

### **Kertas Asli/Original Articles**

## **Perception of Malaysian Dental Practitioner on the provisional COVID-19 Guidelines in the Dental Practice: A Cross-Sectional Study** (Persepsi Pengamal Pergigian Malaysia terhadap Garis Panduan COVID-19 sementara dalam Amalan Pergigian: Kajian Keratan Rentas)

#### ABSTRACT

*Following the COVID-19 outbreak, the World Health Organization issued provisional guidelines to address considerations for essential oral health services in the pandemic situation. Compliance with the guidelines is essential to curb the potential spread of infection within a dental practice. This study aimed to assess the perception of Malaysian dental practitioners towards exercising the provisional COVID-19 dental practice guideline during the early phase of the pandemic. A self-administered questionnaire of a structured type consisting of demographic information and dentist perceptions of the provisional guidelines of dental care during the COVID-19 outbreak was distributed online from May 2021 until August 2021 through various social networking platforms among dental practitioners working at different healthcare sectors in all states in Malaysia. A total of 468 dental practitioners responded to this study. More than three-quarters of the respondents were working in public dental care facilities (76.3%, n=357). The majority of respondents adhered to the provisional guidelines issued during the pandemic outbreak and exhibited a change in standard clinical practice ( $p<0.001$ ). Dental practitioners working in public sectors perceive that swab tests prior to dental appointments should be mandatory, the reopening of dental clinics increases the risk of spread and the provisional guidelines of COVID-19 in dental practice will be changed in the future compared to private dental practitioners ( $p<0.001$ ). The majority of dental practitioners in Malaysia have complied with the provisional guidelines imposed by the health bodies. As the COVID-19 virus will persist and become endemic in our communities, it is important to balance the safety issue and patient oral health needs.*

*Keywords: Attitude; COVID-19 guidelines; Dental practitioner; Malaysia; Perception*

#### ABSTRAK

*Berikutan wabak COVID-19, Pertubuhan Kesihatan Sedunia mengeluarkan garis panduan sementara bagi mempertimbangkan perkhidmatan kesihatan pergigian yang penting dalam situasi pandemik. Pematuhan kepada garis panduan adalah penting untuk membendung potensi penyebaran jangkitan dalam amalan pergigian. Kajian ini bertujuan untuk menilai persepsi pengamal pergigian Malaysia dalam melaksanakan garis panduan sementara COVID-19 dalam amalan pergigian semasa fasa awal pandemik. Soal selidik yang ditadbir sendiri daripada jenis berstruktur terdiri daripada maklumat demografi dan persepsi doktor gigi mengenai garis panduan sementara penjagaan pergigian semasa wabak COVID-19 telah diedarkan dalam talian dari Mei 2021 hingga Ogos 2021 melalui pelbagai platform rangkaian sosial dalam kalangan pengamal pergigian yang bekerja di fasiliti kesihatan yang berbeza sektor di semua negeri di Malaysia. Seramai 468 pengamal pergigian memberi maklum balas dalam kajian ini. Lebih tiga perempat daripada responden bekerja di fasiliti penjagaan pergigian awam (76.3%, n=357). Majoriti responden mematuhi garis panduan sementara yang dikeluarkan semasa wabak pandemik dan menunjukkan perubahan amalan piawaian klinikal ( $p<0.001$ ). Pengamal pergigian yang bekerja di sektor awam berpendapat bahawa ujian swab sebelum temu janji pergigian harus diwajibkan, pembukaan semula klinik pergigian meningkatkan risiko penularan dan garis panduan sementara COVID-19 dalam amalan pergigian akan berubah pada masa hadapan berbanding dengan pengamal pergigian swasta ( $p<0.001$ ). Majoriti pengamal pergigian di Malaysia mematuhi garis panduan sementara yang dikenakan oleh badan kesihatan. Memandangkan virus COVID-19 akan berterusan dan menjadi endemik dalam komuniti kita, adalah penting untuk mengimbangi isu keselamatan dan keperluan kesihatan mulut pesakit.*

*Kata kunci: Sikap; garis panduan COVID-19; Pengamal Pergigian; Malaysia; Persepsi*

