

Knowledge, Awareness, Attitude and Skills of Dental Surgeons of Kashmir on COVID-19

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ABSTRACT

Background: The role of dental professionals in preventing the transmission of COVID -19 is critically essential. Aim: This study aimed to evaluate the knowledge, attitude, skills and preparedness of dentists of Kashmir on Covid-19. **Methods:** A cross-sectional survey was carried out in March 2020 on 100 dentists of Srinagar treating the patients daily to assess knowledge, perception, attitude, awareness regarding Covid-19 and various challenges faced as well. The collected data were subjected to statistical analysis in software SPSS (version 20.0) and summarized as frequencies and percentages. Chi-square test or Fisher's exact test was used for comparison of categorical variables and a P-value < 0.05 was considered statistically significant. **Results:** A total of 96 were filled by respondents, amongst which 58 were graduates and 38 were postgraduate dentists. 57.9% of postgraduate dentists were aware of the CDC (Centers for Disease Control and Prevention) guidelines about COVID -19, whereas only 32.8% dental graduates knew about it. 81.3% of the overall dentists screened patients for respiratory symptoms and delayed non-emergencies procedures. **Conclusion:** This survey stresses on the importance of awareness, preparedness, education of dental graduates on latest CDC guidelines and the need of addressing only the emergency dental procedures after taking proper travel history, use of preprocedural mouth rinses, advocating proper hand hygiene instructions and use of appropriate PPE and face shield to prevent the contamination of dental health care professionals and operator.

Keywords: COVID-19, PPE, CDC guidelines

INTRODUCTION

The world has come to a complete standstill with the unprecedented Pandemic pneumonia outbreak called COVID -19. It originated in Wuhan city, Hubei province, on December 8 2019, now engulfing the whole globe. More than a million people have been affected, more than 100,000 people have lost their lives and the numbers are rising exponentially every day.

The novel coronavirus belongs to a family of single-stranded RNA viruses known as Coronaviridae. These include severe acute respiratory syndrome coronavirus (SARS-CoV), first and the Middle East respiratory syndrome coronavirus (MERS-CoV). This is a zoonotic infection that, most probably originated in bats and pangolins, and was later transmitted to humans.

Researchers across the globe are working continuously on transmission routes, treatments, and outcomes of COVID-19. The mode of transmission is through contact and in the form of droplets and the airborne transmission has not been ruled out completely.^[1] First China and now the world is focussed on public outbreak tactics like lockdown, isolation, quarantine, social distancing

and community containment.^[2] On the other hand, people's fear of COVID-19, because of its novel and rapid transmission and change in the strains, making them reluctant to go to public places, including medical and dental hospitals.

The majority of affected patients experience fever and dry cough, while some also have shortness of breath, fatigue, and other atypical symptoms, such as muscle pain, confusion, headache, sore throat, diarrhea, and vomiting.^[3,4] Among patients who underwent chest computed tomography (CT), most showed bilateral pneumonia, with ground-glass opacity and patchy bilateral shadows being the most common patterns.^[4]

Among hospitalized patients in Wuhan, around one-fourth to one-third developed severe complications, such as acute respiratory distress syndrome, arrhythmia, and shock and were therefore transferred to the intensive care unit.^[3,5]

In general, older age and the existence of underlying comorbidities (e.g., diabetes, hypertension, and cardiovascular disease) were associated with poorer prognosis and increased fatalities.^[6-8]

Dentists, especially endodontists, are exposed to tremendous risk of 2019-nCoV infection due to the face-to-face communication and the exposure to saliva, blood, and the aerosol produced by air rotor use. Dental professionals play significant roles in preventing the transmission of 2019-nCoV. Hence strict and effective infection control protocols are urgently needed.

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This survey was carried out to study how aware and prepared the dental professionals of Kashmir are to deliver dental care and prevent cross-contamination while handling a Covid -19 positive patients.

MATERIALS AND METHODS

A cross-sectional study was conducted in mid-March 2020 in Kashmir to assess the awareness, preparedness and attitude of practicing dental surgeons in Kashmir towards delivering dental care amid coronavirus crisis. All the specialized dentists, postgraduates and graduate dentists who

were treating the patients were included in the study. The study was conducted in two phases (survey tool development and data collection) for a period of 3 days through a questionnaire.

After a thorough literature search, a questionnaire of 14 items was designed [Table 1] and 100 questionnaires were distributed amongst the dentists. A 3-point scale was made to analyze the awareness, preparedness, knowledge, skills and attitude of dentists towards delivering dental care amidst the crisis by giving option A as yes, B as No and C as sometimes.

