

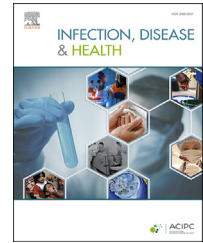


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COVID-19

# “We will have to learn to live with it”: Australian dentists’ experiences during the COVID-19 pandemic

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Qualitative research

**Abstract** *Background:* Australian dentists are among the frontline healthcare workers providing dental and oral health care during the COVID-19 pandemic, and therefore have been affected in multiple ways. In this study, we explore their experiences of practising and living in this pandemic.

*Methods:* A qualitative study analysed responses of 333 Australian dentists’ who participated in a survey with open-ended questions about the challenges and positive outcomes of practising during the COVID-19 pandemic. The questions were embedded in a national online survey of Australian dentists’ knowledge, preparedness and experiences conducted between March and April 2021. Data were analysed using content analysis.

*Results:* Australian dentists reported their challenging experiences to be four-fold, including ‘public health orders and restrictions’, ‘infection prevention and control measures (IPC)’, ‘personal concerns about COVID-19’ and ‘detracting opinions about COVID-19’. Conversely, they reported positive outcomes in relation to their practice during COVID-19, including ‘awareness of and adherence to IPC practices’, ‘teamwork and interpersonal dynamics’, ‘decompressed workload’, ‘perceived support’ and ‘unintended positive outcomes’.

*Conclusion:* The COVID-19 pandemic generated several challenges for Australian dentists, but it also engendered some positive outcomes. Understanding of these can help tailor the profes-

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sional support plans to address the needs and priorities of Australian dentists during the current and future pandemics.

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### Highlights

- COVID-19 pandemic had significant impact on Australian dentists in multiple ways.
  - Restrictive public health measures and lockdowns generated several negative unintended impacts on Australian dentists.
  - Australian dentists reported constructive, beneficial and productive experiential learnings and changes amid the pandemic.
  - Multi-modal support for Australian dentists is essential during the current and future pandemics.
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## Introduction

As of late 2021, there has been more than 240 million cases of COVID-19 and more than 5 million deaths globally [1,2]. The emergence of COVID-19 in Australia during 2020 was quickly followed by a declaration of national human biosecurity emergency across the country [3]. The emergency period started from 18 March 2020, and is currently in place under Australia's Biosecurity Act 2015 [4,5].

Globally, the pandemic has brought multiple challenges to frontline healthcare workers as they navigate through overwhelming workloads and long shifts. Studies have reported that observing illness or death of patients, friends and colleagues, coupled with fear of contracting the virus and transmitting it to family members and others, have contributed to healthcare workers' increased risk of burnout and psychological distress [6–8].

Like other frontline healthcare workers, a major challenge faced by dentists was having to adjust their services and workflows to ensure patient safety and minimise risk of transmission [9–11]. They have introduced various enhanced infection prevention and control (IPC) practices to their workplaces, including triage/screening of patients for COVID-19, regular disinfection of equipment and surfaces, performing hand hygiene, and use of personal protective equipment [12–15]. Studies have reported anxiety amongst dentists regarding the risks of contracting SARS-CoV-2 and passing the infection to household members [9,16,17]. Public health orders restricting gathering and movement, changes to routine practice and cancellation of non-urgent dental care appointments generated significant challenges and concerns amongst dentists about patient care and their financial security [18,19,21,22]. Many, but not all, studies reflect on negative constructs in the experience of frontline healthcare workers practicing during the COVID-19 pandemic [8,23]. Some studies identified and reported the learning experiences and knowledge acquisitions among frontline healthcare workers during the pandemic [24–27]. We previously reported the knowledge, preparedness and experiences of Australian dentists during COVID-19 pandemic [28]. In this paper we report the results of a qualitative analysis of their experiences.

## Methods

### Study design

A cross-sectional study was conducted during March and April 2021 in collaboration with The Australian Dental Association (ADA). The study consisted of an online survey incorporating a set of close- and open-ended questions. This paper reports on the qualitative analysis of the text responses to the open-ended questions.

This study was approved and conducted in accordance with the requirements of the University of Sydney Human Ethics Committee (HREC number 2020/200).

### Setting and population

Practising dentists holding a current ADA membership were invited to participate. At the time the study was conducted, ADA had 11,173 registered practising dentists. Participation was voluntary and based on implied consent upon completing the online survey.

