



PREDICTED CHANGES IN CLINICAL PERCEPTION IN POST-CORONA PANDEMIC PRACTICE - A SURVEY

Prosthodontics

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ABSTRACT

Background: Novel Corona virus disease (COVID-19) is certainly a public health emergency and a concern of international well-being. The health care professionals including dental practitioners are believed to be at moderate to high risk category exposure groups as it is apparent that most of the oral procedures carried out in clinical practices are related to direct vicinity with saliva, blood and aerosols that may lead to spread of infection.

Aim: The present study was aimed to evaluate the changes in clinical perception post coronal pandemic among south Indian dentist.

Materials and Methods: Non probability, convenient sampling technique was employed that yielded information from 90 random samples grouped as 45 male and 45 female participants were taken into this observational study having a cross-sectional design. The questionnaire was prepared; responses were noted among the selected population group under the study and evaluated for statistical analysis by SPSS software Version 20.0.

Discussion: Though universal precautions apply to all patients, this pandemic has insisted the forefront care givers to adapt additional protective measures. On evaluating the knowledge and practice about personal protective equipment's it was observed 72.22% (65 out of 90) believes N95 respirator will provide better protection, 87.7% (79 out of 90) dentists afford PPE and N95 to their assistants. On assessing the knowledge about disinfection and sterilization 67.7% use both sterilization and disinfectant for decontaminating all the surfaces within the clinic ($p < .05$) among which 48.8% prefer glutaraldehyde and 37.7% prefer sodium hypochlorite ($p < .05$) at 1.025% concentration (52.2%) followed by 0.525% concentration ($p < .05$) as disinfectants.

Conclusion: The fear that dentists have concerning COVID-19 infection could be less if dentists and dental healthcare workers carefully follow the relevant recommendations. Looking ahead, it is essential to increase research efforts in aerosol control during dental treatments, including engineering control in dental office design.

KEYWORDS

COVID-19, Dental Professionals, Disinfections, Personal Protective aids, Sterilization.

INTRODUCTION

A public health emergency troubled the entire world in the second half of 2019, soon with a pandemic announcement by the WHO with the outbreak of an indefinite virus (1) the severe acute respiratory syndrome (SARS-CoV-2). The evidences so far suggest that human-to-human transmission is occurring through respiratory droplets and direct or indirect contact with infected secretions. Touch and transfer surfaces are also indicated as possible modes of transmission, although the risk associated with such transmissions are reported to be low. Airborne spread has been reported recently but such routes of spread are riskier in a confined space areas. Fecal shedding has been demonstrated from some patients, and viable virus has been identified in a limited number of case reports. Dental professionals are very familiar with occupational health issues and corresponding risk assessments in order to reduce risk (2) and with applying standard precautions for minimizing spread of infection directly or through cross contamination (3). The spread of virus through various routes of transmission has put the oral health care professionals at risk. Dentists have been recommended to take several personal protection measures and avoid or minimize aerosol generating operations as a step to curb the spread of infections (4). Taking into consideration the severity of the COVID-19 pandemic and the interim guidelines by health authorities and dental associations, it is essential that dentist may practice cautiously and be prepared once the practices resumes (5). It is important to implement sound prevention measures in dental clinics and optimize their clinical practice to the changing trends to ensure safe and risk free practice. The aim of the present study is to provide a brief overview of the etiology, incubation, symptoms and transmission paradigms of this novel infection spread in the dental health care setting.

METHODOLOGY:

Non probability, convenient sampling technique was employed that yielded information from 90 random samples grouped as 45 male and 45 female participants were taken into this observational study having a cross-sectional design. The questionnaire was prepared; responses were noted among the selected population group under the study and evaluated for statistical analysis by SPSS software Version 20.0.

