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## Financial Implication of COVID-19: A Story of Malaysian Dental Practitioner

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### Cover Page Footnote

**DATA AVAILABILITY** The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. **ACKNOWLEDGMENT** The authors wish to thank Assistant Professor Muhd Firdaus Che Musa and Dr Nawwal Alwani Mohd Radzi for assistance with the content validation of the questionnaire. The authors also wish to thank to all dental practitioners who participated in this study. **CONFLICT OF INTEREST** The authors state that they have no conflicts of interest with respect to their authorship or the publication of this article.

**ORIGINAL ARTICLE**

## **Financial Implication of COVID-19: A Story of Malaysian Dental Practitioner**

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### **ABSTRACT**

Coronavirus disease 2019 (COVID-19) has caused series of lockdown in Malaysia which led to the significant financial impact to dental practitioner in Malaysia. **Objectives:** The aim of this study is to investigate factors affecting dental practice and its implication to financial situation during the pandemic in Malaysia. **Methods:** Registered Malaysian dental practitioners were invited to participate in online questionnaire via google form. Descriptive and Pearson's chi-square test analysis were conducted ( $p < 0.05$ ) **Results:** 468 of dental practitioners had responded to our survey. More than three-quarter of dental practitioners worked in government sectors while almost a quarter worked in private sectors. 49.2% of respondents opened for emergency cases only during movement control order (MCO), 42.1 % of them limit for dental emergency, appointment-based cases and non-aerosol generated procedure during Conditional MCO and 62.5% operated as usual following a strict standard operating procedure during Recovery MCO. More than three quarter of private dental practitioners indicated that pandemic affected their daily monetary income ( $p < 0.001$ ) while most of them had to spend other source of income ( $p = 0.004$ ). All working sectors dictated that the working volume and number of patients had statistically decrease ( $p < 0.05$ ). **Conclusion:** COVID-19 pandemic had an impact on the practice of dentistry and financial position especially for private dental practitioners. Major government assistance is important to reduce the burden of dental practitioner and preserving their future practice.

**Key words:** COVID-19, dentistry, dental practitioner, financial, Malaysia

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### **INTRODUCTION**

Coronavirus disease 2019 (COVID-19) had led to major disruption to Malaysia's economic and financial output as many industries were forced for closure to contain the spread of the virus.<sup>1</sup> Series of national lockdown started from Movement Control Order (MCO) (18 March 2020- 3 May 2020), Conditional-MCO (CMCO) (4 May 2020 - 9 June 2020) followed by Recovery-MCO (RMCO) (10 June 2020 - 31 March 2021) had significantly impact the numerous sectors of economy<sup>1,2</sup>. Although during the pandemic, dental care was considered as healthcare essential service, Malaysian Ministry of Health (MOH) together with Malaysian Dental Association (MDA)

has imposed a strict protocol to only limit emergency procedure during the MCO period.<sup>3</sup> All government and private dental clinics were advised to defer any elective treatments involving all non-emergency treatment such as restoration, orthodontic treatment, aesthetic treatment, extraction of asymptomatic teeth and routine radiographs.<sup>4,5</sup>

Routine dentistry was considered non-practical in Wales whereas Scotland suggested more active measure by stopping all aerosol-generating procedures (AGP) in dental practices.<sup>6</sup> Current information from United

Stated showed that 18% of general dental practitioner had completely closed the dental practise while 79% of them only open for emergency procedures.<sup>7</sup> Up-to-date guidelines by MDA following the RMCO in October 2020 suggested that patient that come from yellow and green zone can receive elective dental treatment apart from emergency treatment while patient from red zone was maintained for emergency treatment only.<sup>4</sup> This colour coded zone was based on the number of cases in a specific area or district registered for a 14-days period, to appropriate zoning of districts with high number of cases.<sup>8</sup>