## INTRODUCTION

The viral transmission of Coronavirus Disease 2019 (COVID-19) caused by a novel coronavirus led to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (WHO 2020a; Zhu et al. 2020). The virus can be transmitted via inhalation of droplets from an infected person through saliva generated from sneezing and coughing as well as via direct contact with mucous membranes of the ocular, oral and nasal or indirect transmission via contaminated surfaces (Zhu et al. 2020; To et al. 2020; Li et al. 2020; WHO 2020b). The virus causes flu-like symptoms that may worsen to acute respiratory distress syndrome and cause multiple organ failure (Butt 2021). This causes all dental healthcare personnel to fall under the highest risk group for SARS-CoV-2 exposure as aerosol-generating procedures are extensively performed in the oral healthcare setting (WHO 2020b; Dar-Odeh et al. 2020; Guo et al. 2020). The global outbreak has caused significant changes in healthcare systems, especially during the initial months of the pandemic when limited knowledge of the disease was known and inconsistent clinical protocols on patients were available. To protect the dental health care personnel and patient safety, only emergency treatment was advisable prior to the introduction and establishment of new guidelines in COVID-19.

The World Health Organization (WHO) established the interim guidelines following the outbreak to address considerations for important oral healthcare in a pandemic situation (WHO 2020b). Practical guidelines were also established by the Centers for Disease Control and Prevention (CDC) and the American Dental Association (ADA) in order to control the spread of disease (CDC 2022; ADA 2020). Apart from limiting the treatment to emergency cases only, the recommendation also provides useful information about the detailed patient evaluation which includes signs and symptoms of the disease, mode of transmission, and referral mechanisms (MOH 2021). In addition, healthcare professionals are advised to apply good hand hygiene, full compliance with the use of personal protective equipment (PPE), practise appropriate cross infection control such as pre-operative mouth rinsing before dental procedures and use of rubber dam isolation. Additional precautionary measures such as using high vacuum suction and high-efficiency particulate air (HEPA) filtration were also advisable.

In line with the WHO recommendation Oral Health Division, Ministry of Health, Malaysia also suspend all

non-emergency dental treatment and strictly focus on emergency procedures during the peak of the outbreak (MOH 2021). The Crisis Preparedness and Response Committee (CPRC) was initiated in response to the pandemic in the country which has affected the delivery of oral healthcare services tremendously. It was aimed at planning and coordinating activities pertaining to disasters, epidemics and emergency issues. In view of all these extreme changes, proper standard operating procedures (SOP) need to be developed immediately to stop new infections due to dental procedures. The focus of this guideline was mainly on the preparation of the dental clinic to commence delivery of routine dental care especially dental treatment involving aerosol-generating procedures. The first guideline was established in January 2020 and circulated among the healthcare members to address the concerns about the identification and handling of positive COVID-19 patients or Person Under Investigation (PUI) at the point of screening/triage (MOH 2021).

Following that, several changes to the SOP were made to ensure that they were up-to-date and in compliance with current requirements. The guidelines are currently being updated to reflect the current situation and changes in the country. It is recommended that all patients have to fill out a declaration form confirming their COVID-19 status, current travel history and history of close contact with any COVID-19 active cases as a requirement to enter the dental premises. Mandatory quick response (QR) code screening before entering the healthcare facility using MySejahtera (a local monitoring and tracing mobile app) and body temperature checks are also required to guarantee that only persons with no symptoms are admitted to the facility (MOH 2021; Bernama 2022). At the end of the year 2021, when a high number of daily cases were reported, only fully vaccinated people were allowed in every facility following the National Recovery Plan (NRP) (The Star 2021). Although current data shows that 27.5 million Malaysians are fully vaccinated and the number of new daily cases is reported to be less than 2000 at the time of publication, virus mutation can cause new outbreaks in the future, which is why healthcare providers should be given clear guidelines (MOH, 2022). Our study aims to assess Malaysian dental practitioners perceptions towards exercising the provisional COVID-19 guidelines imposed by the government in the early stages of the pandemic. This study addresses the following research questions: (1) How do dental practitioners respond to the COVID-19 situation and (2) Do dental practitioners comply with the provisional dental practise guidelines recommended by the authorised health organization?

## METHODS

### STUDY DESIGN

This was a descriptive, quantitative, cross-sectional study designed to indicate dental practitioners perceptions of the effect of COVID-19 on their regular dental practice.

### STUDY POPULATION, INCLUSION AND EXCLUSION CRITERIA

Our study population consists of general dental practitioners and dental specialists who work in Malaysia regardless of their state. This includes all registered dental practitioners working in the different government health sectors either from the Ministry of Health (MOH), Ministry of Education (MOE) or Ministry of Defence (MOD) and private health sectors in Malaysia. Our exclusion criteria were dental practitioners who are not registered with the Malaysian Dental Council (MDC) and Malaysian dental practitioners who work overseas.

