



Research Article

Survey on finance cost of COVID- 19 on Dentistry

Ruwan D Jayasinghe^{1,*}, R Manori Jayasinghe², M Dileep K De Silva³¹Professor, Dept. of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka²Senior Lecturer, Dept. of Prosthetic Dentistry, Faculty of Dental Sciences, University of Peradeniya, Sri Lanka³Consultant to the Health Economic Cell, Head Human Resources, Ministry of Health, Colombo, Sri Lanka

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* Corresponding author.

Ruwan D Jayasinghe

ruwanja@dental.pdn.ac.lk[https://doi.org/](https://doi.org/10.38138/JMDR/v6i2.11)

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ABSTRACT

Objectives: To assess the short term financial cost of the Covid-19 pandemic on private dental practice in Sri Lanka through a web-based questionnaire survey. **Methods:** An online web-based, self - administered questionnaire survey was conducted among Sri Lankan dental surgeons. Pre-tested questionnaire was used with close-ended questions, and questionnaire was designed to elicit data on the financial cost on private dental practice in Sri Lanka related to COVID-19 pandemic. **Results:** Response rate was 25%. Male and female responses were almost equal. Most of the respondents were in the 26 to 35 years age group (37.9%). Majority of the participants were only with BDS degree (53.7%). Out of those dental surgeons whose primary occupation was private dental practice, 50% were owners of the practice. Most of the practitioners have opened the practices during latter part of the COVID outbreak but treated a low patient volume. Total volume of patients managed by the majority of the respondents was less than 25% of the routine practice. Majority had an income less than 25% of the income during normal time. Similar number of participants expects/ does not expect the clinics will be back to usual income within another 6- 8 weeks. Interestingly, 55.1% of the participants did not find any financial difficulty due to the effects of Covid- 19 pandemic. Participants' expectation of adjustment of number of patients and the income with their age category were statistically significant. The difference of their expectation for the government to help them according to the age was also statistically significant. Age of the respondents and expectation that the dental practices will be back to normal with normal number of patients and the income was statistically significant. More males have requested the banks to reschedule their loans. **Conclusion:** There are financial implications to the dental surgeons working in the private sector in Sri Lanka.

Keywords: COVID 19; private dental practice; finance cost; dental surgeons

1 INTRODUCTION

The first case of COVID-19 or coronavirus infection was first reported from the wet market of Wuhan, China in December 2019. This infection was caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)⁽¹⁾ causes coronavirus disease 2019 (COVID-19). Even though much attention was not paid at the initial stage, soon it became a serious health problem in Wuhan followed by in China and later moved in many other countries. On 30 January 2020, World Health Organization declared it as a Public Health Emergency of International Concern and then as a pandemic on 11th March 2020.⁽²⁾ By now it has spread all most all countries causing serious health and economic effects. By 20th may 2020, positive cases has suppressed 5

million with over 325,000 deaths worldwide. It is caused by a respiratory virus and primarily spread by small droplets produced by coughing, sneezing, and talking. As the droplets are large and heavy, they usually fall to the ground or onto surfaces soon.

Multiple guidelines were issued by different health organizations⁽³⁾ as well as professional bodies.⁽⁴⁾ Some of them were universal whereas some others were country or diseases specific. All these guidelines have recommended the limiting non-essential dental treatments to the minimum to safeguard the dental health care professionals, patients and public.

COVID-19 pandemic is having an unprecedented impact on society, the economy, and also on the health care sector

including dental sector. Health Policy Institute (HPI) of the American Dental Association's study findings show that the dental economy at a virtual standstill along with several other health care sectors.⁽⁵⁾ According to the findings, over 75% of dental practices in the U.S. are restricted to seeing only emergency patients and around 20% are fully closed. The vast majority of the respondent dentists claim that their daily income is less than 5% of what is typical.⁽⁵⁾ Economic modeling done by Nasseh and Vujcic (2020)⁽⁶⁾ predicts that U.S. dental care spending could decline by up to 66% in 2020 and 32 percent in 2021. Such predictions and modelling will help in preparation for the future challenges.