Although this is in line with World Health Organization (WHO) recommendation, it can result in reduction in patient flow which causes more serious monetary implications especially to private dental practitioner. Survey by American Dental Association (ADA) stated that by November 2020, 60.8% respondents indicated that influx of patients were lower than usual with normal operation hours.<sup>9</sup> Irish Dental Association (IDA) reported that twenty percent of the dental practitioners have closed their practices either temporarily or permanently during the outbreak with three-fourth of the respondents were expecting a financial loss of over 70%.<sup>6,10</sup> Similar issue was faced by British Dental Association (BDA) who projected significant loss in dental practices due to interruption of routine dental care.<sup>6</sup> Nevertheless, dental regulatory bodies in United Kingdom (UK) and Ireland have addressed this issue by offering financial help and loans to affected individual.<sup>6</sup> Apart from assistance from insurance company, UK government also communicated with dental practise owners to help them with financial plan to pay their rent, salaries, suppliers or consumables items during the crisis.<sup>11</sup> Ireland government also provide COVID-19 business loan ranging between €5K and €50K to aid the affected business owner including dental practices.<sup>12</sup>

Following the outbreak to counter the economic impact in Malaysia, federal government had issued several alternative incentive packages worth US\$4.8 billion in February 2020 and second stimulus package worth 250 billion ringgit (US\$57 billion) in March 2020. <sup>1</sup> This involved the restructuring and rescheduling of loans where the financial institutions provided financial relief and payment moratoriums.<sup>1,13</sup> MDA, on the other hand, helped in providing a supporting letter to all private dental practitioner in regard waiver or reduction of rental and repayment loan negotiation to the leasing companies as they did not receive the same benefit as other financial institution.<sup>14</sup> MOH also offered a one-off six-month contract extension to all 2070 government health care workers following the two-year compulsory services as manifestation of their thoughtfulness.<sup>15</sup> This extension allows the dental practitioner to continue delivering services in health facilities under MOH

during the pandemic. The current study used Malaysia as middle-income country to investigate factors affecting the Malaysian dental practice during different phase of quarantine period in Malaysia namely MCO, CMCO and RMCO and to assess financial implication of dental practitioner during the pandemic.

## **METHODS**

### **Study design**

This study was carried out in accordance with STROBE guidelines. A cross sectional study was conducted among randomly sampled registered dental practitioners working in different health sectors of Malaysia i.e., MOH, Ministry of Education (MOE), Ministry of Defence (MOD) and private health sectors. Active dental practitioners who possess annual practising certificate (APC) or temporary practising certificate (TPC) for non-Malaysian's issued by Malaysian Dental Council were invited to participate in this study. Consent was obtained from respondent before answering to the questionnaire via google form. The form was distributed via all relevant online platform e.g., electronic mail, Facebook, and WhatsApp to attain the required number of respondents based on the sample size calculated. This study obtained ethical approval from the Universiti Teknologi MARA (UiTM) Human Ethics Advisory Committee (Ref No: REC/04/2021(UG/MR/343).

### **Sample size calculation**

An expected frequency of 37% which was picked out from Ahmadi *et al.* <sup>16</sup> with a margin of error 5% and design effect of 1 were inserted into the epi-info version 7.0 in calculating the sample size. A total of 468 samples were recruited in this study after taken into consideration of 30% drop out rate.

### **Questionnaire form**

This self-administered questionnaire underwent content (by two expert) and face (from ten respondents) validity before being distributed to the respondents. Both content and face validity showed a good to excellent validity of the questionnaire (>0.80). Minor modifications were made to improve structure and to enhance the comprehension of the questionnaire as suggested. The questionnaire consisted of three sections including 1) Professional and socio-demographic characteristics; 2) Dental practice employed during COVID-19 pandemic; and 3) Monetary issue faced by dental practitioners during the pandemic. The reliability test analysis using Cronbach's alpha for all the items related to COVID-19 in dental practice showed excellent internal consistencies with score of 0.835.

**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. Pearson’s chi-square analysis was employed to determine the related factors of dental practice and financial issues during pandemic contracted by different oral healthcare agencies i.e., MOH, MOE, MOD and private sector. The significant level was set at  $p < 0.05$ .