RESULTS:

On statistical evaluation it was observed all 90 samples were valid for the study with Cronbach's alpha reliability score being **0.8754 (Highly Significant score)**. One-way ANOVA was performed to evaluate the interrelationship within and between the study group questionnaires. The ANOVA test showed f-ratio value of 142.97529. **The p-value is < .00001.** The result is highly significant at $p < .05$

Cronbach's alpha	Cronbach's alpha based on standardized items	N of items
0.8754*	0.844	90
*SIGNIFICANT ($\alpha = 0.9 - 0.8$) (Significant Correlation)		

Chi-Square Calculator for Goodness of Fit

Questions	Chi square value	p value*	significance level	Significance*
1	84.467	<0.00001	P<0.05	SIGNIFICANT
2	106.067	<0.00001	P<0.05	SIGNIFICANT
3	27.267	<0.00001	P<0.05	SIGNIFICANT
4	63.267	<0.00001	P<0.05	SIGNIFICANT
5	27.467	<0.00001	P<0.05	SIGNIFICANT
6	120.867	<0.00001	P<0.05	SIGNIFICANT
7	82.4	<0.00001	P<0.05	SIGNIFICANT
8	26.6	<0.00001	P<0.05	SIGNIFICANT
9	35.467	<0.00001	P<0.05	SIGNIFICANT
10	50.867	<0.00001	P<0.05	SIGNIFICANT
11	65.4	<0.00001	P<0.05	SIGNIFICANT
12	17.867	<0.00001	P<0.05	SIGNIFICANT
13	92.6	<0.00001	P<0.05	SIGNIFICANT
14	26.6	<0.00001	P<0.05	SIGNIFICANT
15	1.067	0.58665	P<0.05	NOT SIGNIFICANT
16	50.867	<0.00001	P<0.05	SIGNIFICANT
17	20.867	0.0003	P<0.05	SIGNIFICANT
18	48.867	<0.00001	P<0.05	SIGNIFICANT
19	42.067	<0.00001	P<0.05	SIGNIFICANT
20	26.467	<0.00001	P<0.05	SIGNIFICANT

Chi-Square Calculator for Goodness of Fit

Summary of Data	A	B	C	Total
N	20	20	20	60
$\sum X$	1170	419	211	1760
Mean	58.5	20.95	10.55	29.333
$\sum X^2$	71160	10573	2789	81770
Std.Dev.	11.953	9.7196	5.4432	22.7447
Between-Responses	25449.1	2	12724.55	F = 142.97529
Within-Respondents	5072.9	57	88.9982	

*p-value significance is set at <0.05

DISCUSSION:

A large number of medical personnel were reported to have acquired the disease while working with infected individuals (6). The dental clinic is not an exception for a similar possibility of transmitting an acquiring the infection between individuals, moreover, the dental clinic could be a riskier environment for spreading the virus because of close contact with patients and the nature of dental treatment(7).Dental treatment set-ups are usually confined; air-conditioned spaces which pose a challenge for practitioners. There are practical guidelines recommended for dentist and dental staff by the centres for disease control and prevention (CDC), the American Dental Association (ADA), and the world health organization to control the spread of covid-19(8).

Though universal precautions apply to all patients, this pandemic has insisted the forefront care givers to adapt to additional protective measures. Like other contagious disease, there recommendations include personal protective equipment (PPE), hand washing, anti-retraction hand piece, and mouth rinsing before dental procedures and dis-infecting the clinic (9). The European Standard classifies filtering face-piece respirators (FFP) into three categories: FFP1, FFP2, and FFP3 with minimum filtration efficiencies of 80%, 94%, and 99%. Consequently, FFP2 respirators are approximately equivalent to N95, and therefore recommended for use in the prevention of airborne infectious diseases in the US and other countries (10). In the present study on evaluating the knowledge and practice about personal protective equipment's it was observed 72.22% (65 out of 90) believes N95 respirator will provide you a good protection against transmission of viral particles through respiratory droplets ($p<.05$). 57.7% (52 out of 90) dentists provide patients and accompanying persons with protective mask ($p<.05$) while 87.7% (79 out of 90) provide PPE and N95 respirator to their dental assistant ($p<.05$).Both Long et al. (11) and Radonovich et al (12) in their respective analyses did not find significant differences between the N95 and surgical masks in terms of protection from the influenza virus. In a recent study, Mac Intyre et al (13), Qaseem et al (14) analyzed the degree of protection of surgical masks, N95, and home masks (four layers of paper and polyester) against the virus; N95 masks showed greater reliability similar to the present study.