Data collection:

Table 1: The 14 item questionnaire used during the survey

QUESTION	A	B	C
Q1. Do you take proper travel history of the patient?	Yes	No	Sometimes
Q2. Do you enquire about contact with a person having recent travel history to covid affected areas?	Yes	No	Never thought of it
Q3. Do you scrutinize your patients with acute respiratory symptoms and delay there dental appointment?	Yes	No	I never thought of it
Q4. Are you using the recommended face mask and barrier protection equipment like face shields, caps, gloves while handling the patient?	Yes	No	I am unaware
Q5. Do you wear protective eyewear while operating the dental patient?	Yes	No	I don't have one
Q6. Have you read about recent ADA informational handout to dentist based on CDC guidelines?	Yes	No	I don't go into detail
Q7. When did you get your flu vaccination done?	Recently	6 months ago	I can't recall
Q8. Do you ask your patient having a fever history that have you recently participated in gathering, meetings or had close contact with many unacquainted people?	Yes	No	I miss out sometimes
Q9. Do you know about and practice two-before-and -three-after-hand hygiene guideline for infection control to reinforce the compliance of hand washing?	Yes	No	Don't have a clear idea
Q10. Do you prescribe a pre procedural mouth rinse containing oxidative agents like 0.2% povidine before dental procedure?	Yes	No	Seldom
Q11. Do you use a rubber dam isolation to reduce air borne particles?	Yes	No	I don't have one
Q12. Do you use high speed dental handpiece with anti-retraction valves as a preventive measure for cross-infection?	Yes	No	Never heard about it
Q13. Do you follow proper waste management in the dental operator?	Yes	No	Sometimes
Q14. How often do you change your mask?	I change in between patients	I change it if it gets wet during treatment	Once a day

Statistical Methods:

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to the data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Statistical software SPSS (version 20.0) and Microsoft Excel were used to carry out the statistical analysis of data. Categorical variables were summarized as frequencies and percentages. Chi-square test or Fisher's exact test, whichever appropriate, was used for comparison of categorical variables. A P-value of less than 0.05 was considered statistically significant. All P-values were two-tailed.

RESULTS

Out of the hundred questionnaires, 96 were filled by respondents and collected back (58 graduate and 38 postgraduate dentists). The results are illustrated in [Table 2-4]. Graduate dentist inquired more about the travel history, contact history and history

of participation in large gatherings/meetings than the post graduate dentist (72.4%, 51.7%, 86.2% Vs 57.9%, 42.1%, 60.5%) and the difference was statistically significant [Table 2]. 86.2% of dentists and 60.5% of postgraduates took a proper fever history of their patients and enquired whether they had recently participated in the gathering, meetings or had close contact with many unacquainted people [Table 2] and the result was statistically significant $p = 0.005$.

81.3% of the overall dentists screened patients for respiratory symptoms and delayed non-emergencical procedures [Figure 1]. There was a statistically significant difference between the graduate and postgraduate dentists as only 37.9 % graduate dentists said they did not use protective eyewear compared to 84.2 % postgraduates [Table 3]. 57.9% of postgraduate dentists were aware of the CDC guidelines while only 32.8% of graduate dentists knew about it and the difference was statistically significant ($p=0.005$) [Table 3].

Table 2: ?

Question	Response	Undergraduate	Postgraduate	Total	P-value
Q1	Yes	42 (72.4)	22 (57.9)	64 (66.7)	0.248
	No	12 (20.7)	10 (26.3)	22 (22.9)	
	Sometimes	4 (6.9)	6 (15.8)	10 (10.4)	
Q2	Yes	30 (51.7)	16 (42.1)	46 (47.9)	0.014*
	No	20 (34.5)	22 (57.9)	42 (43.8)	
	I never thought of it	8 (13.8)	0 (0)	8 (8.3)	
Q3	Yes	48 (82.8)	30 (78.9)	78 (81.3)	0.921
	No	8 (13.8)	6 (15.8)	14 (14.6)	
	I never thought of it	2 (3.4)	2 (5.3)	4 (4.2)	
Q8	Yes	50 (86.2)	23 (60.5)	73 (76)	0.005*
	No	4 (6.9)	12 (31.6)	16 (16.7)	
	I miss out sometimes	4 (6.9)	3 (7.9)	7 (7.3)	

*Statistically Significant (P-value<0.05); P-value by Chi-square or Fisher's exact test

Table 3: ?