In Sri Lanka, most of the dental surgeons are employed by the Ministry of health. In addition, there are some who are employed in the university or armed forces and police. Majority of them are engaged in part time private practice. There are some dental surgeons especially in the urban areas who are engaged in full time private practice. Covid- 19 pandemic has forced most of the dental clinics to be closed either fully or partially. Lockdowns have created difficulties in not only patient movements but also health care workers movements as well as movements of essential medical supplies. Most of the dental clinics were forced to close down due to these reasons and has created severe hardships and economical losses to the dental surgeons. In addition, they have to bear additional costs to provide necessary protection to themselves, their staff and patients.⁽⁷⁾

In March, health authorities not only in Sri Lanka but also in most of the countries recommended that dental clinics immediately stop seeing patients, except for emergency dental treatment. The resulting closures of dental surgeries led to unprecedented revenue loss or declines for the dental surgeons who were operating private practices. With the improvement of the situation, better understanding on prevention and availability of resources to minimize the spread of infection in dental clinics, number of patients will increase but people may only get their chief complaint treated, especially those with pain. The patients may postpone their elective treatments like replacement, implant, bleaching, etc. It is important to remember that unlike many other businesses, much of this is a deferral of revenue, not the complete loss of revenue as most of the patients may come back later for the dental treatment and even some of them may have to opt for advanced and expensive procedures due to delay in getting simple restorative or preventive treatments.

In addition, dental surgeons may have been able to reduce most, but not all, costs including salaries for the supporting staff, rent, material costs, utility bills, lab costs and taxes. Unlike many other small businesses, most dental practice owners have sufficient funds/ assets to withstand business interruptions for longer periods. Some of them may not have that luxury and may be in the need for a government support programs.

Covid-19 pandemic will have a greater effect on the world economy. Most of the countries have experiencing recession in the economy and expected the effect to last for years. This can have effect on the patient's ability for out of the pocket expenditure for the dental treatment which can result in a revenue loss for the dental surgeons in long run which needs prediction by economic modelling and assessing.

Short term as well as longer term economic impact on dentistry has not been assessed in Sri Lanka and it is important to analyze it for policy making, providing financial assistance, granting concessions and plan for the future to avoid such situations in the future. Therefore, we conducted a survey among dental professionals in Sri Lanka with the aims of assessing the financial cost of the Covid-19 pandemic on dental practice in Sri Lanka

2 MATERIALS AND METHODS

A survey was carried out among dental surgeons and dental specialists practicing in government and/or private settings in Sri Lanka. Survey was conducted as a web based online survey and all the dental specialists and dental surgeons who practice dentistry in Sri Lanka with access to the World Wide Web were included in the study. Self-administered pre-tested online questionnaire by Google form was used in the study. Developed and pre tested questionnaire was converted in to a Google form. Survey link was disseminated as a Uniform Resource Locator (URL) or web address among dental specialists and dental surgeons via social media, email, social media groups etc.

The questionnaire used in this study comprises 27 close-ended questions. The questionnaire consists of demographic data and specific questions on knowledge and practices. A cover letter was included with the questionnaire, which described the study in detail. Instructions were given to complete the questionnaire and the confidentiality and anonymity of the data provided were assured. The questionnaire was first pre-tested among a small group of dental surgeons to ensure clarity of interpretation and ease of completion by the participants. The data management and statistical analysis was performed using the statistical software SPSS version 21.0. Frequencies and percentages were obtained for categorical data, and Chi-square test was used to determine the association between variables.

Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Dental Sciences, University of Peradeniya.

3 RESULTS

Majority out of 272 participants were between age of 26 to 35 years (37.9%) followed by age group pf 36 to 45 years. (27.2%) Females and males were almost similar in the study population. (51.5% females) Majority of the participants were only with BDS degree. (53.7%) There were 26.1%

with BDS and Diploma in hospital dental practice and 20.2% were with a postgraduate degree. One third of the study population were with 5 years or less in dental service. Number of participants with 6- 10 years, 11- 15 years, 15- 20 years and more than 20 years were almost similar. Majority of the participants' primary employment was in Colombo district. (28.3%) followed by Kandy. (25.8%)

37.5% of the population were employees of Ministry of Health, 12.5% were academics attached to University and the majority 49.6% were private practitioners.

Out of those dental surgeons whose primary occupation was private practice, half were owners of the practice. Majority of the private practitioners have opened the practices during latter part of the COVID outbreak but treated a low patient volume than normal.

Although 166 participants had attended to the patients at the private practice between 16th March to 26th April, majority of 70 (25.7%) had worked less than 5 days during the specific period.

Majority have indicated that total volume of patients was less than 25% of the routine practice. (23.2%) When the income was considered, majority responded as it was less than 25% of the income during normal time.

Majority of the participants had paid their attention to the working staff in the practice by paying full monthly salary to them. (41.2%) Most of the participants indicated that they had to bear additional expenses in order to provide Covid-19 protection to his/ her staff and the patients attending the private practice. (54.4%) Equal number of participants had mentioned that the percentage of additional expenses they spent on Covid - 19 protection was between 26-50% of normal and less than 25% of normal of the expenses per month. 30.5% of participants had decided to partially charge this additional cost for the Covid protection from the patients and 27.9% had opted for not to obtain this additional cost from the patients. 36.8% of the participants do have other means of income than private dental practice. 35.3% of the participants expected that the number of patients attending private dental clinics would be back to normal within another 6- 8 weeks.