**RESULTS**

Most of the respondents were from age group of 25-34 years (62.6%), female (77.6%) and working in government sector under MOH (56.0%). Majority of our respondents worked in red zone area (81.4%) and at central zone (55.1%). Most of them had 5 years and below of experience in dentistry with average income of RM 10,436.96 (SD=7,231.11). More demographic description of respondent is depicted in Table 1.

Figure 1 depicts the dental practices carried out by the respondents at different phase of MCO gazetted by the government. Nearly half of the dental practices were opened for emergency cases only during MCO period while 42.1% of dental practice limit their dental treatment only for dental emergency, appointment-based cases and non-AGP only during CMCO period. 62.5% of dental practice open their clinic for full dental treatment with strict SOP as recommended in the guideline during RMCO period.

Table 2 shows dental practice performed in different types of working agency. During the COVID-19 pandemic, all working agency dictated that the working volume and number of patients had statistically decreased ( $p < 0.05$ ). The dental practice of the respondent was also found to be statistically changed across the working agencies ( $p = 0.002$ ). However, no significant association was found between increases of online query for dental treatment across working oral health agencies.

Table 3 shows a significant variable that associated with financial issue among dentist in relation to socio-demographic; specifically for gender, state and location of practice as well as different oral health agencies ( $p < 0.05$ ). It was also found a statistical association between using other source of income and received financial assistant.

Although, majority of them experienced increased of the personal protective equipment (PPE) usage

**Table 1.** Demographic profiles of dental practitioners

| Characteristics              | Mean (SD)            | N   | %    |
|------------------------------|----------------------|-----|------|
| Sex                          |                      |     |      |
| Male                         |                      | 105 | 22.4 |
| Female                       |                      | 363 | 77.6 |
| Age (years)                  |                      |     |      |
| 25-34                        |                      | 293 | 62.6 |
| 35-44                        |                      | 135 | 28.8 |
| 45-54                        |                      | 30  | 6.4  |
| ≥55                          |                      | 10  | 2.1  |
| Ethnicity                    |                      |     |      |
| Malay                        |                      | 382 | 81.6 |
| Chinese                      |                      | 46  | 9.8  |
| Indian                       |                      | 26  | 5.6  |
| Others                       |                      | 14  | 3.0  |
| State of practices           |                      |     |      |
| Northern zone                |                      | 48  | 10.3 |
| Central zone                 |                      | 258 | 55.1 |
| Southern zone                |                      | 51  | 10.9 |
| East coast zone              |                      | 85  | 18.2 |
| East Malaysia                |                      | 26  | 5.6  |
| Years of practice            |                      |     |      |
| 0-5                          |                      | 187 | 40.0 |
| 5-10                         |                      | 128 | 27.4 |
| 11-20                        |                      | 120 | 25.6 |
| >20                          |                      | 33  | 7.1  |
| Covid-19 zone classification |                      |     |      |
| Green                        |                      | 15  | 3.2  |
| Yellow                       |                      | 56  | 12.0 |
| Red                          |                      | 381 | 81.4 |
| Not sure                     |                      | 16  | 3.4  |
| Working agency               |                      |     |      |
| Ministry of Health           |                      | 262 | 56.0 |
| Ministry of Education        |                      | 62  | 13.2 |
| Ministry of Defence          |                      | 33  | 7.1  |
| Private                      |                      | 111 | 23.7 |
| Monthly income (RM)          | 10,436.96 (7,231.11) |     |      |
| ≤5,000                       |                      | 122 | 26.1 |
| 5,001-10,000                 |                      | 203 | 43.4 |
| 10,001-20,000                |                      | 121 | 25.9 |
| >20,000                      |                      | 22  | 4.7  |

<sup>1</sup>Northern zone: Perlis, Kedah, Pulau Pinang, Perak, <sup>2</sup>Central zone: WP Kuala Lumpur, Selangor, WP Putrajaya, <sup>3</sup>Southern zone: Negeri Sembilan, Melaka, Johor, <sup>4</sup>East coast zone: Pahang, Terengganu, Kelantan, <sup>5</sup>East Malaysia: Sabah, Sarawak, WP Labuan

during the pandemic (93.7%), 63.7% stated that they still maintained dental treatment price. Almost three-quarter of private dental practitioners also reported that they need to remunerate their staffs during the pandemic with 17.1% of staffs were dismissed from work. Figure 2 shows the experience of private dental practitioner during the pandemic situation.

