

CLINICAL RESEARCH

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Published Online: 31-I-2022 Satisfacción de los pacientes respecto a los protocolos de bioseguridad ante el COVID-19, Facultad de Odontología, Universidad de Costa Rica

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ABSTRACT: Biosecurity protocols are particularly important in dental practice. The aim of this research was to determine the level of patient satisfaction regarding biosecurity protocols used in the School of Dentistry of the University of Costa Rica, to avoid COVID-19 infections during dental care. A survey was sent by email to all patients who received dental consultations at the School of Dentistry between April and September 2021. They were asked about sociodemographic variables (sex, age range, approved educational level, and place of origin), as well as whether they considered safe the protocols used during the dental consultation to avoid COVID-19 infections. Descriptive statistics were performed proving the absolute and relative frequency of the socio-demographic variables and the satisfaction of patients with the protocols used. A Chi-square test was used to determine if there was a difference in patient satisfaction with biosecurity protocols to avoid COVID-19 infections during dental care and sociodemographic variables. 95.9% of the respondents considered the biosafety protocols used to be safe and there was no statistically significant difference between patient satisfaction with the protocols and sociodemographic variables. A large majority of patients who come to the UCR School of Dentistry are satisfied with the biosecurity protocols used to avoid COVID-19 infections during dental care.

KEYWORDS: Coronavirus infections; COVID-19; Dental care; Patient satisfaction.

RESUMEN: Los protocolos de bioseguridad son muy importante en la consulta odontológica. El objetivo de esta investigación fue conocer el nivel de satisfacción de los pacientes respecto a los protocolos de bioseguridad utilizados en la Facultad de Odontología para evitar los contagios por COVID-19 durante la atención dental. Se envió una encuesta por medio del correo electrónico a todos los pacientes que recibieron consulta dental en la Facultad de Odontología entre abril y setiembre del 2021. Se les consultó sobre variables sociodemográficas (sexo, rango de edad, nivel educativo aprobado y lugar de procedencia), así como si consideraban seguros los protocolos empleados durante la consulta dental para evitar los contagios por COVID-19. Se realizó estadística descriptiva estableciendo la frecuencia absoluta y relativa de las variables sociodemográficas y la satisfacción de los pacientes con los protocolos empleados en la Facultad. Se utilizó la prueba de chi cuadrado para determinar si existía diferencia en la satisfacción de los pacientes respecto a los protocolos de bioseguridad para evitar los contagios por COVID-19 durante la atención dental y las variables sociodemográficos. El 95.9% de los encuestados consideró seguros los protocolos de bioseguridad empleados y no hubo diferencia estadísticamente significativa entre la satisfacción de los pacientes con los protocolos y las variables sociodemográficas. Una gran mayoría de los pacientes que acuden a la Facultad de Odontología UCR están satisfechos con los protocolos de bioseguridad empleados para evitar los contagios por COVID-19 durante la atención dental.

PALABRAS CLAVE: Infecciones por coronavirus; COVID-19; Atención dental; Satisfacción del paciente.

INTRODUCTION

In December 2019, at Wuhan, China, a pandemic started driven by a new coronavirus initially named 2019-nCoV began (1). By January 8, 2020, the Chinese Center for Disease Control and Prevention officially announced that the coronavirus 2019-nCoV renamed as severe acute respiratory syndrome coronavirus 2 (SARSCoV-2) was the causative pathogen of COVID-19 (2). The COVID-19 epidemic spread to most countries in the world affecting thousands of people, which is why, on January 30, 2020, the World Health Organization declared the state of pandemic (3).

In Costa Rica, at the beginning of March 2020, a yellow alert was decreed for the first number of people diagnosed with COVID-19 in the wake of the increase in positive cases. On March 16, the government decreed a state of emergency

throughout the territory, in addition to the suspension of lessons in all educational centers in the country (4). Driven by this country-wide countermeasures, the Rector of the University of Costa Rica (UCR) issued a statement suspending all face-to-face lessons at the Institution until April 4 to evaluate the progress of the emergency. Later, suspension of all face-to-face courses was extended to the entire 2020.

