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How dental students and dentists is acting and will act after applying relaxing COVID-19 control measures

Como estudantes de odontologia e dentistas estão agindo e agirão após a aplicação de medidas relaxantes de controle do COVID-19

Cómo están actuando y actuarán los estudiantes de odontología y los odontólogos después de aplicar medidas de control relajadas de COVID-19

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Abstract
Objective: This study aimed to answer how dental students and dentists is acting and will act after applying relaxing COVID-19 control measures in a Brazilian subpopulation. Methodology: This quantitative study was carried out through a questionnaire for dental students and dentists acting at private dental offices. The participants (n=240) were divided into two experimental groups: I) Group 1: undergraduate students attending the integrated clinic (n=132), and II) Group 2: professionals trained in dentistry (n=108). Results: In question 2, there was a significant difference between the group 1 and 2, in which 97.72% of the dental students are still using the N-95 mask or alternative masks during dental care service, whereas only 48.14% of the dentists still using. In question 3, there was no significant difference between the group 1 and 2, in which 40.15% and 43.51% of the dental students and dentists, respectively, still using the face shield or safety glasses during dental care service. In question 4, there was a significant difference between the group 1 and 2, in which 68.93% of the dental students intend to continue using the N-95 mask, face-shield or safety glasses during post-pandemic dental care service, however, only 50% of the dentist have the same intention. Conclusions: the majority of dental students are still using the N-95 mask or alternative masks during dental care service, and intend to continue using the N-95 mask, face-shield or safety glasses during post-pandemic period.
Keywords: SARS-CoV-2 infection; COVID-19; Dentist; Dental students.

Resumo
Objetivo: Este estudo teve como objetivo responder como estudantes de odontologia e dentistas estão atuando e atuarão após a aplicação de medidas relaxantes de controle da COVID-19 em uma subpopulação brasileira. Metodologia: Este estudo quantitativo foi realizado por meio de um questionário para estudantes de odontologia e dentistas que atuam em consultórios particulares. Os participantes (n=240) foram divididos em dois grupos experimentais: I) Grupo 1: alunos de graduação que frequentam a clínica integrada (n=132), e II) Grupo 2: profissionais formados em odontologia (n=108). Resultados: Na questão 2, houve diferença significativa entre o grupo 1 e 2, em que 97,72% dos estudantes de odontologia ainda utilizam a máscara N-95 ou máscaras alternativas durante o atendimento odontológico, enquanto apenas 48,14% dos dentistas ainda usando. Na questão 3, não houve diferença significativa entre os grupos 1 e 2, em que 40,15% e 43,51% dos estudantes de odontologia e dentistas, respectivamente, ainda utilizam o face-shield ou óculos de proteção durante o atendimento odontológico. Na questão 4, houve diferença significativa entre o grupo 1 e 2, em que 68,93% dos estudantes de odontologia pretendem continuar usando a máscara N-95, face-shield ou óculos de proteção durante o atendimento odontológico pós-pandemia, porém, apenas 50% dos dentistas têm a mesma intenção. Conclusões: a maioria dos estudantes de

odontologia ainda está usando a máscara N-95 ou máscaras alternativas durante o atendimento odontológico, e pretende continuar usando a máscara N-95, face-shield ou óculos de proteção no período pós-pandemia.
Palavras-chave: Infecção por SARS-CoV-2; COVID-19; Cirurgião-dentista; Estudantes de odontologia.