### SAMPLE SIZE CALCULATION

For sample size calculation, a software of epi-info version 7.0 was used for size calculation. Referring to a previous study conducted by Ahmadi et al. (2020) an expected

frequency of 37%, a margin of error of 5%, and a design effect of 1 were inserted into the software in calculating the sample size. The sample size calculated was 358. However, after taking into consideration of 30% of the drop out, the final sample recruited in this study was 468.

### STUDY TOOL

The questionnaire used in this study was developed based on existing literature by Ahmadi et al. (2020) and validated through content and face/process validity (Yusoff 2019a; Yusoff 2019b). Validation of content (by two experts) and face/process (from ten respondents) validity was performed and showed a good to excellent validity outcome (>0.80). Minor modifications were made to improve the structure and to enhance the comprehension of the questionnaire as intended. The finalised questionnaire consists of three sections; Section 1: Professional information; Section 2: Dental practice exercise during COVID-19 and Section 3: Dentists' perceptions regarding the provisional COVID-19 guideline imposed by the Ministry of Health and Malaysian Dental Association (MDA). Each item of the domains in Section 3 was rated on a 5-point Likert scale (Strongly Disagree-1, Disagree-2, Neutral-3, Agree-4, and Strongly Agree-5). The interval of the 5-point Likert scale was categorised accordingly based on the cut-off point shown below for the interpretation of the mean score of each item.

Table 1. The cut-off point of 5-point Likert scale mean score for data interpretation

Category	Interval of mean score
Strongly disagree	1.00 – 1.79
Disagree	1.80 – 2.59
Neutral/neither agree or disagree	2.60 – 3.39
Agree	3.40 – 4.19
Strongly agree	4.20 – 5.00

### DATA COLLECTION

For the study, we used a convenient sampling approach by distributing a structured self-administered questionnaire via online platforms, which included electronic mail, Facebook, WhatsApps, and other personal message apps (e.g., phone messenger). The online questionnaire was distributed approximately within 14 weeks duration, starting from the second week of May 2021 until the second week of August 2021. The participation was voluntary and written informed consent was obtained prior to answering the questionnaire. Those who agree to participate must click "agree" and then proceed to fill out the questionnaire via a Google form.

### DATA ANALYSIS

Data entry and analysis were performed using IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp. Descriptive analysis was tabulated using mean and standard deviation, and frequency and percentage. A Chi-square analysis was performed to determine if there was a significant association between dental practice carried out by different health agencies (public vs private). A normality test was performed to check for the normality of continuous data. Nonparametric of Mann Whitney U test was performed to compare the perception of dental practitioners towards the provisional COVID-19 guideline issued by the health organisation between a dental practitioners in the public and private sectors. The significant level was set at  $p < 0.05$ .

## RESULTS

Figure 1 presents the distribution of dental practitioners according to the characteristics in different sectors (government vs private). Most of the respondents work in the government sectors either from the Ministry of Health (MOH) (n=262, 56%), the Ministry of Education (MOE) (n=62, 13.2%) or the Ministry of Defence (MOD) (n=33, 7.1%), female (n=281, 77.4%), aged 25-34 years old (n=240, 81.9%), working in rural areas (n=260, 96.3%),

and had working experience between 6-10 years (n=109, 85.2%).

Table 2 depicts the practice of dental practitioners during COVID-19 from different sectors. The majority of the respondents in both sectors (government 88.5%, n=316; private 91%, n=101) stated that they are following proper guidelines by the MOH and MDC in managing patients during the pandemic. In addition, 93%, n=331 of respondents from the government sector indicated changes in standard operating procedure in clinical practice following the pandemic.