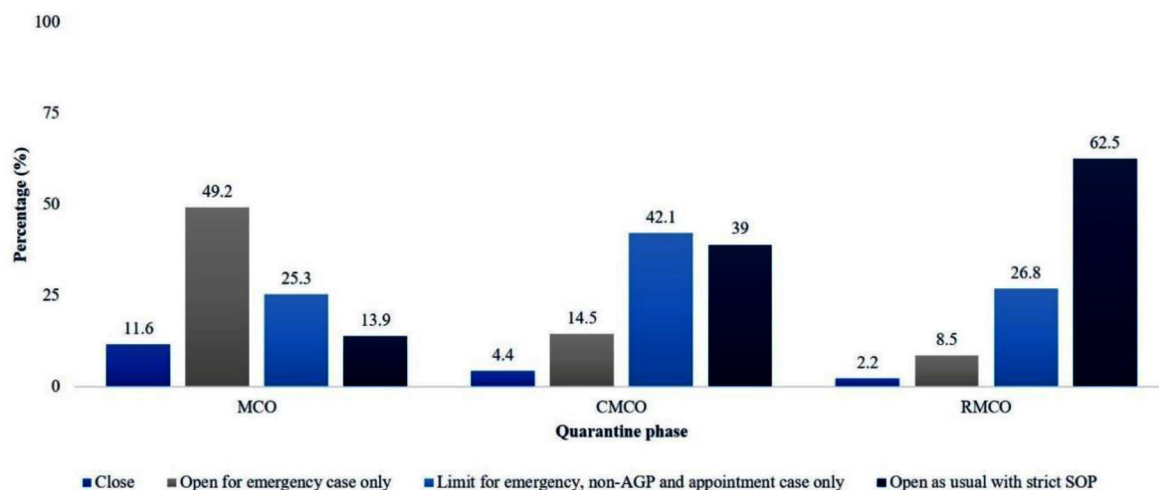


Figure 1. Dental practice employed during different phase of quarantine period

Table 2. Dental practice during COVID-19 between different oral health sectors in Malaysia

| Variables                                     | Working Agency/Sector |            |           |           | p-value   |        |
|---|-----------------------|------------|-----------|-----------|-----------|--------|
|   | MOH                   | MOE        | MOD       | Private   |           |        |
|   | N (%)                 | N (%)      | N (%)     | N (%)     |           |        |
| Work volume                                   | Reduce                | 195 (74.4) | 54 (87.1) | 16 (48.5) | 71 (64.0) | 0.001  |
|   | The same              | 51 (19.5)  | 7 (11.3)  | 11 (33.3) | 25 (22.5) |        |
|   | Increase              | 16 (6.1)   | 1 (1.6)   | 6 (18.2)  | 15 (13.5) |        |
| Number of patients                            | Decrease              | 211 (80.5) | 59 (95.2) | 15 (45.5) | 75 (67.6) | <0.001 |
|   | The same              | 45 (17.2)  | 3 (4.8)   | 16 (48.5) | 17 (15.3) |        |
|   | Increase              | 6 (2.3)    | 0 (0.0)   | 2 (6.0)   | 19 (17.1) |        |
| Increase of online query for dental treatment | No                    | 49 (18.9)  | 18 (29.5) | 11 (35.5) | 24 (21.6) | 0.095  |
|   | Unaware               | 51 (19.7)  | 17 (27.9) | 5 (16.1)  | 25 (22.5) |        |
|   | Yes                   | 159 (61.4) | 26 (42.6) | 15 (48.4) | 62 (55.9) |        |
|   |                       |            |           |           |           |        |

