ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2021; 7(4): 117-121

www.oraljournal.com
Received: 11-08-2021
Accepted: 15-09-2021

Dr. Romshi Raina
Ex-Registrar, Department of Public Health Dentistry. Government College and Hospital, Shireen Bagh, Srinagar, Jammu and Kashmir, India

Dr. Aasim Farooq Shah
Assistant Professor, Department of Public Health Dentistry. Government College and Hospital, Shireen Bagh, Srinagar, Jammu and Kashmir, India

Corresponding Author:
Dr. Romshi Raina
Ex-Registrar, Department of Public Health Dentistry. Government College and Hospital, Shireen Bagh, Srinagar, Jammu and Kashmir, India

Assessing knowledge, practices and apprehensions among dental practitioners regarding the covid-19 pandemic in Kashmir region: A cross-sectional study

Dr. Romshi Raina and Dr. Aasim Farooq Shah

DOI: https://doi.org/10.22271/oral.2021.v7.i4b.1404

Abstract
Background: The coronavirus disease 2019 (COVID-19) pandemic has affected the health-care system drastically, including dental care practice. Owing to specific characteristics of dental care such as aerosol generation as well as close proximity to patients, dentistry is thought to be associated with the bidirectional nosocomial spread of infection. The aim of the study was to assess the knowledge, practices and apprehensions among dental practitioners regarding the COVID-2019 pandemic.
Methods: An online cross-sectional questionnaire-based survey was conducted among the dentist using a combination of convenience and snowball sampling. The data was subjected to the Chi – Square test, multivariate linear regression, and Pearson's correlation test.
Results: Almost all the dentists had heard about the coronavirus and around. 96.9% of dentist reported respiratory hygiene, social distancing, and hand hygiene as the main preventive measures for stopping the cross – transmission of infection. Oral prophylaxis (7%) and bone cutting (7%) were reported as the dental procedures that generate aerosol/micro-droplets. Only 37% of the dentists were practicing since the outbreak of COVID -19. As many as 40.2% of the dentists admitted to including the travel history while recording the case history of the patient, whereas only 20.5% screened the patients for possibility of COVID – 19 at their clinic. 18.9% were apprehensive in treating COVID -19 patients. The multiple linear regression model revealed that qualification and work experience were significant predictors of knowledge, practice and apprehension among dentists.
Conclusions: Dentists were found to have an overall good knowledge and practice, which is important to combat COVID-19. Furthermore, a certain level of apprehension toward suspected COVID-19 patients existed. Pandemic-awareness campaigns are essential among healthcare providers.

Keywords: dentists, COVID-19, pandemic, aerosol infections, oral health

Introduction
On January 8, 2020, a novel coronavirus was officially announced as the causative pathogen of COVID-19 by the Chinese Centre for Disease Control and Prevention [1]. On January 30, 2020, the World Health Organization (WHO) announced COVID -19 as a public health emergency of international concern [2].
The definition of coronavirus includes a range of respiratory viruses, which can present with mild to severe manifestations and lead to respiratory failure. The name recalls the microscopic appearance of the virus, characterized by the presence of pointed structures on the surface, resembling a crown [3].
The most frightening pandemic the world has faced in over a century poses a great threat to health-care workers, particularly dental health professionals due to the exposure to saliva, blood, and aerosol/droplet production during the majority of dental procedures [3-5]. Moreover, the risk of bidirectional spread of infection between patient and dental care providers makes it critical to take additional precautionary measures to mitigate the spread of COVID-19. It is essential to understand that the guidelines for providing dental treatment during the COVID-19 pandemic.
With this background, the aim of the present research was to assess the knowledge, practice and apprehensions of dentists in Kashmir region of UT J&K regarding SARS-CoV-2 and

investigate the potential gaps in knowledge that may affect health and safety in the dental workplace.