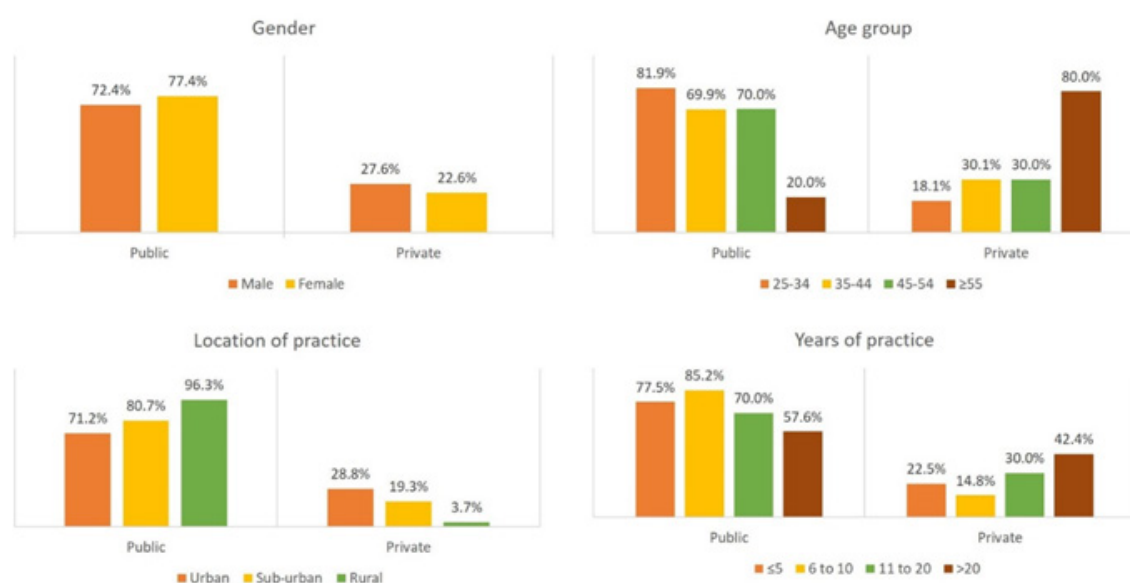


FIGURE 1. The distribution of dental practitioners according to demographic characteristics in the study based on government and private sectors

TABLE 2. Compliance of provisional dental practice guidelines issued during COVID-19 pandemic among dental practitioners in different oral health sectors of Malaysia

Variables	Working Agency/Sector		p-value
	Government N (%)	Private N (%)	
Following guidelines by MOH and MDA			
Partly	41 (11.5)	10 (9.0)	0.124
No	0 (0.0)	1 (0.9)	
Yes	316 (88.5)	101 (91.0)	
Change of standard clinical practice			
No	25 (7.0)	20 (18.2)	0.001
Yes	331 (93.0)	90 (81.8)	

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Screening methods prior to for dental treatment			
Phone/ Question form/ MySejahtera			
No	9 (2.5)	2 (1.8)	.000
Yes	348 (97.5)	109 (98.2)	
Body temperature			
No	22 (6.2)	4 (3.6)	0.476
Yes	335 (93.8)	107 (96.4)	
COVID-19 test			
No	288 (80.7)	97 (89.0)	0.044
Yes	69 (19.3)	12 (11.0)	

\*Pearson's chi-square

In terms of screening methods prior to dental treatment, the majority of respondents from both sectors use their phones, questionnaires and MySejahtera app (government: n=348 (97.5%) vs private: n=335 (93.8%). A significant relationship was found between working sectors and changes in standard clinical practice (p=0.001).

Table 3 reports the perception of dental practitioners with regard to the provisional dental practice guidelines issued during the pandemic. A majority (93%, n=437) of the respondents perceived that PPE effectively prevents COVID-19 transmission while 80.4%, n=377 of them agreed that there will be changes in dental practice guidelines on COVID-19.

Table 4 shows the analysis of perceptions between government and private dental practitioners on the

provisional of COVID-19 guidelines imposed in the early phase of the pandemic. There was a significant difference between both private and government dental practitioners on the perceived effectiveness of phone or video call in solving patient's dental problems (p=0.018). A significant difference was found in terms of perceiving that reopening of a clinic could result in the spread of the virus between the practitioners (p<0.001). The mean score of private practitioners showed disagreement compared to government dental practitioners, who neither agreed nor disagreed. There was a significant difference in mean score between government and private dental practitioners in terms of being up-to-date with the latest update on the COVID-19 pandemic (p=0.029) and believing that the guidelines will change in the future (p<0.001) although both parties agreed

TABLE 3. Dental practitioner perception regarding provisional dental practice guideline issued during the pandemic COVID-19

Perception	Likert scale				
	1	2	3	4	5
	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)
A phone call or video call is effective to resolve patients' dental problems	121 (25.7)	126 (26.8)	155 (33.0)	49 (10.4)	19 (4.0)
It is mandatory to take the COVID-19 test (e.g., swab test, COVID-19 screening form, close contact form, etc) for patients' prior dental appointment	25 (5.3)	90 (19.1)	139 (29.6)	99 (21.1)	117 (24.9)
Reopening of dental clinics can result in the spreading of the virus	87 (18.5)	118 (25.1)	143 (30.4)	75 (16.0)	47 (10.0)
Personal protective equipment (PPE) is effective to prevent virus transmission	2 (0.4)	3 (0.6)	28 (6.0)	122 (26.0)	315 (67.0)
There is a possibility of discontinuation of the dental profession if the COVID-19 persist for much longer	186 (39.6)	108 (23.0)	107 (22.8)	48 (10.2)	21 (4.5)
The latest guidelines from the Malaysian Dental Association website are useful	7 (1.5)	8 (1.7)	150 (32.1)	166 (35.5)	137 (29.3)
The guidelines of dental practice during COVID-19 will change in the future	2 (0.4)	9 (1.9)	81 (17.3)	188 (40.1)	189 (40.3)

