del Sur, se debe desarrollar un trabajo de investigación.

Que, de acuerdo con la normativa vigente de la Universidad Científica del Sur, en uso de las atribuciones conferidas al Director Académico de Carrera.

**SE RESUELVE:**

**ART. 1°: APROBAR E INSCRIBIR** el Proyecto de Tesis titulado: **“NIVEL DE CONOCIMIENTO, CONCIENTIZACIÓN, PRÁCTICA Y SUS FACTORES ASOCIADOS SOBRE EL BROTE DEL COVID-19 EN ESTUDIANTES DE PREGRADO DE ODONTOLOGÍA DE UNA UNIVERSIDAD PÚBLICA PERUANA”** de el/la **Bach. ALEXANDRA MELISSA CADENILLAS SUELDO**, con registro: **N° 517-2020-POS99** y establecer el inicio de periodo de ejecución del mencionado proyecto, 18 de agosto de 2021.

**ART. 2°: NOMBRAR** Asesor/a del trabajo de tesis señalado, a al/la **Mg. Esp. Frank Roger Mayta Tovalino**.

Regístrese, comuníquese y archívese.



**Dr. Claudio Peña Soto**  
Director Académico de la Carrera de Estomatología



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## INSTRUMENTOS

### Knowledge and awareness assessment of health care professionals

What is the virus for covid-19?	It is a new strain of virus Mutation in coronavirus Same as MERS COV Its same as SARS COV Don't know
What is etiology of covid-19?	Viral Bacterial Genetic Autoimmune Don't know
What do you think is the mode of transmission?	Respiratory droplets Shaking hands with infected people Use of objects used by infected people All the above Don't know
From where you heard about COVID- 19?	Social media Print media Television Friends and family All the above
What is the incubation period of COVID-19?	2-14 days 3 weeks 1 month Don't know
Are you aware of the signs and symptoms of COVID-19?	Same as seasonal flu Same as GIT upset Neurological problems All of the above Don't know
Are you aware how many days COVID-19 survive outside the body?	9 hours More than 48 hours 48 hours less than 24 hours Don't know
Which age group is affected the most from COVID-19?	Infants Adolescents Middle age Elderly Don't know
Are you aware of the mortality rate COVID-19?	< 2% 10% 50% 90% Don't know
What are the ways of prevention from COVID-19?	Washing hands with soap and alcohol-based sanitizer Covering mouth when coughing and sneezing Wear surgical mask in public All the above Don't know

What are the treatment options available currently for COVID-19 patients?	Quarantine Vaccines Drugs only Use of preventive measures All the above Don't know
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Fuente: Ahmed N, Shakoor M, Vohra F, et al. Knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak. Pak J Med Sci 2020;36(COVID19-S4):S49–S56. DOI: 10.12669/pjms.36.COVID19-S4.2704 .

Nombre:

Edad:

Sexo:

Lugar de Trabajo:

Grado de instrucción:

### **Evaluación del conocimiento y conciencia de los profesionales de la salud**

¿Qué es el virus del COVID-19?

- a) Es una nueva cepa de virus.
- b) Mutación del coronavirus
- c) Lo mismo que MERS COV
- d) Es lo mismo que el SARS COV
- e) No sé

¿Cuál es la etiología de covid-19?

- a) Viral
- b) Bacteriana
- c) Genética
- d) Autoinmune
- e) No sé

¿Cuál crees que es el modo de transmisión?

- a) Gotitas respiratorias
- b) Dar la mano a personas infectadas
- c) Uso de objetos utilizados por personas infectadas.
- d) Todas las anteriores
- e) No sé

¿Dónde escuchaste sobre el COVID-19?

- a) Redes sociales
- b) Periódico
- c) Televisión
- d) Amigos y familia
- e) Todas las anteriores

¿Cuál es el período de incubación del COVID-19?

- a) 2-14 días
- b) 3 semanas
- c) 1 mes
- d) No sé

¿Conoce los signos y síntomas del COVID-19?

- a) Igual que la gripe estacional
- b) Malestar del tracto gastrointestinal
- c) Problemas neurológicos

- d) Todas las anteriores
- e) No sé

¿Sabes cuántos días el COVID-19 sobrevive fuera del cuerpo?