## DISCUSSION

There is a total cumulative of 1.51 million COVID-19 cases have been reported in Malaysia with daily cases more than 20,000 daily at the time of publication.<sup>17,18</sup> Current circumstances cause each state and district to undergo switch between MCO, CMCO, RMCO and Enhanced-MCO (EMCO) depending on the daily COVID-19 condition. This study was conducted to investigate factors affecting the dental practice during COVID-19 pandemic in different phase of quarantine period in Malaysia based on different working sectors and to assess financial implication of dental practitioner due to COVID-19 pandemic. This study is hoping to give a clear picture on the current condition occurs among Malaysian’s dental practitioners. Majority of our respondents were from government sector which reflect the overall distribution of dental practitioner in Malaysia with only 3,713 were registered as private dental practitioners from overall total number of 10,817

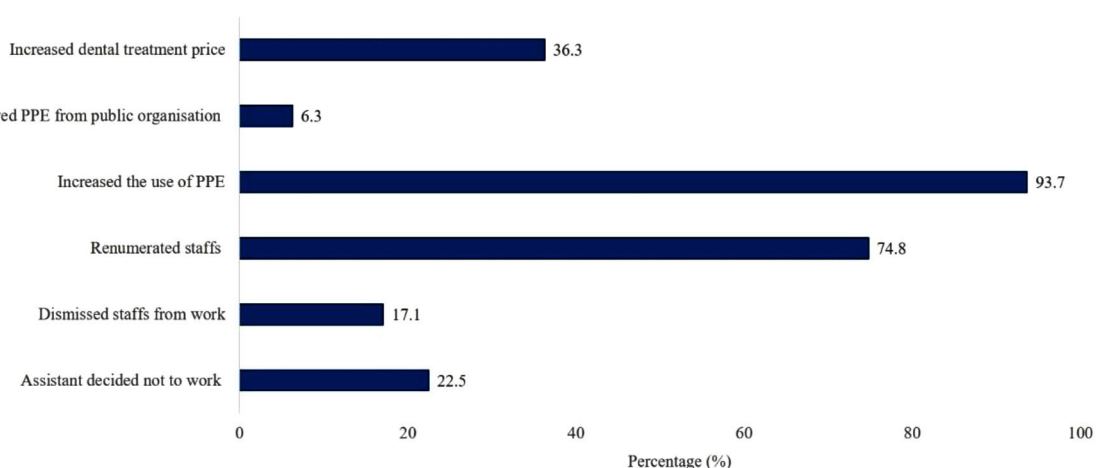
dental practitioner in 2019.<sup>19</sup> Most of our respondents were working in central zone (Selangor, Federal Territory Kuala Lumpur and Putrajaya) which located in the red zone area in which our study found significant association between location and state of practice among the respondent in regards to the financial issue. Malaysian had classified the zones based on the colour-coded categories indicating the risk level of a particular zone which are; green zone (0 active case), yellow (1 – 40 active cases) and red (more than 40 cases).<sup>8</sup> In response to COVID-19 pandemic, Malaysia had initiated series of “cordon sanitaire” or nationwide lockdown measures namely MCO, CMCO, RMCO and EMCO. These involved restrictions on movement and authorized the closure of all government and private premises, business and industry except those involved in essential services.



**Table 3.** Financial issue experienced by the dental practitioners during the pandemic in relation to socio-demographics profile and different oral health agencies