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I am updated with the latest news of the COVID-19 pandemic	0 (0.0)	7 (1.5)	48 (10.3)	207 (44.2)	206 (44.0)
The latest news regarding COVID-19 gives me anxiety and depression	25 (5.3)	52 (11.1)	158 (33.7)	142 (30.3)	92 (19.6)

TABLE 4. Perception of dentist on the provisional dental practice guideline issued during the pandemic COVID-19 in different oral health care sector

Perception	Oral health sector				p-value
	Government		Private		
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	
A phone call or video call is effective to resolve patients' dental problems	2.46 (1.10)	2.0 (1.0)	2.19 (1.09)	2.0 (2.0)	0.018
It is mandatory to take the COVID-19 test (e.g., swab test, COVID-19 screening form, close contact form, etc) for patients' prior dental appointment	3.51 (1.18)	3.0 (2.0)	3.09 (1.23)	3.0 (2.0)	0.002
Reopening of dental clinics can result in the spreading of the virus	2.90 (1.18)	3.0 (2.0)	2.21 (1.19)	2.0 (2.0)	<0.001
Personal protective equipment (PPE) is effective to prevent virus transmission	4.59 (0.67)	5.0 (1.0)	4.59 (0.69)	5.0 (1.0)	0.920
There is a possibility of discontinuation of the dental profession if the COVID-19 persist for much longer	2.16 (1.20)	2.0 (2.0)	2.21 (1.16)	2.0 (2.0)	0.611
The latest guidelines from the Malaysian Dental Association website are useful	3.94 (0.87)	4.0 (2.0)	3.75 (0.97)	4.0 (2.0)	0.095
The guidelines of dental practice during COVID-19 will change in the future	4.25 (0.79)	4.0 (1.0)	3.95 (0.85)	4.0 (2.0)	<0.001
There will be a decreased in financial income if the COVID-19 pandemic persists in the future	4.08 (0.98)	4.0 (2.0)	4.13 (0.96)	4.0 (1.0)	0.646
I am updated with the latest news of the COVID-19 pandemic	4.27 (0.73)	4.0 (1.0)	4.44 (0.66)	5.0 (1.0)	0.029
The latest news regarding COVID-19 gives me anxiety and depression	3.46 (1.07)	3.0 (1.0)	3.54 (1.15)	4.0 (1.0)	0.407

upon the statement. Nevertheless, government dental practitioners agreed that it is a mandatory COVID-19 test taken by the patient, compared to the private sector prior to dental appointments, who neither agreed nor disagreed ( $p=0.002$ ).

## DISCUSSION

This study was a simple, descriptive cross-sectional study that described the perception of dental practitioners towards COVID-19 guidelines in a dental practice at one point in time. Due to the nature of the working environment, dentistry was named as one of the professions with the highest risk of contracting SARS-CoV-2. The evolution of viruses causes mutations in the genetic code, resulting in new varieties (Harvey et al. 2021). Simultaneously, international guidelines for dental treatment were released worldwide following the outbreak (CDC 2022; Alharbi et al. 2020; Ali et al. 2020). Previously, only emergency treatment was advisable in the early outbreak, however,

with the current knowledge, now most dental clinics are operated under the 'new normal' following acknowledgment of the proper SOP (WHO 2020b; ADA 2020). Yet, with the current variant of the virus, the WHO recommends that elective dental treatment to be deferred until there is a sufficient reduction in COVID-19 transmission rates from community transmission according to recommendations at the national, sub-national, or local level in each country (WHO 2020b). According to our findings, the majority of respondents in both the public and private sectors agreed that there would be more changes to SOP following the pandemic. Mandatory screening using a questionnaire or QR code, scanning of body temperature and the COVID-19 screening test are currently among the new protocols required prior to a dental visit. However, our study found that most private practitioners did not perceive that it was mandatory for patients to take the COVID-19 test prior to dental appointments. This is most likely because additional tests can cause an extra financial burden to the patient and might demotivate them to come to the dental treatment.