- a) 9 horas
- b) Más de 48 horas
- c) 48 horas
- d) Menos que 24 horas
- e) No sé

¿Qué grupo de edad se ve más afectado por el COVID-19?

- a) Infantes
- b) Adolescentes
- c) Mediana edad
- d) Adultos Mayores
- e) No sé

¿Conoces la tasa de mortalidad del COVID-19?

- a) < 2%
- b) 10%
- c) 50%
- d) 90%
- e) No sé

¿Cuáles son las formas de prevención del COVID-19?

- a) Lavarse las manos con jabón y uso de desinfectantes a base de alcohol.
- b) Cubrirse la boca al toser y estornudar
- c) Uso de mascarilla quirúrgica en público
- d) Todas las anteriores
- e) No sé

¿Cuáles son las opciones de tratamiento disponibles actualmente para los pacientes con COVID-19?

- a) Cuarentena
- b) Vacunas
- c) Solo drogas
- d) Uso de medidas preventivas.
- e) Todas las anteriores
- f) No sé

Fuente: Ahmed N, Shakoor M, Vohra F, et al. Knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak. Pak J Med Sci 2020;36(COVID19-S4):S49–S56. DOI: 10.12669/pjms.36.COVID19-S4.2704.

Attitude and practice assessment of health care professionals

	Yes %	No %	Do not know %
Covid-19 is contagious and one should contain that?			
Do you think we should prevent the spread as it leads to morbidity and mortality?			
Do you think that the virus transmits from animals to humans and vice versa?			
Do you know that the virus can affect humans more than once?			
Is there any vaccine available?			
Do you consider it a threat for our community?			
Did you follow CDC guidelines for patients care?			
Have you ever come across a patient with COVID-19 patients?			
Have you attended any lecture/course/workshop on covid-19?			
Do you wash hands before and after contact with your patients?			
Do you wear a surgical mask during patient contact?			
You wear N-95 mask during patient contact?			
Do you follow universal precautions of infection control?			
Do you use sodium hypochlorite as surface disinfectant?			

Fuente: Ahmed N, Shakoor M, Vohra F, et al. Knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak. Pak J Med Sci 2020;36(COVID19-S4):S49–S56. DOI: 10.12669/pjms.36.COVID19-S4.2704 .

**Evaluación de la actitud y práctica de los profesionales de la salud**

¿El COVID-19 es contagioso y uno debe prevenir eso?

- a) Si
- b) No
- c) No sé

¿Crees que deberíamos evitar la propagación, ya que conduce a la morbilidad y la mortalidad?

- a) Si
- b) No
- c) No sé

¿Crees que el virus se transmite de animales a humanos y viceversa?

- a) Si
- b) No
- c) No sé

¿Sabes que el virus puede afectar a los humanos más de una vez?

- a) Si
- b) No
- c) No sé

¿Hay alguna vacuna disponible?

- a) Si
- b) No
- c) No sé

¿Considera una amenaza para nuestra comunidad?

- a) Si
- b) No
- c) No sé

¿Siguió las pautas de los CDC (Centros para el Control y la Prevención de Enfermedades) para el cuidado de los pacientes?

- a) Si
- b) No
- c) No sé

¿Alguna vez se ha encontrado a un paciente con COVID-19?

- a) Si
- b) No
- c) No sé

¿Has asistido a alguna conferencia / curso / taller sobre COVID-19?

- a) Si
- b) No
- c) No sé

¿Se lava las manos antes y después del contacto con sus pacientes?

- a) Si
- b) No
- c) No sé

¿Usa una máscara quirúrgica durante el contacto con el paciente?

- a) Si
- b) No
- c) No sé

¿Usa mascarilla N-95 durante el contacto con el paciente?

- a) Si
- b) No
- c) No sé

¿Sigue las precauciones universales de control de infecciones?

- a) Si
- b) No
- c) No sé

¿Utiliza hipoclorito de sodio como desinfectante de superficies?

- a) Si
- b) No
- c) No sé

Fuente: Ahmed N, Shakoor M, Vohra F, et al. Knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak. Pak J Med Sci 2020;36(COVID19-S4):S49–S56. DOI: 10.12669/pjms.36.COVID19-S4.2704.