Resumen
Objetivo: Este estudio tuvo como objetivo responder cómo los estudiantes de odontología y los odontólogos actúan y actuarán después de la aplicación de medidas de relajación para el control de COVID-19 en una subpoblación brasileña. Metodología: Este estudio cuantitativo se realizó a través de un cuestionario para estudiantes de odontología y odontólogos que trabajan en consultorios privados. Los participantes (n=240) fueron divididos en dos grupos experimentales: I) Grupo 1: estudiantes de pregrado que asisten a la clínica integrada (n=132), y II) Grupo 2: profesionales capacitados en odontología (n=108). Resultados: En la pregunta 2, hubo diferencia significativa entre los grupos 1 y 2, en el que el 97,72% de los estudiantes de odontología aún utilizan la mascarilla N-95 o mascarillas alternativas durante la atención odontológica, mientras que solo el 48,14% de los odontólogos aún utilizan usando. En la pregunta 3, no hubo diferencia significativa entre los grupos 1 y 2, en los que el 40,15 % y el 43,51 % de los estudiantes de odontología y de los odontólogos, respectivamente, aún utilizan protectores faciales o gafas protectoras durante la atención odontológica. En la pregunta 4, hubo una diferencia significativa entre los grupos 1 y 2, en el que el 68,93% de los estudiantes de odontología tienen la intención de continuar usando la mascarilla, careta o goggles N-95 durante la atención odontológica pospandemia, sin embargo, solo el 50% de los dentistas tienen la misma intención. Conclusiones: La mayoría de los estudiantes de odontología aún utilizan la mascarilla N-95 o mascarillas alternativas durante la atención odontológica y tienen la intención de continuar utilizando la mascarilla, el protector facial o las gafas protectoras N-95 en el período posterior a la pandemia.
Palabras clave: Infección por SARS-CoV-2; COVID-19; Dentista; Estudiantes de odontología.

1. Introduction

Since the emergence of Coronavirus disease of 2019 “COVID-19”, diverse studies were elaborated to understand the impact of the severe acute respiratory syndrome coronavirus 2 “SARS-CoV-2” on dental practice (Carvalho et al., 2021; Jurema et al., 2020). Although, coronaviruses are disinfected by some antimicrobial agents (A. A. Hasna & Bresciani, 2021), however, recent studies demonstrate the infectivity of some mouthwashes to reduce the viral load of SARS-CoV-2 (Barrueco et al., 2022; Sevinç Gül et al., 2022).

SARS-CoV-2 is transmitted through fine droplets and aerosol particles, and these are routinely formed in the clinical procedures performed in dentistry (Meethil et al., 2021), converting the dental offices and clinics into highly contagious environments (Mohamadian et al., 2021).

Dental clinics faced and still facing the risk of cross-infection during the COVID-19 pandemic, and this alerted the need to reinforce the biosecurity measures, which were already necessary. The risk of patient-professional cross contamination forced the dentists and their teams to adopt the standardization of infection control measures in the form of protocols during routine dental treatments (Alsrhani et al., 2020; Jernigan & CDC COVID-19 Response Team, 2020). Many protocols were suggested to aim the dentist and their teams to face the cross infection during the COVID-19 pandemic (Jurema et al., 2020).

The Brazilian Health Regulatory Agency (Anvisa) published diverse protocols to guide the dental and medical professionals how to face the cross contamination of COVID-19 including hand hygiene; personal protective equipment "PPE"; waste processing; and general cleaning of clinical environments (ANVISA, 2021). Besides, other national and international guidelines have reinforced the use of PPE, as well as including new equipment such as nº95 masks and face shield to guarantee more protection for the professional and reduce the risk of virus transmission (Jurema et al. 2020; F. Pan et al. 2020; Ren et al. 2020; Raoult et al. 2020).

National and international authorities started to apply relaxing COVID-19 control measures because of low transmission ratings associated with the worldwide vaccination campaign (Scott et al., 2021; Stralen et al., 2022). This paper was elaborated to try to answer how dental students and dentists is acting and will act after applying relaxing COVID-19 control measures in a Brazilian subpopulation. The null hypothesis is that dental students and dentists are no longer using the n-95 mask and face-shield and do not intend to use them anymore.

2. Methodology

This quantitative study was carried out through a questionnaire for dental students of the National Institute of Higher Education and Post-graduation Priest Gervásio "INAPÓS" and dentists acting at private dental offices in the cities of Pouso Alegre (State of Minas Gerais) and São José dos Campos (State of São Paulo). This study was approved and authorized by the Ethics Committee of São Paulo State University, Institute of Science and Technology ICT-Unesp (protocol 5.652.302). All participants signed an informed consent form. A total of four questions were answered by the participants in the form of an impressed standardized questionnaire (Table 1). This study was performed according to the methods reported in the literature in similar studies (A. Abu Hasna et al., 2020; A. Abu Hasna et al., 2019; Eduardo, 2022; Köche, 2009).