During the earlier phase of the COVID-19 outbreak, the reverse transcription-polymerase chain reaction (RT-PCR) test was a gold standard to diagnose COVID-19 following a recommendation by the WHO as it is more accurate (Dinnes et al. 2002). Nevertheless, it is advisable to encourage patients with symptoms to undergo COVID-19 rapid antigen tests prior to dental appointments, as at present, the test kit is widely available on the market at a more affordable price. In addition, recent evidence has shown that it is more accurate to replace RT-PCR, especially during the first week of illness, to rule out the presence of infection (Dinnes et al. 2022).

Although currently available evidence has not demonstrated a strong evidence and direct association between dental treatment or the possibility of the transmission of COVID-19, there is obviously the potential for transmission due to the nature of work (Banakar et al. 2020). Current CDC guidelines recommend that elective dental care for patients with confirmed or suspected COVID-19 should be postponed until the patient meets the criteria for discontinuation of home isolation while for confirmed or suspected COVID-19 patient who needs to receive urgent dental care, standard treatment guidelines should be followed (CDC 2022). Nevertheless, as the nation moves closer to the endemic stage, the Malaysian government has announced relaxations of some COVID-19 SOP requirements on May 1, 2022. In line with this, MDA has revisited and updated the safety advisory to guide the members during the period of transition towards endemicity (MDA 2022).

Our study also found that most private practitioners did not perceive that reopening the clinic could lead to the spread of the virus. An evidence-based assessment study by Ren et. al, stated that the risk of COVID-19 transmission in dental offices is very low based on the currently available evidence on the effectiveness of PPE as well as the prevalence of asymptomatic patients (Ren et al. 2020). In accordance with our findings, most of the respondents believed that PPE is effective in preventing COVID-19 transmission. Although it can increase the cost of dental care, both parties can be assured that it may significantly reduce the risk of COVID-19 transmission during dental treatment. Besides, our study also noted that the majority of private dental practitioners indicated that tele-dentistry was unable to effectively solved patient's dental problems. Nevertheless, it is important to note that tele-dentistry is one of the most reliable ways to deliver information and remote consultation to patients as it enables communication by avoiding face-to-face contact and maintaining social distancing especially in the early pandemic era (Rahman et al. 2020). The virtual dental clinic is one initiative by MOH to provide clinical consultation and personalised dental care advice and guidance via virtual, live and

interactive sessions. Apart from developing personal-empowerment in oral health self-care among patients, tele-dentistry also helps in resolving patient overcrowding in the dental clinic (CDC 2022).

In regards to the publication of guidelines following the pandemic, respondents from the previous report had stated a few concerns, such as that guidance was issued later than necessary and publication schedules caused confusion as there were inconsistencies between different sources of guidelines, which resulted in significant differences in practice across the sector. (Palmer et al. 2020). In contrast, Nepali dentists stated that, in comparison to WHO, the Nepali Dental Association took the initiative to publish its guidance promptly to guide the dentist during the early pandemic (Harada et al. 2022). Nevertheless, though the majority of our respondents agreed that the latest guidelines from the MDA website are useful, our present study also found that in comparison to government dental practitioners, private dental practitioners were more updated on the latest news on the COVID-19 pandemic. Most of the private practitioners in Malaysia work either as solo practitioners or associates (group), thus it is important for them to be updated with the current guidelines and news to protect themselves and their supporting staff to allow for a safe return to the workplace. As business owners and employers, they are responsible for maintaining and operating safe premises not only for the health and safety benefit of their employees but also for their patients. Currently, all health care staff are encouraged to receive a COVID-19 vaccination booster as part of their protection against COVID-19.

#### LIMITATIONS OF THE STUDY AND FUTURE RECOMMENDATIONS

Our survey used a convenient sampling strategy by disseminating an online questionnaire, and we only captured 468 respondents among the 11,589 dental practitioners in Malaysia. This might result in a selection bias that prevents the ability to generalise overall results. Thus, for future research, in order to increase participation among the respondents and capture more data that represents Malaysian dental practitioners, a stratified sampling technique between different working sectors and research collaboration with various health sectors should be employed. Furthermore, our data were collected during the first pandemic outbreak, which occurred between May and August 2021, and may not reflect the current scenario. Thus, it is important to note that the nature of this disease is emerging, available guidelines can change accordingly following the new information about the diseases, vaccination status, the government's response and based

on the number of new cases recorded daily. Despite these limitations, the findings of this study could provide useful initial information on the perception of COVID-19 among Malaysian dental practitioners in general, which can subsequently lead to a shift in the delivery of dental care and services following new updates in the guidelines.