Question	Response	Undergraduate	Postgraduate	Total	P-value
Q4	Yes	54 (93.1)	30 (78.9)	84 (87.5)	0.041*
	No	4 (6.9)	8 (21.1)	12 (12.5)	
Q5	Yes	28 (48.3)	4 (10.5)	32 (33.3)	<0.001*
	No	22 (37.9)	32 (84.2)	54 (56.3)	
	I don't have one	8 (13.8)	2 (5.3)	10 (10.4)	
Q6	Yes	19 (32.8)	22 (57.9)	41 (42.7)	0.005*
	No	35 (60.3)	10 (26.3)	45 (46.9)	
	I don't go into detail	4 (6.9)	6 (15.8)	10 (10.4)	
Q7	Recently	14 (24.1)	6 (15.8)	20 (20.8)	0.465
	6 months ago	8 (13.8)	4 (10.5)	12 (12.5)	
	I can't recall	36 (62.1)	28 (73.7)	64 (66.7)	

*Statistically Significant (P-value<0.05); P-value by Chi-square or Fisher's exact test

Table 4: ?

Question	Response	Undergraduate	Postgraduate	Total	P-value
Q9	Yes	35 (60.3)	14 (36.8)	49 (51)	0.072
	No	21 (36.2)	22 (57.9)	43 (44.8)	
	I don't have a clear idea	2 (3.4)	2 (5.3)	4 (4.2)	
Q10	Yes	16 (27.6)	8 (21.1)	24 (25)	0.839
	No	34 (58.6)	24 (63.2)	58 (60.4)	
	Seldom	8 (13.8)	6 (15.8)	14 (14.6)	
Q11	Yes	0 (0)	14 (36.8)	14 (14.6)	<0.001*
	No	42 (72.4)	24 (63.2)	66 (68.8)	
	I don't have one	16 (27.6)	0 (0)	16 (16.7)	
Q12	Yes	14 (24.1)	6 (15.8)	20 (20.8)	0.055
	No	38 (65.5)	32 (84.2)	70 (72.9)	
	Never heard about it	6 (10.3)	0 (0)	6 (6.3)	
Q13	Yes	48 (82.8)	28 (73.7)	76 (79.2)	0.187
	No	8 (13.8)	10 (26.3)	18 (18.8)	
	Sometimes	2 (3.4)	0 (0)	2 (2.1)	
Q14	I change in between patients	13 (22.4)	4 (10.5)	17 (17.7)	0.315
	I change if it gets wet during treatment	6 (10.3)	6 (15.8)	12 (12.5)	
	Once a day	39 (67.2)	28 (73.7)	67 (69.8)	

*Statistically Significant (P-value<0.05); P-value by Chi-square or Fisher's exact test

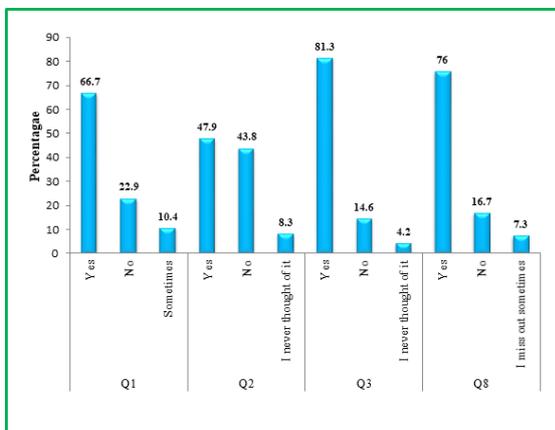


Figure 1: Over all Percentage of dentist who gave responses as A, B and C

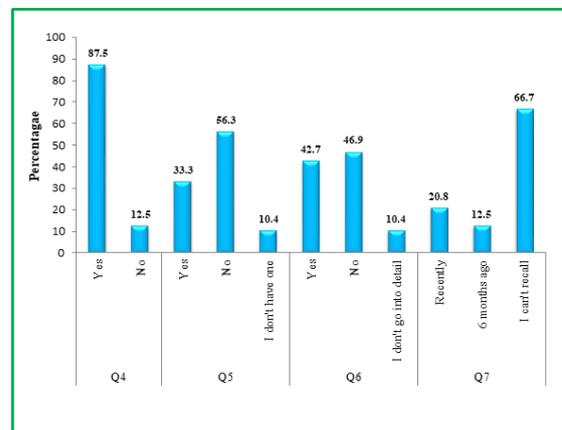


Figure 2: Over all Percentage of dentist who gave responses as A, B and C

87.5% of overall dentists used a proper face mask and barrier protection while only 33.3% had access to protective eyewear [Figure 2].