Methodology

Study design and population

An online cross – sectional survey was conducted among the registered dentist of Kashmir division of UT J&K. The study included 127 dentists performing clinical practice in various settings belonging to different parts of Kashmir. Most of the participants had a postgraduate qualification and specialists in their field of clinical work while few were general dentists. Before commencing the study, Ethical clearance was obtained from the institutional review board of Government Dental College and Hospital Srinagar, J&K. The study duration was from March 2020 to April 2020, and both convenience sampling (researchers themselves contacted dentists to participate in the study) and snowball sampling (the participating dentists were asked to forward the questionnaire to their colleagues) were used so that maximal participation could be ensured.

Questionnaire

A pretested self-administered closed ended questionnaire with 45 questions was distributed via Google Forms to the E-mails/Social Media Platforms to the dental health professionals. The questionnaire was sent to approximately 200 consultants, but unfortunately, only 127 responded even after repeated reminders. After collecting the filled questionnaires, participants were given instructions about COVID-19 related to precautions; contamination etc. and all their doubts were cleared. Survey questions were aimed to assess the knowledge (14) practices (13) and apprehensions (11) of dentists regarding COVID19. The survey was constructed based on the latest literature resources about the characteristics and routes of transmission of SARS-CoV-2 and the signs and symptoms and prevention methods of COVID-19 [6, 7]. A pilot study was done on 25 dentists to validate the questionnaire and its Cronbach's alpha (α) was found to be 0.79.

Statistical analysis

SPSS-20.0 was used for statistical data analysis (IBM Corp. Released 2011. IBM SPSS Statistics for Macintosh, Version 20.0. Armonk, NY, USA: IBM Corp.). The results of all categorical variables are presented in terms of frequencies and percentages. The chi-square test was performed to compare the factors between gender, work sectors, work settings, and professionals. Pearson's correlation and multivariate linear regression was used to identify any relationship between knowledge, practice, and apprehension levels of participants. A p -value ≤ 0.05 was considered as statistically significant.

Results

Sociodemographic characteristics

More than half of the participants were female, accounting for 59.8% of the study sample, while males accounted for 40.2%. Half of the participants were below 30 years (66.9%), 18.1% were below 40 years, 12.6% were Below 50 years, and only 2.471% below 60 years. Most dentists had a degree of BDS (Bachelor of Dental Surgery) (70.1%), followed by MDS (Master of Dental Science) (29.9%). The majority of them (61.4%) had an experience period of below 5 years and 66.9% were working in a government set up (Table 1).

Primary source of information regarding COVID-19

The source of information regarding COVID-19 was primarily the Internet (69.3%), followed by television (17.3%), government resources (12.6%) and newspapers (0.8%) (Table 2).

Knowledge regarding COVID-19

Almost all the dentists had heard about the coronavirus and around 95.3% knew about its symptoms. 85.8% were aware of the routes of transmission of the infection. A total of 96.9% of the dentists could identify the people at higher risk of contracting the virus. 96.9% of dentist reported respiratory hygiene, social distancing, and hand hygiene as the main preventive measures for stopping the cross – transmission of infection. Oral prophylaxis (7%) and bone cutting (7%) were reported as the dental procedures that generate aerosol/micro-droplets. 73.2% reported backflow in saliva evacuators pose a potential source of cross – contamination (Table 2).

Practices regarding COVID-19

Only 37% of the dentists were practicing since the outbreak of COVID -19. Standard preventive measures were followed by 51.2% dentist. As many as 40.2% of the dentists admitted to including the travel history while recording the case history of the patient, whereas only 20.5% screened the patients for possibility of COVID – 19 at their clinic. 61.4% dentist were aware of the standard donning and doffing off procedures however, only 33.1% had separate designated areas for it. Majority (70.1%) dentist avoided taking radiographs, extra-oral radiographs were preferred by 27.6 while as only 2.4% preferred intra- oral radiographs. 60.6% contacted the nearest health centre in event of contact with suspected COVID -19 patients. Prophylactic Hydrochloroquinine was taken by 3.1% dentist (Table 2).