## CONCLUSION

Based on our findings, the following conclusions were drawn;

1. The majority of dental practitioners in Malaysia have complied with the provisional guidelines imposed by the international and local health bodies and they believe that PPE has contributed tremendously to preventing infection in the dental clinic.
2. Most of the dental practitioners have incorporated additional measures according to the new guidelines provided by local health authorities.

As the COVID-19 pandemic would persist and become endemic in our communities, it is important to balance the safety issue and the patient's oral health needs. At the moment the best approach to any guidelines pertaining to dental health care delivery is back to the basic – strict adherence of infection control, preventive control measures, and practise the standard universal precautions for all patients.

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## CONFLICT OF INTEREST

The authors state that they have no conflicts of interest with respect to their authorship or the publication of this article.

## ETHICAL APPROVAL

This study obtained an ethical approval from the Universiti Teknologi MARA (UiTM) Human Ethics Advisory Committee (REC/04/2021 (UG/MR/343) (Date: 24 April 2021)

## AUTHORS CONTRIBUTIONS

NHM, RNR and NFA designed the study. NHM and RNR conducted research, collected and organised data. NHM, RNR and AJ analysed and interpreted the data. NHM and RNR wrote initial draft of article. NFA and AJ edited and modified the final draft and supervised the project. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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## REFERENCES

- Ahmadi, H., Ebrahimi, A. & Ghorbani, F. 2020. The impact of COVID-19 pandemic on dental practice in Iran: A questionnaire-based report. *BMC Oral Health* 20: 354.
- Alharbi, A., Alharbi, S. & Alqaidi, S. 2020. Guidelines for dental care provision during the COVID-19 pandemic. *Saudi Dental Journal* 32(4): 181-186.
- Ali, S., Farooq, I., Abdelsalam, M. & AlHumaid, J. 2020. Current clinical dental practice guidelines and the financial impact of COVID-19 on dental care providers. *European Journal of Dentistry* 14(S 01): S140-S145.
- American Dental Association. 2020. ADA interim guidance for minimizing risk of COVID-19 transmission 2020. <https://www.ada.org/en/publications/ada-news/2020-archive/april/ada-releases-interim-guidance-on-minimizing-covid-19-transmission-risk-when-treating-emergencies>; 2020. (accessed 21 April 2020) .
- Banakar, M., Lankarani K. B., Jafarpour, D., Moayedi, S., Banakar, M. H. & MohammadSadeghi, A. 2020. COVID-19 transmission risk and protective protocols in dentistry: a systematic review. *BMC Oral Health* 20: 275.
- Bernama. 2022. MySejahtera application to assist in monitoring COVID-19. [https://www.bernama.com/en/general/news\\_covid-19.php?id=1833998](https://www.bernama.com/en/general/news_covid-19.php?id=1833998). (accessed 11 May 2022) .