Given the suspension of face-to-face activities in March 2020, the Advisory Council of the UCR School of Dentistry focused on the creation of a "Protocol for the reactivation and continuity of the activities of the Faculty of Dentistry in the face of the state of national emergency due to COVID-19 (Code 010503)", considering all the guidelines given by the Ministry of Health, as well as in the Infection Control Protocol of the Clinics of the School of Dentistry UCR. The application

of this protocol was aimed at students, teachers, administrators, patients, and other users of the School of Dentistry. The purpose of this protocol was to establish the necessary elements to reestablish face-to-face activities, especially the care of patients care.

The protocol was approved at the end of 2020 by the Institutional Operations Coordination Center of the UCR, an entity responsible for coordinating with the university authorities and the internal operational level so that the Institution maintains its basic operation during the emergency, linking the UCR with the national instances to maintain a coordinated institutional response during the declaration of national emergency by COVID-19 (5). With the approval of the protocol, patient care was reactivated in April 2021.

To prevent COVID-19 infection, the patient care activities at the UCR School of Dentistry are closely related to the guidelines and procedures proved by biosecurity protocols. In this context, users of the dental care service are a vital component for the successful development of clinics and their opinion is extremely important. It is for this reason that the aim of this research was to determine the level of patient satisfaction with the biosecurity protocols used in the School of Dentistry to avoid COVID-19 infections during dental care.

METHODOLOGY

PARTICIPANTS

The research was conducted with the entire population of patients who received dental care at the clinics of the UCR School of Dentistry between April and September 2021. The calculation of the sample was given from a hypothesis of the prevalence of satisfaction of the protocols of 50%, an accuracy of 5%, a confidence interval of 95%, a test power of 80%, and waiting for a 30% response.

ETHICAL CONSIDERATION

This study was approved by the Scientific and Ethical Committee of the University of Costa Rica (CEC-658-2019). In the header of the survey sent to the patients of the School of Dentistry UCR, it was explained the nature of the project, the confidentiality, and anonymization of the survey, as well as the estimated time to complete, and to request for consent.

DATA COLLECTION

The survey question was: Do you consider safe the protocols used in the School of Dentistry to avoid COVID-19 infections during dental care? A Likert Scale was used for the response options (strongly agree, agree, not sure, disagree, strongly disagree). Also, the following socio-demographic variables were collected: sex (male, female), age range (between 20 and 29 years, between 30 and 39 years, between 40 and 49 years, between 50 and 59 years, between 60 and 60 years and more than 70 years), approved educational level (none, school, college, university) and the province of origin (San José, Alajuela, Cartago, Heredia, Guanacaste, Puntarenas, and Limón).

First, a survey validation was performed. Then, using the patient email obtained from the School Dentistry's database (Smile Software®) the survey was sent to all patients. SurveyMonkey® was used as the survey platform. The survey was sent three times to get as many responses as possible. The confidentiality and anonymization of the collected data were ensured.

STATISTICAL ANALYSIS

The data were recorded in an Excel spreadsheet (Microsoft, Inc., Redmond, WA, USA). Inconsistencies were entered and corrected. Descriptive statistics were performed proving the absolute and relative frequency of the socio-demographic varia-

bles and the satisfaction of patients with the protocols used in the School of Dentistry. The responses to the question about the protocols were dichotomized, the responses “strongly agree” and “agree” were considered satisfaction with the protocols, and the responses “not sure”, “disagree”, and “strongly disagree” were dissatisfied with the protocols. Subsequently, the chi-square test was used to determine if there was a difference in patient satisfaction with biosecurity protocols to avoid COVID-19 infections during dental care and sociodemographic variables ($p < 0.05$, 95% CI). All analyses were performed using the SPSS version 22.0 program (SPSS Inc., Chicago, IL, USA).

RESULTS

The survey was sent to 2166 patients and the response percentage was 36%. In relation to the socio-demographic variables, 66.8% of the respondents belong to the female sex and the age range with the largest population was between 20 and 29 years. Regarding the approved educational level, the university level was the one that obtained the highest percentage (41.8%) and the province from which more patients come was San José with 64% (Table 1).

Table 1. Sociodemographic table (N=780).