Apprehensions regarding COVID -19

Majority of dentist (85.8%) were worried of contracting COVID-19 while treating the- patients and transmitting to their family members (89%). 80.3% dentist are worried to re - open their practice. Financial implications posed by COVID - 19 were worrisome for 71.7% of dentist. 44.1% participants were worried about the decrease in the number of patients. 18.9% were apprehensive in treating COVID -19 patients (Table 2).

Relationship between knowledge, practice and apprehension among

A positive, linear strength of association (r: +0.121) was found between knowledge and practice; Knowledge and apprehension (r:+0.538); practice and apprehensions (r:+0.289) using Pearson's correlation coefficient (Table 3).

Association between demographic variables and knowledge, practice, apprehension among dentist

The multiple linear regression model to analyse the knowledge, practice, and apprehension among dentist in relation to demographic variables revealed that knowledge was significantly associated with qualifications (p = 0.02) and the work experience (p = 0.05); whereas practice was significantly associated with qualifications only (p = 0.03). Apprehension was associated with qualification (p =0.01) and work experience significantly (p=0.01) (Table 4).

Discussion

The transmission of COVID-19 poses a risk for people who come in close contact with an infected individual and the risk is greater among those who are in close proximity to or work near the patient, i.e., relatives and healthcare workers. The distance between the working field and the dentist is approx. 35–40 cm, and certain procedures can be very time-consuming, which puts both dentist and patients at a higher risk of contracting COVID-19 [4, 8] Thus, this survey was conducted to assess the degree of knowledge, practice, and awareness of dental professionals. The results of this study show that all the respondents were aware of the COVID -19 and majority (85.8%) were aware of the routes of infection transmission. 96.9% were aware of the transmission based preventive approach i.e, social distancing, respiratory and hand hygiene. Similar results were echoed in studies conducted by Sahin SY *et al*, Izna *et al* and Kamate SK *et al*. [9-11] This may be because Government health authorities have utilized all media outlets toward a community-wide awareness campaign covering the pandemic, which had hand-soap cleaning and wearing a mask the most shared preventive methods promoted. The present study showed that the majority of the participants (95.3%) identified fever, coughing, and shortness of breath as the most common symptoms related to COVID- 19 which indicated a high degree of knowledge pertinent to this disease. This is an intuitive finding considering that fever screenings have been increasingly prevalent at establishment entrances throughout the pandemic.

89% participants were aware that oral prophylaxis, bone cutting, and implants would generate more aerosols compared to other dental procedures. Alarmingly only 51.2% of the respondents follow complete infection control protocol in carrying out their clinical work. This clearly emphasizes the gap in between knowledge and practice among the dentists. This needs to be addressed on a high priority basis through workshops, seminars and discussions. On the contrary a higher percentage of dentist followed complete infection control measures as reported by Shahin SY *et al*, Peng X *et al*, Kamate SK *et al* and Izna *et al* 2021 [9-12].

In developing countries like India, purchasing extra PPE (gowns, gloves, etc.) and the cost of the fumigation/sterilizing of the dental clinic can impact the dental clinician financially; hence, incorporating the travel history can help significantly reduce the transmission as well as the burden of the disease. International travelling has sharply increased over the past few years due to declining air fares, easy accessibility, flexible timings, and an increasing number
of airports, which in turn is contributing to traveller - associated infections (especially respiratory infections) [13]. In the present study, however, only 40.2% of the dentists reported including the travel history while recording the case history of the patient. In contrast, Kamate SK *et al* reported 96.2% dentist included travel history in case recording [11].

18.9% of respondents, were reluctant to treat a patient under suspicion of having COVID-19, which indicated a certain level of apprehension. This is thought to be due to the general guidelines conveyed to caregivers by local authorities, that is, to limit dental procedures to urgent or emergency cases only and refrain from elective procedures. This implies the presence of a gap in knowledge regarding preventive measures among the dental team.