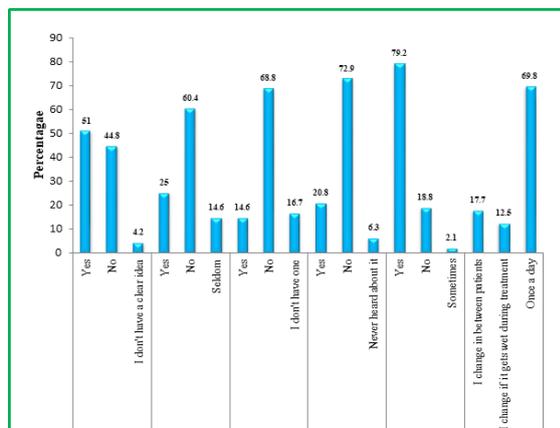


Figure 3: Overall Percentage of a dentist who gave responses as A, B and C

Only 51% of the overall dentists knew about and followed proper hand hygiene practice while only 25% used a pre-procedural mouthwash before starting the procedure [Figure 3]. 36.8% of postgraduate dentists used a rubber dam while not even one graduate dentist reported having used it [Table 4]. A vast majority of dentists (79.2%) were aware of and followed proper waste disposal [Figure 3]. 69.8% of dentists changed their masks only once a day and only 17.1% changed it after every patient [Figure 3].

DISCUSSION

The literature shows that many dental procedures produce aerosols and droplets that are contaminated with bacteria, viruses, and blood, and have the potential to spread infections to dental personnel and other people in the dental office.^[9] The majority of patients with COVID-19 represent relatively mild cases. According to recent studies and data from the National Health Commission of China (2020),^[4,8] the proportion of severe cases among all patients with COVID-19 in China was around 15% to 25%. So every patient can be a potential carrier and it is the need of the hour to deliver dental care with utmost care as any patient can be an asymptomatic carrier.

On March 16, 2020, the American Dental Association recommended that dentists postpone elective procedures for the next three weeks and instead only provide treatment for dental emergencies which included any swelling or cellulitis obscuring the airway, taking biopsy sample, any case of dental trauma or facial trauma, uncontrolled tissue bleeding, denture adjustment in a patient on radiation/oncology patients etc. In a matter of urgency and emergency use of personal

protective equipment (PPE) like N-95 mask, face shield, protective eyewear, gloves and Hazmat suit is imperative.^[10]

ADA recommends proper screening for a history of travel and history of contact as this disease has spread from one country to another via carriers who traveled and carried the disease with them. In our survey, we found that 66.7% of dentists in Kashmir asked for travel history, while only 47.9% enquire about contact with a person having recent travel history to COVID affected areas. Screening patients for symptoms of infection like fever and dry cough and recording temperature (use non touch infra-red sensor thermometer) should be part of routine assessment before starting any kind of dental procedure.

Our results showed that 81% of dentists in Kashmir screen the patients for symptoms of flu and respiratory illness. Pharmacological management using antibiotics and/or analgesics in suspected or confirmed Covid-19 cases requiring urgent dental care (due to swelling or pain) can help defer delivering dental care.

Every day new updates are being released regarding the management and delivery of emergency dental treatment amid the Corona crisis where every patient can be a potential carrier.

Besides use of disposable instruments (like mouth mirror, syringe etc), pre-procedural mouth rinse (like 0.2% povidone iodine) to decrease viral load, use of rubber dam to decrease aerosol/splatter generation, use of negative pressure handpieces and anti-retraction valves, well-ventilated operatory and regular sanitization of surfaces, maintenance of hand hygiene which is a five-step procedure and proper waste disposal is of paramount importance.

Despite the importance of hand hygiene practice and the spread of COVID 19 by fomites, only 36.8% of postgraduate dentists practiced proper hand hygiene as they were not aware of all the 5 steps of handwashing. 72.4% of the graduate dentists said they didn't have a rubber dam kit to reduce splatter production.

The waste generated by the treatment of patients with suspected or confirmed 2019-nCoV infection are regarded as infectious medical waste. A double-layer yellow color medical waste package bag and "gooseneck" ligation should be used. The package bags should be marked and disposed of according to the requirement for the management of medical waste. In our study, we found that 20% dentists did not follow the waste disposal protocol as required, whereas 76% of all dentists knew the recent guidelines of waste disposal and followed it which was impressive and 2% were little careless sometimes.^[11]

More awareness and education needs to be spread amongst the dental fraternity about the transmission modes and CDC guidelines pertaining to patient care and his handling in Covid 19 positive patients.

CONCLUSION

COVID-19 which has been described as a global pandemic is spreading in Kashmir and a dental health care professional plays a pivotal role in preventing cross-infection and transmission in patients who conceal their travel history or are asymptomatic carriers. They should be well aware of handling such cases to provide emergency dental care after wearing a proper PPE and taking all necessary precautionary measures to flatten the curve. This survey makes us aware of the knowledge, awareness, attitude and alertness of dentists and specialized dentists in the Kashmir division in the present global pandemic of COVID-19.

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