Table 1. The patient's questionnaire about their feelings and preference while seeking dental care during the COVID-19 pandemic

Question 1: Have you attended patients after the relaxing COVID-19 control measures?		
YES		NO
Question 2: Do you continue to wear the N-95 mask or alternative masks during dental care service?		
YES		NO
Question 3: Do you continue to wear the face shield or safety glasses during dental care service?		
YES	NO	INDIFFERENT
Question 4: Do you intend to continue using the N-95 mask, face-shield or safety glasses during post-pandemic dental care service?		
YES		NO

Source: Authors.

Only undergraduate students who attend the integrated clinic and trained professionals were included in the study, the questionnaires answered in printed forms, by students from the INAPOS dental clinic and by graduated professionals. The participants (n=240) were divided into two experimental groups.

• Group 1: undergraduate students attending the integrated clinic (n=132).

• Group 2: professionals trained in dentistry (n=108).

Only over-18 participants were included, those who left one or more questions without answer were excluded. Participants were able to refuse to answer any question or to participate in the questionnaire at all.

Inclusion criteria

1. Be an undergraduate student who is training in a dental clinic, or a graduated professional duly registered with the regional council of dentistry.

2. Answer all questions on the printed questionnaire.

Exclusion criteria

1. Being an undergraduate student who does not yet attend in a dental clinic, or a graduated professional without registration with the regional council of dentistry.

2. Not answering all questions on the printed questionnaire.

Statistical analysis

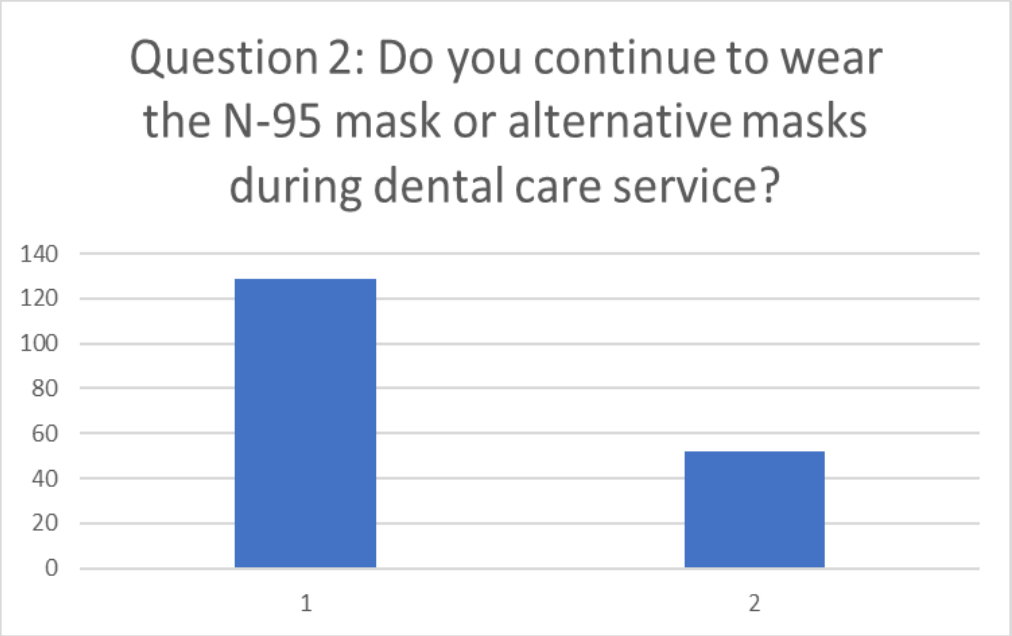
For data analysis, multprop macro was used (A. Abu Hasna et al., 2020, 2019) to perform multiple comparisons tests on proportion data using Tukey´s honest significant difference test with a significance level ($\alpha \leq 0.05$). Data analysis was performed by Minitab (Minitab® 17.1.0, by Microsoft, USA). In questions 1, 2, 3 and 4, the answer YES was considered as success or right answers.