The primary source or information among the dentists was the Internet (69.3%) which is in agreement with the results obtained by Gupta *et al*., who reported that during the ZIKV pandemic, most of the knowledge gained by the dentists in the Tricity area in India, had its source in the Internet (37.8%) and Kamate SK *et al* (37.7%) [11, 14]. During the development of a new strain of an infectious agent, there might not be enough data available in scholarly journals and/or textbooks, and hence, dentists might access trusted sites like the ones of the Centers of Disease Control and Prevention (CDC), WHO or the websites of health ministries of their respective countries for information. The use of the Internet, however, is dependent on various factors like personal preferences, internet availability, type of device, speed, cost, etc.

It was observed that the dentists with higher qualifications (postgraduates) and work experience reported better and significant knowledge, practice and less apprehension as compared to graduates. Similar results were reported by Kamate SK *et al*. [11] Various authors have documented similar findings during the ZIKA and Ebola hemorrhagic fever pandemics [14-16]. The possible explanation might be that postgraduate studies involved in performing some kind of research (thesis) and updating the dentist's knowledge based on recent guidelines and evidence-based practice. Contrary to our findings, Harapan *et al*. reported that general practitioners had a higher OR of having a good knowledge as compared to specialist doctors [17]. This can be attributed to global disparities in the dental curriculum and attitudes of the dental faculty authorities toward motivation, encouragement, involvement, and providing assistance to undergraduates in any kind of research projects.

To the best of our knowledge, this is the first representative survey to provide insight into the knowledge, practice and apprehensions related to COVID -19 among dentists in Kashmir. The study is prone to some limitations, one of them being the social desirability bias. In order to eliminate it, we did not ask for any personal information and assured he participants as to the confidentiality of their data. Secondly, due to the cross-sectional nature of the study and the employed sampling technique, the self-selection bias on the side of the respondents could have occurred. In addition, with the high volume of information influx from media outlets in combination with a higher-than-average viewership due to curfews and lockdowns, the status quo of general perceptions may shift on a weekly or even daily basis, rendering this survey limited to a specific snapshot of time. Further studies comparing knowledge at every stage of the pandemic are recommended.

Table 1: Sociodemographic characteristics of the study population

Variables		n (%)
Gender	Male	51 (40.2)
	Female	76 (59.8)
Age	Below 30 years	85 (66.9)
	Below 40 years	23 (18.1)
	Below 50 years	16 (12.6)
	Below 60 years	3 (2.4)
Highest Qualification	BDS	89 (70.1)
	MDS	38 (29.9)
Years in Dental Practice	Below 5 years	78 (61.4)
	6-15 years	38 (29.9)
	16-25 years	9 (7.1)
	26-35 years	2 (1.6)
	36-45 years	----
	46 above	----
Work Setting	Government	85 (66.9)
	Private	42 (33.1)
Place of work	Rural	31 (24.4)
	Urban	96 (75.6)