### Instrument development

An online survey was developed on the Research Electronic Data Capture (REDCap™) platform. The survey questions were developed by a panel of experts from dentistry and infection prevention and disease control, adapting instruments used in previous studies of healthcare workers during outbreaks [29–36]. The survey incorporated a total of 39 closed and open-ended questions about knowledge, preparedness and experiences of dentists working during COVID-19. Two open-ended questions asked participants to describe their most significant challenges and positive outcomes associated with their practice during this time.

### Data collection and analysis

A link to the survey was distributed by the ADA secretariat inviting its members to participate in the study. Upon completion of data collection, the survey was closed, and

**Table 1** Dental professionals' demographics characteristics.

Characteristics	N = 333 (%)		
Current state or territory of work:			
New South Wales	90	(27.0)	
Victoria	86	(25.8)	
Queensland	69	(20.7)	
Western Australia	41	(12.3)	
South Australia	31	(9.3)	
Australian Capital	7	(2.1)	
Northern Territory	5	(1.5)	
Tasmania	4	(1.2)	
Member of a COVID-19 planning or response committee <sup>a</sup>			
No			
At local practice level	273	(82.0)	
At hospital level	50	(15.0)	
At health district level	6	(1.8)	
At multiple group practice level	2	(0.6)	
At state level	3	(0.9)	
At national level	2	(0.6)	
At international level	0	(0.0)	
No	0	(0.0)	
Received education, training, or instruction about COVID-19 within organisation			
Yes	202	(60.7)	
No	131	(39.3)	
	Range (y)	Mean (SD)	Median
Years of professional dental practice	1–59	25.4 (12.9)	26

<sup>a</sup> Participants could be member to COVID-19 planning and response committees at multiple levels.

data were exported from REDCap™. Text data were imported into NVivo 12© for management. Conventional content analysis technique was used to analyse the data [37]. The first author performed first round of data coding, grouped comparable codes, and generated the codebook. Team-based discussions about the generated codes led to emergence of the major themes that captured the most significant key constructs in the experiences of dentists during the COVID-19 pandemic.

## Results

Data from 333 respondents were included in the analysis. All the dentists in this cohort reported residing in Australia, with the majority currently working in the states of New South Wales, Victoria and Queensland (Table 1). Respondents reported an average of 25.4 (standard deviation 12.9) years of professional experience.

In accordance with the domains of inquiries in the two open-ended questions, we present the findings in two

groups of 'challenges' and 'positive outcomes. Various themes emerged within each group which captured various aspects of participants' experiences. Table 2 summarises the themes and sub-themes emerged in each category.

## Challenges

Four themes emerged from participants' responses:

### Public health orders and restrictions

The most frequently reported challenge was in relation to issues with public health orders (n = 143/333, 42.9%). The dentists reported that the implementation of public restrictions and preventative measures to manage the outbreak in different states and territories led to several negative consequences.

Restrictions in gathering and movement led to practice disruption and decreased income which contributed to financial distress in some practices. As one Western Australian participant remarked:

*"Ceasing practice, having no income to cover business expenses and staff wages" (Participant from Western Australia)*

The lockdowns resulted in long waiting lists and postponed treatments for patients in need of care. Cancellations and alterations of appointments further disrupted routine patient management, resulting in increased workload when the restrictions were eased:

*"Having to rebook patients after a lockdown/restrictions adds to the workload and stress to squeeze patients left right and centre." (Participant from South Australia)*

Some participants indicated that the stringent travel restrictions and physical distancing measures implemented by state and territory governments undermined their professional education and training activities. A few others pointed out to the reduced face-to-face teaching opportunities, and the pedagogical limitations inherent to the implementation of online education:

*"Inability to travel for continuing education. Zoom meetings just cannot give hands on training." (Participant from Western Australia)*

Likewise, ongoing international border closures and inter-state travel bans restrained some dentists from visiting their family and friends, and interfered with their personal social life:

*"On a personal line, we cannot see our families overseas and help them in anyway" (Participant from Queensland)*

While the participants appreciated the intention of the public health orders (to eliminate and contain the outbreak), some criticised them for being inadequate, inefficient, and lacking in transparency:

*"Ludicrous Government Policy, Lockdowns, curfews, 5km radius restrictions, Restrictions to Work and Gatherings, Churches closing, Online School, Mental health effects of wife, kids and myself" (Participant from Victoria)*

**Table 2** Summary report of categories, themes and sub-themes.

	Themes	Sub-themes
Challenges	Public health orders and restrictions	<ul style="list-style-type: none"> <li>- Practice disruption and financial challenges</li> <li>- Impacts on patient care and management</li> <li>- Compromised professional education and training</li> <li>- Negative impact on social life norms and activities</li> </ul>
	Infection prevention and control measures	<ul style="list-style-type: none"> <li>- Sustainable supply and cost of proper PPE</li> <li>- Inconsistencies in IPC protocols and guidelines</li> <li>- Doubts about precaution measures</li> <li>- Uncertainty about vaccination</li> </ul>
	Personal concerns about COVID-19	<ul style="list-style-type: none"> <li>- Fear of contracting SARS-CoV-2</li> <li>- Concerns about safety of family members</li> <li>- Worried about long term psychological consequences</li> </ul>
	Detracting opinions about COVID-19	<ul style="list-style-type: none"> <li>- Anti-vaxxers and conspiracy theorists</li> <li>- COVID-19 as a 'scamdemic'</li> </ul>
Positive outcomes	Awareness of, and adherence to, IPC practices	<ul style="list-style-type: none"> <li>- Adherence to infection control guidelines</li> <li>- Use of PPE</li> <li>- Refinement of IPC procedures</li> </ul>
	Teamwork and interpersonal dynamics	<ul style="list-style-type: none"> <li>- Increased morale and loyalty</li> <li>- Enhanced collegiality</li> </ul>
	Decompressed workload	<ul style="list-style-type: none"> <li>- Practice processes were streamlined</li> <li>- Skills and expertise were improved</li> <li>- Increased patient education and teaching</li> </ul>
	Perceived support	<ul style="list-style-type: none"> <li>- Support and compliments from patients</li> <li>- JobKeeper and other governmental support</li> <li>- Support from ADA</li> </ul>
	Unintended outcomes	<ul style="list-style-type: none"> <li>- Shift of patients to regional and private practices</li> <li>- Patients seeking dental services more frequently</li> <li>- Increased professional satisfaction</li> </ul>

### Infection prevention and control measures

The second theme captured participants' concerns about appropriate IPC measures (citations: 116/333, 34.8%). Concerns about sustainable supply and cost of proper PPE were expressed by a large group of participants.

*"The cost (and in some cases availability) of PPE is worrying. There should be more local production of for example tie-on surgical masks."* (Participant from Queensland)

Inconsistencies in COVID-19 IPC protocols and practice guidelines between professional organisations and some state governments, coupled with media misinformation and hysteria, led to ambiguity about what constituted as proper IPC measures. In some jurisdictions, directions for contact tracing and referral of patients were described to be *"haphazard, disorganised and confusing"*. The rapid generation of scientific evidence made it harder for peak professional bodies to keep themselves abreast of changing relevant IPC protocols. A Western Australian participant encapsulated some of the main issues about the inconsistency of COVID-19 protocols, and stated that:

*"The ADA guidelines were not always definitively clear, and the use of AND/OR for assessing at risk COVID patients did not appear to be consistent in all of the documentation. Possibly overly complicated. Also, at*

*the start of the pandemic it should have been made abundantly clear that it was ok not to treat patients with suspected COVID when very little about the virus was known, and that patients who required emergency treatment should go to clinics appropriately designed to see such patients and these clinics should have been published to the entire dental community."* (Participant from Western Australia)

Some participants doubted the efficacy and effectiveness of self-isolation and quarantine management. They felt dubious as to whether such measures possess the potential risk of stemming to unwanted community transmission and additional flareups. Complacency from patients and apathy of general public were named as potential contributing factors which undermined these ICP measures, as the following excerpt depicts:

*"The unwillingness for some members of the public to cooperate with government and health authorities in preventing further spread by refusing to follow isolation and other recommended procedures"* (Participant from New South Wales)

Some participants, especially those in rural practices, were concerned that the roll-out of COVID-19 vaccination programs was delayed. While many expressed their intention to receive the COVID-19 vaccine, a few participants

held negative predisposition towards the effectiveness of vaccination measures, questioning if it can provide sufficient long-term immunity and prevent transmission.