3. Results

In question 1, all the participants answered yes, in which all of them attended patients after the relaxing COVID-19 control measures.

In question 2, there was a significant difference between the group 1 and 2, in which 97.72% of the dental students still using the N-95 mask or alternative masks during dental care service, whereas only 48.14% of the dentists still using (Figure 1).

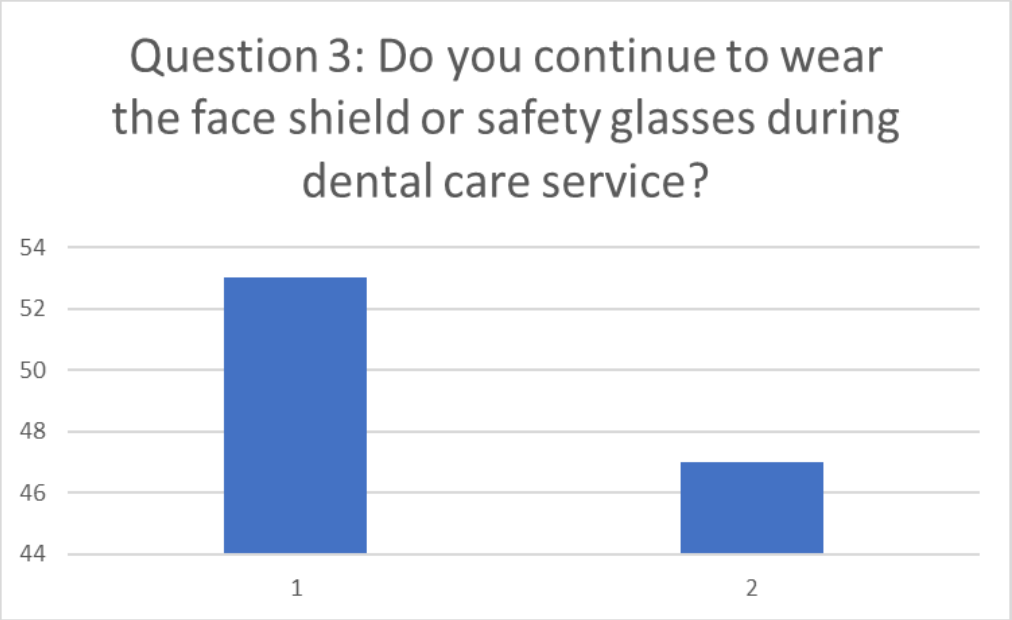
Figure 1. The answers rate of question 2. Different letters indicate statistical difference between the groups. (1= group 1; 2= group 2).



Source: Authors.

In question 3, there was no significant difference between the group 1 and 2, in which 40.15% and 43.51% of the dental students and dentists, respectively, still using the face shield or safety glasses during dental care service (Figure 2).