Table 2: Distribution of questionnaire responses

Domain	Characteristics		Responses n (%)
Knowledge	Heard about Corona Virus		127 (100%)
	Know how it is transmitted		126 (99.2%)
	Route of transmission	Nasopharyngeal secretions/Saliva	12 (9.4%)
		Person to Person	6 (4.7%)
		Fomites	----
		All of the above	109 (85.8%)
	Higher risk of contracting Corona Virus	Elderly people	2 (1.6%)
		People with underlying health disorders	----
		Immunocompromised people	6 (4.7%)
		All of the above	11 9 (93.7%)
	Aware about designated containment zones in Kashmir		108 (85.0%)
	Symptoms of COVID -19	Cough	2 (1.6%)
		Fever	1 (0.8%)
		Sore throat	1 (0.8%)
		Severe respiratory distress	2 (1.6%)
		All of the above	121 (95.3%)
	Awareness regarding investigations required for COVID -19		115 (90.6%)
	Preventive measures	Respiratory Hygiene	------
		Social Distancing	4 (3.1%)
		Hand Hygiene	-----
		All of the above	123 (96.9%)
	Viability of Coronavirus on various surfaces		118 (92.9%)
	Dental emergencies	Uncontrolled bleeding	2 (1.6%)
		Cellulitis	2 (1.6%)
		Dentofacial trauma	4 (3.1%)
		All of the above	123 (93.7%)
	Dental armamentarium generating aerosols/micro-droplets	Hand piece/ Air- rotor	10 (7.9%)
		Ultrasonic Scalers	4 (3.1%)
		3 – in -1 syringe	----
		High Suction	1 (0.8%)
		All of the above	112 (88.2%)
	Dental Procedures generating aerosols/micro-droplets	Oral Prophylaxis	7 (5.5%)
		Bone Cutting	7 (5.5%)
		Implants	-----
		All of the above	113 (89.0%)
	Backflow in saliva evacuators pose a potential source of cross -contamination		93 (73.2%)
Practice	Have you been practicing		7 (37%)
	Are you following standard preventive measures		65 (51.2%)
	Are you following transmission based preventive measures		44 (38.6%)
	Do you screen patients visiting your facility		26 (20.5%)
	Do you record travel history		51 (40.2%)
	Aware about standard donning and doffing off procedures		78 (61.4%)
	Separate donning and doffing off designated areas at your Institute/clinic		42 (33.1%)
	Allow attendants in the clinical area		8 (6.3%)
	Radiographs preferred in COVID -19 suspects	Intra-oral	3 (2.4%)
		Extra-oral	35 (27.6%)
		Avoid any	89 (70.1%)
	Use of high volume saliva evacuators		19 (15.0%)
	Course of action in event of contact with COVID-19 suspect	Contact nearest health centre	77 (60.6%)
		Contact nearest quarantine facility	15 (11.8%)
		Contact nearest police station	3 (2.4%)
		Advise patient for self -quarantine	11 (8.7%)
		Go in self-quarantine	11 (8.7%)
		None of the above	10 (7.9%)
	Prophylactic consumption of Hydrochloroquinine drug		4 (3.1%)
Apprehensions	Worried about contracting COVID -19		109 (85.8%)
	Worried about transmitting Corona Virus to your family		113 (89.0%)
	Apprehensive to re –open your dental practice		102 (80.3%)
	Increase in consultation fee to accommodate PPE expenses		53 (41.7%)
	Scheduling of patients to maintain social distancing	1-10	78 (61.4%)
		11-20	4 (3.1%)
		21-30	---
		31 above	----
		Will not schedule	45 (35.4%)
	Concerned about decrease in number of patients		56 (44.1%)
	Anxious about the financial implications posed by COVID -19		91 (71.7%)

	Health insurance coverage provided to health professionals does not include dentist. Does this concern you		117 (92.1%)
	Apprehensive to perform treatment on a known COVID-19 patient or his/her family members		24 (18.9%)
	Should patients give in writing that they are free of COVID -19/not being quarantined in past 30 days		119 (93.7%)
	Worried about the future of dentistry due to COVID -19		89 (70.1%)
	Primary source of information	Newspaper	1 (0.8%)
		Television	22 (17.3%)
		Internet	88 (69.3%)
		Government Resources	16 (12.6%)

COVID-19 – Coronavirus Disease 2019; PPE – personal protective equipment

Table 3: Correlation between knowledge, practice and apprehension using Pearson's correlation test

Relationship between	Pearson's coefficient of correlation	*p*-value
Knowledge Practice	+0.121	0.71
Knowledge Apprehension	+0.538	0.09
Apprehension Practice	+0.289	0.39

* Statistically significant ($p < 0.05$).

Table 4: Association between demographic variables and the participants' knowledge and practice scores using the multivariate linear regression analysis

	Predictor	Coefficient	p Value
Knowledge	Qualifications	2.13	0.02*
	Work Experience	1.10	0.05*
	Gender	3.13	0.70
	Work Setting	0.24	0.30
	Location	2.32	0.55
Practice	Qualifications	1.23	0.03*
	Work Experience	-0.04	046
	Gender	0.23	0.58
	Work Setting	0.01	0.73
	Location	−6.88	0.83
Apprehension	Qualifications	0.23	0.00*
	Work Experience	-0.19	0.01*
	Gender	0.05	0.34
	Work Setting	-0.02	0.64
	Location	0.01	0.74

* Statistically significant ($p < 0.05$).