Variables	N	%
Sex		
Male	259	33.2
Female	521	66.8
Age range		
Between 20 - 29 years	264	33.8
Between 30 - 39 years	148	19.0
Between 50 - 59 years	133	17.1
Between 50 - 59 years	138	17.7
Between 60 - 69 years	74	9.5
More than 70 years	23	2.9
Approved educational level		
None	4	0.5
School	132	16.9
School	318	40.8
University	326	41.8
Province of origin		
San José	499	64.0
Alajuela	68	8.7
Cartago	120	15.4
Heredia	73	9.4
Guanacaste	4	0.5
Puntarenas	9	1.2
Limón	7	0.9

95% of those surveyed were satisfied with the protocols used to avoid COVID-19 infections during dental care. The responses to the Likert Scale were: “strongly agree” 74.7%, “agree” 21.2%, “not sure” 3.2%, “disagree” 0.5%, “strongly disagree” 0.4%. When performing the bivariate analysis of the variables, there was no statistically significant difference between patient satisfaction and sociodemographic variables (Table 2).

Table 2. Satisfaction with the protocols used in the School of Dentistry and the sociodemographic variables.

Variables	Satisfaction with the protocols used		Dissatisfaction with the protocols used		p*
	N	%	N	%	
Sex					
Male	246	95.0	13	5.0	0.363
Female	502	96.4	19	3.6	
Age range					
Between 20 - 29 years	249	94.3	15	5.7	0.950
Between 30 - 39 years	143	96.6	5	3.4	
Between 40 - 49 years	126	94.7	7	5.3	
Between 50 - 59 years	136	98.6	2	1.4	
Between 60 - 69 years	72	97.3	2	2.7	
More than 70 years	22	95.7	1	4.3	
Approved educational level					
None	3	75.0	1	25.0	0.878
School	128	97.0	4	3.0	
School	304	95.6	14	4.4	
University	313	96.0	13	4.0	
Province of origin					
San José	481	96.4	18	3.6	0.344
Alajuela	66	97.1	2	2.9	
Cartago	114	95.0	6	5.0	
Heredia	69	94.5	4	5.5	
Guanacaste	3	75.0	1	25.0	
Puntarenas	8	88.9	1	11.1	
Limón	7	100.0	0	0.0	

*Chi square test.

DISCUSSION

In the context of the pandemic, the Ministry of Health of Costa Rica has overseen dictating guidelines and biosecurity protocols to allow the gradual return to daily activities. In the School of Dentistry UCR, the adherence to these protocols has been strict to guarantee adequate dental care minimizing the opportunities of contagion by a coronavirus, a situation that has been valued in a particularly good way by the patients who come to this service.

One of the reasons that can explain the high satisfaction of patients regarding the protocols used in the School of Dentistry is the care by appointment, patients must fill out an electronic COVID questionnaire that refers to whether the person has presented fever, respiratory problems, loss of sense of taste or if he has been in contact with someone diagnosed with COVID-19 in the 15 days before to the consultation among others; if the answers to the questionnaire are negative, the patient presents himself to the School of Dentistry. The patient must wash his hands before entering the building, his temperature is taken, and the student accompanies him from the waiting room to the clinic where service will be provided. The entire building is demarcated so that the circulation is in one direction, the administrative areas are separated from the clinical and laboratory areas and across the entire facilities, there was a significant reduction in capacity (6) (Figure 1).

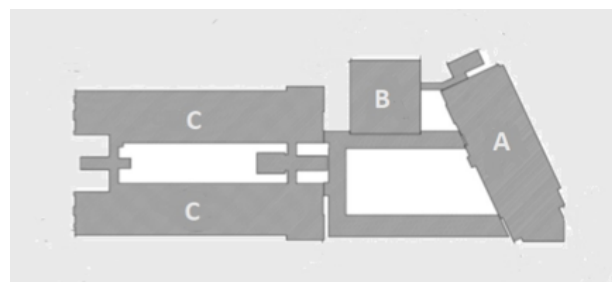


Figure 1. Diagram of the School of Dentistry. A. Administrative Building. B. Laboratories and Auditorium. C. Clinic Buildings.

Another reason that clarifies the high satisfaction of patients with the protocols could be that, in the School of Dentistry, students and teachers rigorously follow the established biosecurity measures, since the main route of transmission of SARS-CoV-2 is the direct and indirect contact of salivary fluids or secretions from the upper airways: micro-drops, aerosols, cough or sneezes (7,8). Due to the above, for the dental care of patients, students must use personal protective equipment composed of disposable protective coverall, protective cap, gloves, goggles, mask and respiratory filters of particles type N95 or FFT2 free of maintenance as recommended by the Infection Control Protocol of the School of Dentistry and the literature international (9-13). Additionally, when a patient enters the dental cubicle, he should rinse with chlorhexidine since as reported in the literature, there is moderate evidence that these mouthwashes before intraoral procedures, significantly reduce the number of microorganisms in dental aerosols (14). Finally, regarding the arrangement of the dental cubicles, each one has natural ventilation, as well

as a separation of 2.6 meters between the dental units and with a vertical wall of 2 meters high (6) (Figure 2).