Similar number of participants expects/ does not expect the clinics will be back to usual income within another 6- 8 weeks. 55.1% of the participants did not find any financial difficulty due to the effects of Covid- 19 pandemic.

64.3% of the participants have not received any financial support such as delay in paying bank loans or bills. However, 73.2% did not expect any support from the government of Sri Lanka. A similar percentage of participants has not requested their banks to reschedule their loans as a means of support.

Participants' expectation of adjustment of number of patients and the income of dental practices were assessed in relation to their age category. The results were statistically significant. ($p < 0.05$) The difference of their expectation for the government of Sri Lanka to help them to accord to the

age was also statistically significant.

Association between gender of the participants with the questions asked in the study were assessed. Their expectation that the dental practices will be back to normal when the number of patients and the total income are considered was statistically significant. More males have requested the banks to reschedule their loans and the results were statistically significant. ($p = 0.0002$)

When the results were analyzed for associations between number of years of service in the dental practice with the questions asked in the study, it was revealed that the participants' expectation of clinic function becoming normal within next 6- 8 weeks was statistically significant. More dental respondents with higher service have not expected any support from the government nor requested to reschedule bank loans and the results were statistically significant.

Twenty one (out of 77) from Colombo and 17 (out of 63) from Kandy have indicated that their income during Covid pandemic period was less than 25% of the usual income of the dental practice. Only 28 out of 77 dentists from Colombo and 18 out of 63 from Kandy have received some financial support such as delay in paying loans. However, 21 out of 77 from Colombo and 9 out of 63 did not expect any financial support from the government of Sri Lanka. Furthermore, only 16 from Colombo and 5 from Kandy have requested their banks to re schedule the repayment of loans during this period. However, we could not evaluate associations between district of practice with condition of dental practice as most of the districts except Kandy and Colombo did not have sufficient sample to represent the region. However, the sample consisted of dental surgeons from all districts across the country.

When the analysis was done by considering association between nature (owners of the practice or locum practice) of full time general dental practitioners with the response to questions, difference in their response to condition of dental practice this week was statistically significant. (Table 1)

Presence of any other income than dental practice was compared with the response to some questions in the questionnaire.

Participants were categorized as with fixed salary only, private practice only and fixed salary with part-time private practice. Association between them and the response to questions were assessed. Respondents with fixed salary only and fixed salary with private practice have not expected financial support from the government not requested the banks to reschedule their loans. ($p < 0.05$) (Table 2)

4 DISCUSSION

Sri Lanka is a lower middle income country with a per capita GDP of USD 3853. Sri Lanka has a strong tax funded free at point of delivery government health system. It is well supplemented by a fast growing private health sector.

Though Sri Lanka spends little on health, (USD 153 Per capita on health) its health achievements as shown by low infant mortality rate and maternal mortality rate are remarkable. Sri Lanka is considered as a role model globally considering its high health achievement for low spending. Sri Lanka's acclaimed publicly financed and delivered "free" healthcare system is widely acknowledged as a critical factor underlying its health achievements.⁽⁸⁾

In Sri Lanka, state sector employed dental surgeons are allowed to engage in private dental care provision after hospital working hours. According to De Silva et al in 2010, nearly 70% of State sector employed dental surgeons opt for this privilege and work in the private sector as part time dental health care providers.⁽⁹⁾

When a sectoral analysis is considered near to 95% of total in- ward patient care is provided by the government sector. However, nearly 55% of the outpatient care is provided by the Private sector.⁽¹⁰⁾ As the country's health insurance penetration is around 7%, (National Health Account of Sri Lanka., 2018)⁽¹⁰⁾ vast major of the private health care is financed by out-of-pocket expenditure.

Globally dental health care is provided mainly as an outdoor patient (OPD) treatment and Sri Lanka is no exception. Therefore, it is fair to argue that large portion the dental expenditure in the country comes as out-of-pocket expenditure.

As reported by De Silva et al. in 2010, in the private sector, sole proprietor dental surgeries amount for 95% of the private dental establishments in the country.⁽⁹⁾ Therefore, the owner dental surgeon is fully responsible for all financial matters of the establishment including payment of staff salaries, office rent & rates and utility bills etc. Hence, the full financial impact of COVID-19 pandemic, becomes a direct burden on the owner dental surgeon. However, for those dental surgeons who work in somebody else's dental surgery, (popularly known as locum practice in Sri Lanka) the financial impact of COVID-19 will be limited to reduce earning. As shown by this survey when the earnings drop to around 25% of normal, both owner dental surgeons and locum practitioners fall into financial difficulties, the former more so than the latter. However, none of the parties have requested any financial support from the government or the banks. These facts are significant because it highlights the overall financial status management of dental surgeons. They may not have faced significant financial difficulties either due to the overall family income, support from the family, specially the younger dental surgeons or the savings they had. Most of the dental surgeons are engaged in a government job as well as low-come private practice, therefore they may not have major difficulties due to the fixed salary they received.