- Butt, R. T., Janjua, O. S., Qureshi, S. M., Shaikh, M. S., Guerrero-Gironés, J., Rodríguez-Lozano, F. J. & Zafar, M. S. 2021. Dental health care amid the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health* 18(21):1-24.
- Centers for Disease Control and Prevention. 2022. Interim Infection Prevention and Control Recommendations for Health care Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>; 2022 (accessed 12 January 2022) .
- Dar-Odeh, N., Babkair, H., Abu-Hammad, S., Borzangy, S., Abu-Hammad, A. & Abu-Hammad, O. 2020. COVID-19: present and future challenges for dental practice. *International Journal of Environmental Research and Public Health* 17(9): 3151.
- Dinnes J., Sharma P., Berhane S., van Wyk S.S., Nyaaba N., Domen J., Taylor M., Cunningham J., Davenport C., Dittrich S., Emperador D., Hooft L., Leeftang M.M.G., McInnes M.D.F., Spijker R., Verbakel J.Y., Takwoingi Y., Taylor-Phillips S., Van den Bruel A., Deeks J.J. & Cochrane COVID-19 Diagnostic Test Accuracy Group. 2022. Rapid, point-of-care antigen tests for diagnosis of SARS-CoV-2 infection. *Cochrane Database of Systematic Reviews* Issue 7. Art. No.: CD013705.
- Guo, H., Zhou, Y., Liu, X. & Tan, J. 2020. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *Journal of Dental Sciences* 15(4): 564-567.
- Harada, Y., Iwashita, H., Prajapati, D. & Tomohiko, S. 2022. Dentists' situation and their needs during the COVID-19 pandemic in Nepal: an online questionnaire survey. *BMC Oral Health* 22(107): 1-12.
- Harvey, W.T., Carabelli, A. M., Jackson, B., Gupta, R.K., Thomson, E.C., Harrison, E.M., Ludden, C., Reeve, R. & Rambaut, A., COVID-19 Genomics UK (COG-UK) Consortium, Peacock, S. J. & Robertson, D. L. 2021. SARS-CoV-2 variants, spike mutations and immune escape. *Nature Reviews Microbiology* 19: 409-424.
- Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Ren, R., Leung, K. S. M., Lau, E. H. Y., Wong, J. Y. Xing, X., Xing, N., Wu, Y., Li, C., Chen, Q., Li, D., Liu, T., Zhao, J., Liu, M., Tu, W., Chen, C., Jin, L., Yang, R., Wang, Q., Zhou, S., Wang, R., Liu, H., Luo, Y., Liu, Y., Shao, G., Li, H., Tao, Z., Yang, Y., Deng, Z., Liu, B., Ma, Z., Zhang, Y., Shi, G., Lam, T. T. Y., Wu, J. T., Gao, G. F., Cowling, B. J., Yang, B., Leung, G. M. & Feng, Z. Year. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *The New England Journal of Medicine* 382: 1199-1207.
- Malaysian Dental Association. 2022. MDA Safety Advisory to Dental Practitioners during the period of transition towards Endemicity of COVID – 19 (Updated 05.05.2022); 2022 [5 September 2022].
- Ministry of Health Malaysia. 2021. *Managing COVID-19 in Malaysia, The Oral Health Programme Experience*. 1<sup>st</sup> edition. Putrajaya: Oral Health Division, Ministry of Health Malaysia. ; 2021.
- Ministry of Health Malaysia. 2022. COVIDNOW. <https://www.covidnow.moh.gov.my>; 2022 (accessed 2 September 2022) .
- Palmer, H., Campbell-Jack, D., Lillis, J. & Elsby, A. *The Impact of COVID-19 on Dental Professionals*. A report for the General Dental Council. Birmingham: Ecorys UK. 2020.
- Rahman, N., Nathwani, S. & Kandiah, T. 2020. Teledentistry from a patient perspective during the coronavirus pandemic. *British Dental Journal* 229(3): 1-4.
- Ren, Y., Feng, C., Rasubala, L., Malmstrom, H. & Eliav, E. 2020. Risk for dental health care professionals during the COVID-19 global pandemic: an evidence-based assessment. *Journal of Dentistry* 101: 103434.
- The Star. 2021. Only fully-vaccinated individuals allowed into facilities. <https://www.thestar.com.my/news/nation/2021/10/01/only-fully-vaccinated-individuals-allowed-into-facilities>; 2021 (accessed 1 October 2021) .
- To, K. K-W., Tsang ,O. T-Y., Yip, C. C-Y., Chan, K-H., Wu, T-C., Chan, J. M-C., Leung, W-S., Chik, T. S-H., Choi, C. Y-C., Kandamby, D. H., Lung D. C., Tam, A. R., Poon, R. W-S., Fung, A. Y-F., Hung, I. F-N., Cheng, V. C-C., Chan, J. F-W. & Yuen, K-Y. 2020. Consistent detection of 2019 novel coronavirus in saliva. *Clinical Infectious Disease* 71(15): 841-843.
- WHO. 2020a. Virtual press conference on COVID-19. <https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf>; 2020 (accessed 22 July 21) .
- WHO. 2020b. Considerations for the provision of essential oral health services in the context of COVID-19: interim guidance. <https://www.who.int/publications/i/item/who-2019-nCoV-oral-health-2020.1>; 2020 (accessed 22 July 2021) .
- Yusoff, M. S. B. 2019a. ABC of content validation and content validity index calculation. *Education in Medical Journal* 11(2): 49-54.

Yusoff, M. S. B. 2019b. ABC of response process validation and face validity index calculation. *Education in Medical Journal* 11(3): 55-61.

Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., Zhao, X., Huang, B., Shi, W., Lu, R., Niu, P., Zhan, F., Ma, X., Wang, D., Xu, W., Wu, G., Gao, G. F. & Tan W. 2020. A novel coronavirus from patients with pneumonia in China. 2019. *The New England Journal of Medicine* 382: 727-733.

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