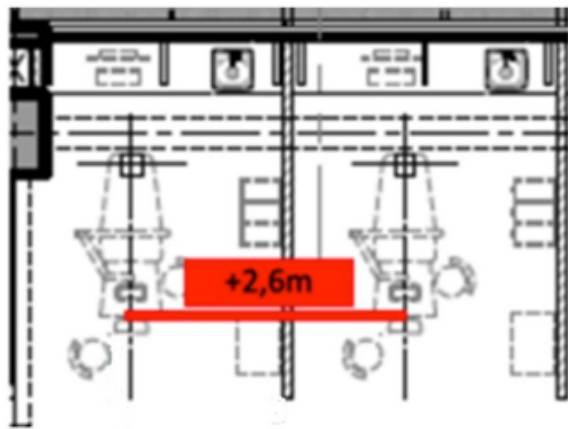


Figure 2. Diagram of the cubicles in each clinic of the School of Dentistry UCR.

In 2020, due to the presence of COVID-19, a significant reduction in the care provided in dental health services was reported (15). Some research cites that high levels of fear have been found in the face of the coronavirus contagion itself, which has reduced people's usual activities (16,17). This situation was not observed in this research since many patients (2166 subjects) from all over the country requested dental care at the School of Dentistry, most came from San José, a province where the School of Dentistry is located. Further in the research conducted by Ortiz (16), the fear of contagion was also associated with a high educational level of the subjects, however, in our study, 41.8% of patients have university studies so it could be inferred that the fear of contagion has not been a factor to avoid dental care.

One of the weaknesses of this research is that the survey was sent by email; for reasons of the pandemic it was not possible to carry it out personally, a situation that could have influenced the fact that only a small percentage of people over 60 years of age answered the survey, which does

not necessarily indicate that this population is not served in greater quantity in the School of Dentistry, but as a study shows, there is a relationship between age and the use of email, at older age lesser use of technological tool (18).

Despite this limitation, this study has the strength of being a pioneer both at a national and international level in determining the level of satisfaction of patients with the biosafety protocols used in a School of Dentistry, the researchers report the satisfaction with the medical services of the patients who have suffered COVID-19, the satisfaction of the users in pharmacies during the context of COVID-19 or the patient satisfaction with telemedicine (19-22).

In the future, it is planned to follow up on the opinions of patients and conduct a survey of students and teachers regarding satisfaction with the biosecurity protocols used in the School of Dentistry in times of the COVID-19 pandemic.

CONCLUSION

A large majority of patients who come the UCR School of Dentistry are satisfied with the biosecurity protocols used to avoid COVID-19 infections during dental care.

REFERENCES

1. Meng L., Hua F., Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and Future Challenges for Dental and Oral Medicine. *J Dent Res.* 2020; 99 (5): 481-7.
2. Li Q., Guan X., Wu P., Wang X., Zhou L., Tong Y., et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. *N Engl J Med.* 2020; 382 (13): 1199-207.
3. Organización Panamericana de la salud. La OMS caracteriza a COVID-19 como una pande-