*"Are we going to experience continuing mutations like the influenza virus and hence annual/biannual jabs"* (Participant from New South Wales)

### Personal concerns about COVID-19

Personal concerns about COVID-19 and the epidemiologic characteristics of the pandemic emerged as the third significant challenge (citation: 109/333, 32.7%). High risk of transmission and ease of contracting SARS-CoV-2 together with the risk of increasing emergence of variants contributed to a great level of fear and anxiety among participants. For some dentists, ensuring personal safety and that of their family members was the most significant single challenge. The unpredictable nature of the pandemic led to the generation of stress, uncertainty, and pessimism in participants across Australia. Those affected more by extended lockdowns and travel restrictions expressed high levels of exhaustion and concerns about long-term psychological consequences of the pandemic. A South Australian participant indicated the following being a main challenge:

*"Uncertainty about our future, both in terms of health and financially. I feel like my life has hit a big pause button and sometimes I don't know what I'm working towards anymore."* (Participant from South Australia)

### Detracting opinions about COVID-19

For a small group of participants, dealing with detracting opinions about COVID-19 was the biggest challenge (citations 10/333, 3%). These respondents explicitly condemned the increased scepticism and conspiracy theorists among general population. In a notable contrast, there were participants in this study who believed that the COVID-19 was entirely a hoax and described it as a 'scamdemic'.

*"It is so clear (once you have opened your mind) that it is designed to take our freedom. To summarise-COVID is a SCAMDEMIC. The only vaccination anyone needs is a vaccination against the propaganda we are fed, especially from mainstream media."* (Participant from New South Wales)

### Positive outcomes

Despite the negative consequence there were positive experiences and consequences of the COVID-19 in five broad areas, as follows:

#### Awareness of, and adherence to, IPC practices

Increased awareness and adherence to IPC practices was the most frequently reported positive outcome. According to almost one third of participants (citations: 100/333, 30%), the pandemic led to heightened awareness among dentists about the importance of adherence to IPC guidelines, use of PPE, and refinement of IPC-related procedures.

*"Huge wake up call for healthcare improved practices and understanding as a result staff more willing to pay attention to the detail of infection control and invested in protocols to prevent acquiring SARS-CoV-2 and transmission."* (Participant from Queensland)

#### Teamwork and interpersonal dynamics

The second dominant positive outcome reported was improved teamwork and interpersonal dynamics at work (citations: 54/333, 16.2%). The pandemic reportedly increased the cohesiveness and collegiality of the work teams. The cooperative response from staff and support from managers (e.g., head of department, or practice manager) were associated with improved morale and loyalty among dentists. A Western Australian participant outlined her most positive experience being:

*"Observing and experiencing teamwork that has developed out of needing to support each other through a stressful time."* (Participant from Western Australia)

#### Decompressed workload

Many dentists experienced decreased work pressure, specifically during the lockdowns or in relation to other public health orders and restrictions (citations: 45/333, 13.5%). Some dentists treated this as an opportunity to streamline their practice processes (e.g., improve their IPC protocols, implement e-health and telehealth platforms, and enhance their patient management processes), improve their skills and expertise, and spend more on patient education and teaching:

*"Time to assess practice protocols and found that the only extra we needed to provide was a preprocedural mouth rinse. Infection Control standards were already high. time to work on the business."* (Participant from South Australia)

*"As a former ED nurse who worked during the SARS epidemic, I have actually enjoyed working with the Covid risk pts that I see and working at the screening clinics. Working with a different group of people by keeping my skills up."* (Participant from Queensland)

*"[I spent more time on] encouraging and teaching patients about covid and vaccines"* (Participant from Queensland)

#### Perceived support

Three sources of perceived support were noted (citations 43/333, 12.9%), which contributed to help dentists financially, professionally, and mentally during the pandemic. Participants, predominantly from Victoria, described notable support from patients in the form of verbal compliments and appreciations for the care they received during extended lockdowns, and compliance with requested IPC protocols.

*“Our patients are more conscious of their general health and their dental health. They have more flexibility with appointments for dental procedures, and more acceptance of dental treatment recommendations.” (Participant from New South Wales)*

*“Lots of appreciation from patient we were able to see during lockdown” (Participant from Victoria)*

Participants from all states and territories were appreciative of the federal or state government initiatives (e.g., JobKeeper) which financially supported them (especially those in small private practices) during the lockdown and restriction stages.