On estimating the preoperative preparation of the patient it was observed 77.7% (70 out of 90) recommend antimicrobial mouth rinse ($p<.05$) and prefer 2% chlorhexidine (57.7%) followed by 1% povidine iodine (27.7%) ($p<.05$). Gravetoet al., in a study in 2019, highlighted the use of chlorhexidine at 0.12% and 0.20% alters the amount of bacteria, viruses, and fungi present in the oral biofilm, reducing the risk of cross-contamination due to aerosol (15).

In studies done by Rabenau et al (16) and Kampf et al. (17) ethanol proved to be one of the first-choice disinfectants in percentages ranging from 80 to 95% or 62 to 71% used as a surface disinfectant. In the present study on assessing the knowledge about disinfection and sterilization 67.7% use both sterilization and disinfectant for decontaminating all the surfaces within the clinic ($p<.05$) among which 48.8% prefer glutaraldehyde and 37.7% prefer sodium hypochlorite ($p<.05$) at 1.025% concentration (52.2%) followed by 0.525% concentration ($p<.05$) as disinfectants. Kampf et al. in carrier tests demonstrated the disinfectant action of ethanol at 62–71% against the SARS Coronavirus in 60seconds, of sodium hypochlorite between 0.1–0.5% in one min, and glutaraldehyde at 2%. 53 out of 90 (58.8%) were aware of practicing fumigation in clinic ($p<.05$) and 67.7% practice in their clinics by using formaldehyde (65.5%) fumigation method($p<.05$)(17).

On evaluating the opinion about recording temperature for each and every patient along with accompanying persons it was observed 78.88% (71 out of 90) prefer to record the same for both ($p<.05$) and

manage social distancing of about 6 feet (61 out of 90) (67.7%) with 73.3% (66 out of 90) prefer both social distancing and lesser appointments to reduce the disease transmission ($p<.05$) followed by relevant history. 76 out of 90 (84.44%) consider travel history as important post COVID-19 pandemic ($p<.05$).

It was observed 45 out of 90 (50%) dentist prefer OPG than IOPAR (42.2%) ($p<.05$) for diagnosis and treatment plan among which 57.7% (52 out of 90) choose to perform any dental procedures after physicians opinion whereas 35.5%(32 out of 90) postpone treatment for 14 days in-case of suspected or symptomatic patients ($p<.05$) and also 81.1% (73 out of 90) believe respiratory disordered patients are potential source of infections and transmissions ($p<.05$). Meng et al. suggests minimizing the use of these tools; if this is not possible, the last appointment of the day should be intended for those patients who need dental treatments requiring the use of high-speed rotating instruments. They also recommend not using intraoral radiographs; therefore, they propose the use of orthopantomography or CT if strictly necessary (18).

CONCLUSION:

Dentistry remains one of the most uncovered practitioners to SARS-Cov-2; each individual clinical situation must be effectively organized and considered by the healthcare professional; any violations of specific recommended protocols cannot be accepted. However, there are indications in the literature on how to deal with these unknown crises. The fear that dentists have concerning COVID-19 infection could be less if dentists and dental healthcare workers carefully follow the relevant recommendations. Looking ahead, it is essential to increase research efforts in aerosol control during dental treatments, including engineering control in dental office design. The COVID-19 pandemic has exposed important holes in the collective response of global healthcare systems to a public health emergency. Dentistry as an essential part of the health care system should be equipped to play a dynamic role in the fight against future unpredictable life-threatening ailments.

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CONFLICT OF INTEREST: Nil

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