- mia [Internet]. 2020. Available from: <https://www.paho.org/es/noticias/11-3-2020-oms-caracteriza-covid-19-como-pandemia>
4. Presidencia de la República de Costa Rica. Decreto Ejecutivo 42227-MP-S. Declaratoria de Emergencia Nacional [Internet]. 2020. p. pp 1-6. Available from: https://www.ministeriodesalud.go.cr/sobre_ministerio/prensa/decretos_cvd/decreto_ejecutivo_42227_mp_s_declaratoria_emergencia_nacional.pdf
 5. ONeal, K. Universidad de Costa Rica. El Centro de Coordinación Institucional de Operaciones (CCIO) coordina la atención de la alerta amarilla por COVID-19 en la UCR [Internet]. 2020. Available from: <https://www.ucr.ac.cr/noticias/2020/03/09/el-centro-de-coordinacion-institucional-de-operaciones-ccio-coordina-la-atencion-de-la-alerta-amarilla-por-covid-19-en-la-ucr.html>
 6. Facultad de Odontología UCR. Protocolo reactivación y continuidad de las actividades de la Facultad de Odontología ante el estado de emergencia nacional por COVID-19. Facultad de Odontología. 2020. Código 010503. 2020; 1-35.
 7. Ge Z., Yang L., Xia J., Fu X., Zhang Y. Possible aerosol transision of COVID-19 and special precautions in desntistry. *J Zhejaing Univ B.* 2020; 21 (5): 361-8.
 8. Peng X., Xu X., Li Y., Cheng L., Zhou X., Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci.* 2020; 12 (1): 1-6.
 9. Rodríguez Aguilar R. Odontología: rol en la transmisión del SARS-CoV-2 a través de bioaerosoles. *Odovtos - Int J Dent Sci.* 2020; 3 (22): 103-12.
 10. Sigua-Rodríguez E.A., Bernal-Pérez J.L., Lanata-Flores A.G., Sánchez-Romero C, Rodríguez-Chessa J., Haidar Z.S., et al. COVID-19 y la Odontología: una Revisión de las Recomendaciones y Perspectivas para Latinoamérica. *Int J Odontostomatol.* 2020;14 (3): 299-309.
 11. Sihuay-Torres M.X., Meza-Vasquez G.L., Sihuay-Torres K. Recomendaciones para el retorno a las actividades clínicas de estudiantes de Odontología durante pandemia por COVID-19. *Odontol Sanmarquina.* 2021; 24 (2): 83-4.
 12. Yañez Herrera M., Salazar Rodríguez F., Frisancho Camero M. Vista de El impacto económico de la COVID 19 en la calidad del servicio odontológico. *Rev Salud Andin* [Internet]. 2021; 1 (3): 53-69.
 13. Facultad de Odontología UCR. Protocolo Control de Infecciones de la Facultad de Odontología. 2019; 1-25.
 14. Marui V.C., Souto M.L.S., Rovai E.S., Romito G.A., Chambrone L., Pannuti C.M. Efficacy of preprocedural mouthrinses in the reduction of microorganisms in aerosol: A systematic review. *J Am Dent Assoc.* 2019; 150 (12): 1015-1026.e1.
 15. Guo H., Zhou Y., Liu X., Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *J Dent Sci.* 2020; 15 (4): 564-7.
 16. Ortiz M., Ferreras N., Hernpandez D. Ansiedad, depresión y miedo al contagio por COVID-19 en la República Dominicana (Lic.Tesis). Universidad Iberoamericana (UNIBE); 2020 [cited 2021 Nov 10]. Available from <https://repositorio.unibe.edu.do/jspui/handle/123456789/518>
 17. Quezada V.E. Miedo y psicopatología la amenaza que oculta el Covid-19. *Cuad Neuropsicol J Neuropsychol.* 2020; 14 (1): 19-23.
 18. Cruz Díaz M., Román García S., Pavón Rabasco F. Del uso de las tecnologías de la comunicación a las destrezas en competencia

- mediática en las personas mayores. *Redes. com.* 2015; (12): 86-111.
19. Huaylla K., Chino P. Conocimientos y actitudes de farmacovigilancia y satisfacción de los usuarios atendidos en farmacias durante el contexto por COVID-19 en la ciudad de Arequipa, noviembre 2020 (Lic. tesis). Universidad María Auxiliadora; 2021 [cited 2021 Nov 10]. Available from <https://repositorio.uma.edu.pe/handle/20.500.12970/505>
 20. Nuñez E. Nivel de satisfacción de los usuarios en el proceso de atención ante el COVID-19 en el centro de Salud Martínez (Lic. tesis). Universidad Técnica de Ambato; 2021 [cited 2021 Nov 10]. Available from: <http://repositorio.uta.edu.ec/handle/123456789/32585>
 21. Ramaswamy A., Yu M., Drangsholt S., Ng E., Culligan P.J., Schlegel P.N., et al. Patient Satisfaction With Telemedicine During the COVID-19 Pandemic: Retrospective Cohort Study. *J Med Internet Res.* 2020; 9.
 22. Villa A., Sankar V., Shazib M.A., Ramos D., Veluppillai P., Wu A., et al. Patient and providers' satisfaction with tele(oral)medicine during the COVID-19 pandemic. *Oral Dis.* 2020: 1-4.



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