*“Appreciated Federal govt. direction & support to be able to keep staff going over the times of closure or reduced hours.” (Participant from Queensland)*

Some participants pointed out the professional support and timely communications and updates from ADA towards its members.

*“I rapidly felt very supported by the ADA, seemingly much more so than other professional associations that friends belong to. I found that clear information and the guidelines provided by the ADA” (Participant from Queensland)*

#### Fortuitous outcomes

Lastly, a range of fortuitous outcomes arose following national and state responses (citations 30/333, 9%). The movement and gathering restrictions shifted patients from public health system and city areas towards private practices and regional services, where the waiting time was comparatively shorter:

*“Increase in business due to patients working from home and seeking care in regional shopping precincts not city centre” (Participant from New South Wales)*

Changes to the work patterns and financial dynamics among patients contributed to the shift in patients' service seeking patterns, as the following quotes captured:

*“Patients can't spend their money on overseas travel etc. Jobseeker increase gave some patients the option to visit a private dentist.” (Participant from Tasmania)*

*“Our business is booming with all the free money the government has been giving to customers/patients.” (Participant from New South Wales)*

Patients' anticipation of the limited access to dental services during lockdown led them to seek services for even minor dental issues. This per se accounted for an overall increase in the number of presentations to available dental facilities during lockdowns.

*“The restrictions 12 months ago that caused many practices to close has led to patients being less likely to delay necessary treatment, and more likely to see help*

*for issues when they arise rather than waiting for significant pain.” (Participant from Queensland)*

According to a few participants, helping patients during the services shutdown time led to increased professional satisfaction and boosted their professional moral.

## Discussion

This study reports a broad and in-depth insight into the experiences of Australian dentists during the COVID-19 pandemic. Findings provide a holistic understanding of the main challenges and positive outcomes of practising in the pandemic as reported by this group of frontline healthcare workers.

In most parts, the restrictive public health measures and lockdowns led to significantly negative impacts on Australian dentists. The primary goal of these measures was to mitigate and contain the spread of infection. However, practice closures and the disruption of dental care services generated anxiety and fear of income reduction, and also contributed to disrupt dental care delivery and patient management in some practices. This is consistent with studies in other countries where stringent lockdowns and public health measures led to the reduction in patient volume and practice performances, and therefore tremendous economic implications on dental practices [38]. Furthermore, there remains space to be explored for remote dental consultation during lockdown, including teledentistry. Following the introduction of telehealth items into the Medicare Benefits Scheme by the Australian Federal Government in March 2020, it was reported that 36% of services provided by GPs was delivered via telephone or video-conference in April 2020 [39]. The Australian Dental Association's Guidelines for Teledentistry currently only recommend “remote provision of a consultation to a patient in exceptional circumstances which prevent face to face consultation. It may include the provision of oral health or treatment information and referral.” [40]. However, studies have reported that dentists would consider teledentistry to be useful for their clinical practice and reduce the need for unnecessary face-to-face consultations [41,42]. Another study of Brazilian dentists found that their general knowledge of teledentistry and confidence is using the method to be lacking and would benefit from telehealth training and education if remote dental consultations were to be utilised more frequently [43].

The negative unintended impacts of public health measures on the professional lives of dentists have also been previously reported in studies across the world. A North American study of the impacts of COVID-19 on dentists determined that pausing clinical educational activities undermined the hands-on learning experiences and generated additional hardships, especially for dental students and those whose professional life and career were gravely influenced by suspension of trainings and examination [44].

The transmissibility of SARS-CoV-2 has resulted in a growing global demand for provision of proper PPE to ensure safety of healthcare workers. In earlier stages of the pandemic, critical supply chain disruptions led to many healthcare systems being unable to provide adequate PPE

to frontline healthcare workers. Like many other healthcare workers from around the world [7,45,46], Australian dentists were concerned about the shortage of PPE and the increasing costs of sustaining their PPE supply during the pandemic. Furthermore, the fast pace of changes and updates to IPC guidelines and protocols generated additional ambiguity, confusion, and questions about the effectiveness and efficiency of some of the IPC measures, such as quarantine policies, self-isolation orders, and/or contact tracing. Some Australian dentists perceived inconsistencies between ADA's IPC guidelines and the state government's orders. Such findings have also been reported in our previous studies of other frontline healthcare workers in Australia, where clinicians reflected on their hardships of catching up with the most updated guidelines and protocols [24–27]. Findings from an international, multi-site study reported that there was a lack of preparedness and/or confidence from general dentists with regard to implementation of infection prevention and control measures, and providing services to patients with confirmed/suspected COVID-19 [47].