| Factor             | Affected income |              | p-value          | Received financial assistant |                  |              | p-value      | Use other source of income |              | p-value      |
|--------------------|-----------------|--------------|------------------|------------------------------|------------------|--------------|--------------|----------------------------|--------------|--------------|
|                    | No<br>N (%)     | Yes<br>N (%) |                  | No<br>N (%)                  | Unaware<br>N (%) | Yes<br>N (%) |              | No<br>N (%)                | Yes<br>N (%) |              |
| Sex                |                 |              |                  |                              |                  |              |              |                            |              |              |
| Male               | 62 (19.6)       | 43 (28.3)    | <b>0.035</b>     | 65 (20.8)                    | 15 (31.3)        | 25 (23.4)    | 0.260        | 84 (20.5)                  | 21 (35.6)    | <b>0.010</b> |
| Female             | 254 (80.4)      | 109(71.7)    |                  | 248 (79.2)                   | 33 (68.8)        | 82 (76.6)    |              | 325 (79.5)                 | 38 (64.4)    |              |
| Years of practice  |                 |              |                  |                              |                  |              |              |                            |              |              |
| 0-5                | 132 (41.8)      | 55 (36.2)    | 0.067            | 109 (34.8)                   | 31 (64.6)        | 47 (43.9)    | <b>0.001</b> | 153 (37.4)                 | 34 (57.6)    | <b>0.008</b> |
| 5-10               | 92 (29.1)       | 36 (23.7)    |                  | 95 (30.4)                    | 7 (14.6)         | 26 (24.3)    |              | 117 (28.6)                 | 11 (18.6)    |              |
| 11-20              | 75 (23.7)       | 45 (29.6)    |                  | 91 (29.1)                    | 7 (14.6)         | 22 (20.6)    |              | 112 (27.4)                 | 8 (13.6)     |              |
| >20                | 17 (5.4)        | 16 (10.5)    |                  | 18 (5.8)                     | 3 (6.3)          | 12 (11.2)    |              | 27 (6.6)                   | 6 (10.2)     |              |
| State of practices |                 |              |                  |                              |                  |              |              |                            |              |              |
| Northern           | 35 (11.1)       | 13 (8.6)     | <b>0.009</b>     | 35 (11.2)                    | 5 (10.4)         | 8 (7.5)      | 0.358        | 48 (11.7)                  | 0 (0.0)      | 0.050        |
| Central            | 165 (52.2)      | 93 (61.2)    |                  | 171 (54.6)                   | 30 (62.5)        | 57 (53.3)    |              | 218 (53.3)                 | 40 (67.8)    |              |
| Southern           | 28 (8.9)        | 23 (15.1)    |                  | 33 (10.5)                    | 6 (12.5)         | 12 (11.2)    |              | 46 (11.2)                  | 5 (8.5)      |              |
| East coast         | 69 (21.8)       | 16 (10.5)    |                  | 60 (19.2)                    | 6 (12.5)         | 19 (17.8)    |              | 75 (18.3)                  | 10 (16.9)    |              |
| East Malaysia      | 19 (6.0)        | 7 (4.6)      |                  | 14 (4.5)                     | 1 (2.1)          | 11 (10.3)    |              | 22 (5.4)                   | 4 (6.8)      |              |
| Location           |                 |              |                  |                              |                  |              |              |                            |              |              |
| Rural              | 163 (51.5)      | 97 (63.8)    | <b>0.029</b>     | 174 (55.6)                   | 26 (54.2)        | 60 (56.1)    | 0.785        | 221 (54.0)                 | 39 (66.1)    | 0.134        |
| Suburban           | 131 (41.5)      | 50 (32.9)    |                  | 118 (37.7)                   | 20 (41.7)        | 43 (40.2)    |              | 162 (39.6)                 | 19 (32.2)    |              |
| Urban              | 22 (7.0)        | 5 (3.3)      |                  | 21 (6.7)                     | 2 (4.2)          | 4 (3.7)      |              | 26 (6.4)                   | 1 (1.7)      |              |
| Working agency     |                 |              |                  |                              |                  |              |              |                            |              |              |
| MOH                | 210 (66.5)      | 52 (34.2)    | <b>&lt;0.001</b> | 174 (55.6)                   | 29 (60.4)        | 59 (55.1)    | 0.426        | 236 (57.7)                 | 26 (44.1)    | <b>0.004</b> |
| MOE                | 56 (17.7)       | 6 (3.9)      |                  | 43 (13.7)                    | 8 (16.7)         | 11 (10.3)    |              | 56 (13.7)                  | 6 (10.2)     |              |
| MOF                | 27 (8.5)        | 6 (3.9)      |                  | 26 (8.3)                     | 2 (4.2)          | 5 (4.7)      |              | 31 (7.6)                   | 2 (3.4)      |              |
| Private            | 23 (7.3)        | 88 (57.9)    |                  | 70 (22.4)                    | 9 (18.8)         | 32 (29.9)    |              | 86 (21.0)                  | 25 (42.4)    |              |