Government employed dental surgeons who practice on part-time basis in the private sector, either as surgery owners or as locum practitioners are cushioned from

COVID related financial burden to some degree, due to their monthly government salary. However, most of the respondents did not expect any financial support from the government of Sri Lanka and majority have not requested banks to reschedule their loans. Statistically significant higher number of respondents with fixed salary and fixed salary with private practice shows the financial security they have when compared with full time private practitioners. As a highly possible fact, respondents with higher number of years in dental service did not have much financial difficulty during this difficult period. However, we could not compare the outcome of this study, as no other related peer reviewed article was available on the web search.

In developed countries such as USA, demand for dental care is closely linked with dental insurance coverage which in turn is closely linked to employment. An estimated 70 percent of all dental patients in the U.S. have private dental insurance. With a significant increase in COVID related unemployment projected in the coming months, there is a major risk that demand for dental care will stagnate significantly. One article has predicted that dental practice will have short and long term financial impact in USA in relation to hospital sector, government sector, insurance companies and overhead cost.⁽¹¹⁾ However, with a low health insurance penetration and minimum employer contributed dental health insurance schemes in Sri Lanka, COVID related unemployment will not have a big impact on demand for dental treatment. Nevertheless, unemployment arising due to COVID pandemic will definitely affect the purchasing power and out-of-pocket expenditure on dental treatment. This is bound to affect the income of the private sector dental surgeons in Sri Lanka.

5 CONCLUSION

There are financial implications to the dental surgeons working in the private sector in Sri Lanka due to the impact of COVID pandemic. Eventhough the income of the dental surgeons engaged in private practice has reduced significantly, most of them are managing the financial situation well and do not request support from the government or financial institutions. This survey was done at the early stage of the pandemic where there was a complete lockdown and some uncertainty among health care workers and patents and situation may be different then and now.

Conflict of interest- None

Acknowledgments - We like to thank all the dental surgeons who helped disseminate and respond to the questionnaire during this difficult period.

Table 1: Association of nature of general dental practice to the response to the questions

Variable	Ownership of General practice		P value
	owners	Locum	
Do you expect your clinics to be back to normal with number of patients attending the clinic within next 6-8 weeks?			0.291
Yes	49	45	
no	31	39	
Do you expect your clinics to be back to normal with the total income of the clinic within next 6-8 weeks?			0.557
Yes	31	26	
No	32	34	
May be	15	27	
Do you expect any support from the government of Sri Lanka?			0.313
Yes	26	20	
No	54	64	
Have you requested your Bank to reschedule any of your loans?			0.222
Yes	33	26	
No	47	58	
How does this week compare to what is typical in your practice, in terms of Income?			0.006
Less than 25% of the normal income	33	43	
26- 50%	18	21	
51-75%	12	9	
76- 100%	9	4	
100%	8	7	
Is your dental practice paying staff this week?			0.618
Yes, fully	54	56	
Yes, partially	20	17	
No	6	11	
Do you have to bear additional expenses in providing required Covid-19 protection to the staff and patients?			0.013
Yes	77	69	
No	3	15	
If yes, what is the percentage of additional expenses from your normal expenses per month?			0.833
Less than 25% of the normal income	37	34	
26- 50%	37	30	
51-75%	5	10	
76- 100%	1	0	
100%	0	2	
Do you cover the additional expenses by charging from the patients?			0.961
Yes, Fully	2	1	
Yes, Partially	43	39	
No	35	40	

Table 2: Association between methods of income through dental practice with response to questions

Variable	Which of the following best describes your current primary occupation?			P value
	Fixed salary	Pp only	Fixed +pp	
Do you expect your clinics to be back to normal with number of patients attending the clinic within next 6-8 weeks?				0.000
Yes	2	21	73	
no	100	13	57	
Do you expect your clinics to be back to normal with the total income of the clinic within next 6-8 weeks?				0.000
Yes	1	11	46	
No	0	13	53	
May be	100	10	31	
Do you expect any support from the government of Sri Lanka?				0.038
Yes	25	16	32	
No	77	18	103	
Have you requested your Bank to reschedule any of your loans?				0.000
Yes	13	15	44	
No	89	19	91	

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