The psychological impacts of the pandemic on Australian dentists attributed to a constellation of financial, professional, and social factors. Uncertainties about the trajectory of the pandemic, concerns about long-term impacts on dental practices and personal concerns about contracting SARS-CoV-2 or transmitting it to others were among the key concerns reported in this cohort. These findings agree, in most parts, with other studies of other frontline healthcare workers in Australia [24–27] and dentists elsewhere [7,16,46], in which high levels of emotional disturbance, stigmatisation and fear of contagion and infecting family members are reported in relation to the COVID -19 pandemic. Our findings further highlight the necessity of implementing financial and psychological support services for dentists and other frontline healthcare workers.

Despite the challenges reported, there were several experiential learnings and changes that were mainly described by Australian dentists as being constructive, beneficial, and productive in various professional means. Several processes and practice modifications (such as implementing stringent IPC measures and changes to the appointment processes) that were borne out by the Australian response plan to the pandemic enhanced the teamwork, morale and collegiality among the dentists in our study. The pandemic has also provided the opportunity for specialist groups, including endodontists, to develop guidelines and recommendations to decrease risk of transmission [48]. Other studies of dentists have reported similar findings, suggesting that the practice disruption and the resultant time off created opportunities for mental refreshment, further development of skills and advancing professional knowledge [44].

Our findings highlighted the importance of providing multi-modal support of the healthcare workers during the pandemic. The Australian government's financial subsidy scheme, JobKeeper, has provided financial assistance to businesses, including dental practices. As reported by our participants, this scheme has helped, to a certain extent, buffer the economic impact on the pandemic on their business. The role of dental institutions and professional societies in offering of professional and knowledge-based

support of dentists during the COVID-19 has previously been pointed out. Provision of online resources, seminars and trainings have been reported as some of the professional support measures that can promote professional collaboration and help dentists uphold their care and move their practice forward during the tumultuous time of the current pandemic [44].

Findings from this study broadens our insight into the significant challenges and positive outcomes of practising dentistry during a global pandemic in Australia. To the best of our knowledge, this study is the first to examine the challenges and positive outcomes experienced by Australian dentists during COVID-19. These compliment findings reported elsewhere regarding the self-reported knowledge, preparedness and experiences of this group of frontline healthcare workers [28,49–51]. However, the current study has limitations. The voluntary nature of the survey as well as accumulated survey fatigue may have contributed to the relatively low response rate. Due to the design of the survey, we did not collect data during face-to-face interaction with participants, nor did we have the capacity to institute member-checking or follow up interviews. The cross-sectional design of the study and the convenient sampling method employed undermined the transferability of our findings to a national scope and does not capture the experiences of Australian dentists over time.

## Conclusion

COVID-19 pandemic has had an enormous impact on dental practices in Australia and around the world. Understanding the main challenges and positive consequences reported by Australian dentists can help in tailoring national and jurisdictional support plans to help them persevere during the current pandemic. Addressing the challenges reported by this cohort can contribute to galvanise the dental healthcare sector into a better state of preparedness for future pandemics of this scale.

## Ethics

Ethics approval was granted for this study by the University of Sydney's Human Research Ethics Committee (HREC number 2020/200).

## Authorship statement

SN: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Project administration, Manuscript submission. CL: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Writing – review & editing. CS: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Writing – review & editing. KKF: Formal analysis, Investigation, Writing – review & editing. RZS: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing. All authors contributed to the drafting of this manuscript and approved it for submission.



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## Provenance and peer review

Not commissioned; externally peer reviewed.

## Conflict of interest

[RZS - Anonymised] is an [Anonymised] of [Anonymised] but was blinded to this submission in the journal's editorial management system and had no role in the peer review or editorial decision-making. There are no other conflicts of interest declared.

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