\*Pearson Chi-square



**Figure 2.** The experience of private dental practitioner during the pandemic situation

Despite of these pandemic, government clinics which include all specialists' dental clinics and 587 (87.6%) primary dental clinics continued to operate throughout the MCO period as essential service provider.<sup>20</sup> Based on the National Oral Health Programme report, Private Medical Practice Division of the MOH Malaysia (often known as to as the Cawangan Kawalan Amalan Perubatan Swasta (CKAPS) received 395 applications from private dental clinic requested to close the

clinics while 259 applicants had requested to change their operating hours during the MCO period.<sup>20</sup> Our respondents indicated that their clinic remains open but limited for appointment based and cater only emergency as well as non-AGP cases during the MCO and CMCO period. WHO recommendations stated that only emergency cases should be treated while elective cases especially involving AGP cases were advised to postpone to minimise the risk of transmission. Due to

the significant reduction of number of COVID-19 cases in July 2020 and relaxation rules by the Malaysian federal government, most of the respondents stated that their clinics were open as usual during RMCO period following strict SOP. Only very small number of respondents indicated that their clinic is not operated during RMCO period. This is most likely due to the respondent's resident area or location of clinic located in EMCO where it was subjected to a stricter order. In this quarantine phase, all businesses were closed, residents and non-resident visitors were not allowed to enter-exit the area with food supplies were also provided by the authorities.<sup>21</sup> Almost 80% of respondents experienced reduction in number patient as well as working capacity during these periods. Regular sanitization procedure in between patient might limit the number of patients in each treatment session with some of them opt for advanced dental appointment to limit the number of patients in the clinic following the social distancing protocol. National Oral Health Programme reported that 60% reduction in number of patients also seen in primary dental clinic and 35% in specialist dental clinics during the pandemic period respectively.<sup>20</sup> Similarly, Mani et al. (2021) also found that 98.8% of dental officer either stopped or limit their clinical activity during the MCO period, with only 6.0% of respondent continue to work as usual during RMCO period.<sup>22</sup>

Apart from that, our study found that more than half of the respondents experienced a rise in phone calls from patients and increase in online query via social media requesting treatment during the pandemic. Oral health division, MOH also acknowledged some complaints from patient due to rescheduling of dental appointment. To overcome the issue of appointment postponement in outpatient clinic, MOH had make an arrangement to operate in two shifts (8 am to 5 pm and 1 pm to 10 pm) in selected dental clinics in all states.<sup>20</sup> Besides, MOH also started a collaboration with several division to develop an Online Appointment System (AOS) and Virtual Dental Clinic with the aim to reduce congestion of patients in primary dental clinic and provide clinical consultation and advise via tele dentistry.<sup>23</sup> Other than that, work from home policy rotation basis was established to reduce the number of total number of staff working in the clinics and to comply to the social distancing practice.<sup>20, 23</sup> Important additional screening protocols prior to dental appointment and during appointment days include mySejahtera check-in, taking body temperature, online or walk-in COVID history questionnaire become a compulsory measure during each dental visit following the pandemic. Nevertheless, few respondents requested for COVID-19 or RTK antigen result prior to the dental procedure for supplementary safety measure.