Conclusion

In the present study, dentists were found to have an overall good knowledge and practice, which is important to combat COVID-19. Furthermore, a certain level of apprehension toward suspected COVID-19 patients existed.

Dentists should appropriately use the social media to spread awareness among people, and in their clinical practice, they should screen, isolate and refer the potential cases having the symptoms of COVID-19. They are also advised to follow the CDC and WHO guidelines in their clinics and sensitize their staff so that no stone is left unturned in defeating this pandemic.

References

1. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, *et al*. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med 2020;382:1199-207.
2. Mahase E. China coronavirus: WHO declares international emergency as death toll exceeds 200. BMJ. 368:m408.
3. Yang Y, Peng F, Wang R, Guan K, Jiang T, Xu G, *et al*. The deadly coronaviruses: the 2003 SARS pandemic and the 2020 novel coronavirus epidemic in China J Autoimmun. 2020;111:102487.
4. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. J Dent Res. 2020;99(5):481-487.
5. Li ZY, Meng LY. Prevention and control of new coronavirus infection in department of stomatology. Zhonghua Kou Qiang Yi Xue Za Zhi.2020; 55(0):E001.
6. WHO Coronavirus disease. 2019. (COVID-19) Situation Report-88. Available from: https ://www.who.int/docs/defau lt-sourc e/coron aviru se/situa tion-repor ts/20200 417-sitre p-88-covid -191b6 cccd9 4f8b4 f2193 77bff 55719 a6ed.pdf?sfvrs n=ebe78 315_6. Accessed on 10 Jan 2020.
7. Ministry of Health and family Welfare (MOHFW) COVID-19 Awareness Guidelines. Available from: https://www.mohfw.gov.in/ Accessed on 10 Jan 2020.
8. Pîrvu C, Pătrașcu I, Pîrvu D, Ionescu C. The dentist's operating posture – ergonomic aspects. J Med Life. 2014;7(2):177-182.
9. Shahin SY, Bugshan AS, Almulhim KS, AlSharief MS, Yousif A *et al*. Knowledge of dentists, dental auxiliaries, and students regarding the COVID-19 pandemic in Saudi Arabia: a cross-sectional survey. BMC Oral Health 2020;20(363):1-8.
10. Izna, Kuntamukkula VKS, Khanna SS, Salokhe O, Tiwari RVC, Tiwari H. Knowledge and Apprehension of Dental Health Professionals Pertaining to COVID in Southern India: A Questionnaire Study. J Pharm Bioallied Sci. 2021;13(1):S448-S451.
11. Kamate SK, Sharma S, Thakar S, *et al*. Assessing Knowledge, Attitudes and Practices of dental practitioners regarding the COVID-19 pandemic: A multinational study. Dent Med Probl. 2020;57(1):11-17.
12. Peng X *et al*. Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci. 2020;12:9.
13. Duong TN, Waldman SE. Importance of a travel history in evaluation of respiratory infections. Curr Emerg Hosp Med Rep. 2016;4(3):141-152.
14. Gupta N, Randhawa RK, Thakar S, Bansal M, Gupta P, Arora V. Knowledge regarding Zika virus infection among dental practitioners of Tricity area (Chandigarh, Panchkula and Mohali), India. Niger Postgrad Med J. 2016;23(1):33-37.
15. Gupta N, Mehta N, Gupta P, Arora V, Setia P. Knowledge regarding Ebola Hemorrhagic Fever among private dental practitioners in Tricity, India: A cross-sectional questionnaire study. Niger Med J. 2015;56(2):138-142.
16. Holakouie-Naieni K, Ahmadvand A, Raza O, *et al*. Assessing the knowledge, attitudes, and practices of students regarding Ebola virus disease outbreak. Iran J Public Health. 2015;44(12):1670-1676.
17. Harapan H, Aletta A, Anwar S, *et al*. Healthcare workers' knowledge towards Zika virus infection in Indonesia: A survey in Aceh. Asian Pac J Trop Med. 2017;10(2):189-194.