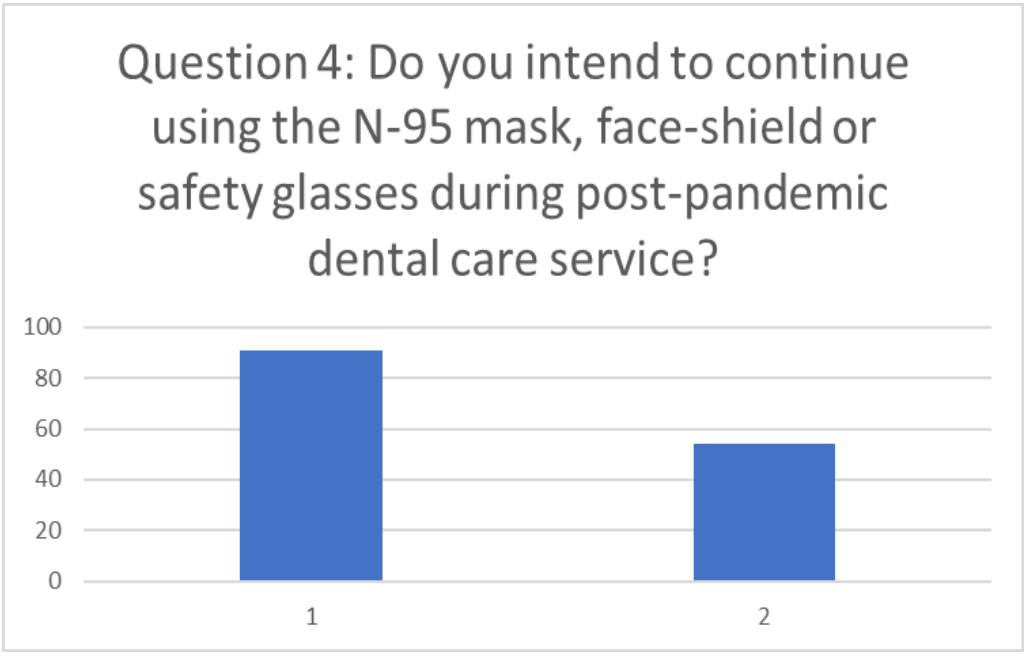
Figure 2. The answers rate of question 3. Different letters indicate statistical difference between the groups. (1= group 1; 2= group 2).



Source: Authors.

In question 4, there was a significant difference between the group 1 and 2, in which 68.93% of the dental students intend to continue using the N-95 mask, face-shield or safety glasses during post-pandemic dental care service, however, only 50% of the dentist have the same intention (Figure 3).

Figure 3. The answers rate of question 4. Different letters indicate statistical difference between the groups. (1= group 1; 2= group 2).



Source: Authors.

4. Discussion

With the emergence of the COVID-19, dentists started to practice further biosafety procedures which were not used before, to offer safer dental care and minimize the risk of cross-contamination (Montalli et al., 2020). National and international guidelines have reinforced the use of PPE, as well as including new equipment such as nº95 masks and face shield to guarantee more protection for the professional and reduce the risk of virus transmission (Jurema et al. 2020; F. Pan et al. 2020; Ren et al. 2020; Raoult et al. 2020). However, after applying relaxing COVID-19 control measures, it was found in this study that there is a tendency to reduce the use of the N-95 mask or alternative masks during dental care service among dentists, in which 48.14% of the dentists involved in this study are still using, whereas 97.72% of the dental students are still using the N-95 mask or alternative masks during dental care service.

Face shields, during the COVID-19 pandemic, became part of dental PPE, seeking greater protection for the dental professional, since they reduce contamination more than other PPE used, in addition to blocking a large part of droplets that could enter in contact with the dentist's face (Khan & Parab, 2021). In the present study, it was found that dental students and dentists reduced the use of face shield during dental care service, in which 40.15% and 43.51% of the dental students and dentists, respectively, still using the face shield or safety glasses during dental care service, even that it was indicated in the literature that vaccination alone is not enough to control the pandemic and prevent deaths and suffering, as well as the importance of multilayered interventions (Bartsch et al., 2022).

In this study, there was a significant difference between the group 1 and 2, in which 68.93% of the dental students intend to continue using the N-95 masks, face-shield or safety glasses during post-pandemic dental care service, however, only 50% of the dentist have the same intention (Figure 3). The use of the N-95 masks, face-shield or safety glasses is still needed to reduce the cross contamination of diverse airborne and aerosolized diseases, besides, COVID-19 pandemic should be a lesson to guide the future of dentistry (Bradford Smith, Agostini, & Mitchell, 2020).

Finally, the null hypothesis of this study should be rejected as it was found that, dental students and dentists are still using the n-95 mask and face-shield and more than 50% of them intend to use them in the post pandemic period.

5. Conclusions

The majority of dental students are still using the N-95 mask or alternative masks during dental care service, and intend to continue using the N-95 mask, face-shield or safety glasses during post-pandemic period.

Acknowledgments

The authors deny any conflict of interest.

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