The compulsory closure of dental practises during MCO together with reduced capacity of patient upon reopening in CMCO and RMCO period contributed to

significant drop in clinic revenue especially for private practitioner. Previous study also indicated that most patient preferred extraction as compare to endodontic therapy as definitive treatment during COVID-19 crisis, which may further attribute to the loss of income especially among private practitioner.<sup>24</sup> Our study found that majority of private dental practitioner stated that pandemic had affected their monetary income which 38.7% of them agreed that they had financial problems to sustain their practise. Additional protective measures associated with infection control such as medical face-masks, gloves, face shields, surgical gowns, sterilization and disinfection of instruments and supplementary equipment to improve ventilation increase the clinic overhead expenses. Almost all respondents stated that increased in consumption of PPE during the pandemic time which inevitably pose a continuous threat to their businesses as whole. Some of the respondents indicated that they have increased the price of dental treatment and remunerated the staffs to overcome this financial issue.

General Dental Council UK had highlighted that comparing to previous year, 80% of dental business owners reported a decrease in income with 65% of them expected further decrease in income in the following year.<sup>25</sup> Although Malaysian government had issued several stimulus packages<sup>1, 26</sup> to overcome the economic impact due to COVID-19, our study found that only small number of practitioners were aware and acquired the opportunity to apply the financial help offered by the federal government. These incentives included direct-indirect tax measure, employment-related measures, economic stimulus measures and others.<sup>26</sup> As the nature of pandemic varies in each country, respected national dental association plays an important role to help and connect dental practitioner especially private practitioner with government, provide a professional support and financial legal advisory serviced especially in the current situation. MDA had made an initiative to offer a supporting letter to private dental practitioner in regard waiver rental and repayment of loan. Apart from that, MDA also conducted a comprehensive survey to gather data of all private dental practitioners and their supporting staffs to speed up the COVID-19 vaccination following complaint by Malaysian Private Dental Practitioners' Association (MPDPA).<sup>27, 28</sup> As compared to private dental practitioner, surprisingly, 17.8% of government dental practitioner also stated that pandemic affected their monetary income despite getting continuous salary as government officer. However, more data is required to explore the reason of this particular matters. In addition, more recent study suggested that re-organization of clinical practice should be re-evaluate in order to maintain clinical minimum profit and to avoid financial stress respectively.<sup>29</sup>

Although the samples collected fulfilled the calculated sample size, our study only represents 4.3 per cent of



total dental practitioner in Malaysia with uneven less proportionate sample from MOE, MOD and private practitioner. The data need to be interpreted with cautious as it might not signify the whole population of dental practitioner in Malaysia and represent views of respondent during MCO, CMCO and RMCO period only. Currently, Malaysia had undergone another wave of COVID-19 where cases raised to more than 20 0000 daily and encounter another lockdown which might create further financial implications among dental practitioners. In addition, the method of distribution questionnaire may also have affected results as it favours younger generation and associated with levels of online access. Thus, for future research, it could be suggested that more systematic sampling techniques will be executed between different working sectors in order to have a true representation of Malaysian dental practitioner. Research collaboration with Malaysian Dental Council, MOH, MOD, MOE and MPDPA can be initiated to increase participation among members to capture more data. The distribution of the online questionnaire can be administered directly via electronic mail to every member of each agency with equal distribution of sample between different sectors and zoning (rural, suburban, urban) area. Despite the limitation, our study is anticipated to help the Malaysian governments and dental regulatory bodies to unstated the current financial situation among Malaysian dental practitioner. Although, the impact on current and future income might vary according to the sector, it is important to plan and strategize to overcome financial losses experienced by dental businesses.

## CONCLUSION

Introduction of new and rigid infection control policy for dental clinics to confine the spread of COVID-19 as well as to ensure health and safety of patients and staff had resulted in huge financial burden sustained by dental practitioners worldwide. Our findings highlight the challenges and impact of pandemic to their work specifically on financial issue during different phase of COVID-19 in Malaysia as a middle-income country. Efforts of the Malaysian government and health regulatory bodies should be praised by supporting Malaysian dental profession ethically and monetarily during the post-COVID-19 recovery period. However, more strategies should be developed to help sustained the private dental practitioner and provide effective treatment to our community.

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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.

## DATA AVAILABILITY

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

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