

ORIGINAL ARTICLE

Perceptions of Pakistani Orthodontists in Covid-19: An Assessment of Knowledge, Attitude and PracticesHafsa Khalid Mahida¹, Sarwat Memon², Farheen Naz³**ABSTRACT**

Objective: The purpose of this study was to assess the knowledge of Pakistani orthodontists regarding Covid-19 pandemic, their attitude towards the situation and their practices in this duration.

Study Design: The study design was cross-sectional.

Place and Duration of Study: The study spanned over a course of one month from the 10th of March to the 10th April 2021 with the data collected at the Department of Orthodontics, Ziauddin University, Karachi, Pakistan.

Materials and Methods: Online questionnaire was sent to all qualified orthodontists registered with the Pakistan Association of Orthodontists practicing in Pakistan. The question-themes were divided into three segments for knowledge, attitude and practice directed towards exploring the approach of the orthodontists. Data were analyzed using IBM SPSS version 20. Percentages and frequencies were generated for all qualitative variables.

Results: Majority of the orthodontists were aware of the mode of transmission (91.8%) and up to date. 58.3% were treating only urgent cases and emergencies. 57.4% remotely provided care based on images sent by the patients. All of them had reduced the number of patients in the clinical area at a time. In the event of staff having symptoms, their attendance was mandated based on test results. SOP-compliance increased in response to new variants. Willingness for vaccination, if the process started, was by almost two thirds of the orthodontists (86.7%).

Conclusion: The Orthodontic community of Pakistan has overall shown good standing in knowledge, practice, and attitudes to meet with the challenges of the Covid-19 pandemic. They are aware of and follow the latest research and guidelines of regulatory authorities.

Key Words: *Orthodontists, COVID-19, Pandemic, Clinical Approaches, Practice Management, Delivery of Dental Care.*

Introduction

COVID-19 emerged in Pakistan possibly through air-travel in the middle of February 2020. By the middle of March, each province of the country was found afflicted with the disease. A national lockdown was put into place April onwards and from May a gradual, phasic ease in lockdown commenced. A peak was observed by mid of June as every district in Pakistan

had reported cases and then onwards there was a downward trend in new cases reported. The second wave was declared in November adding to the total number of deaths of around 7300^[1].

COVID-19 had put the health community in Pakistan into both a state of alertness and chaos^[2]. The lockdown did not extend to the provision of healthcare services and a majority of even non-emergency, elective treatments were continued^[3]. This met with great absenteeism from several members of the healthcare community and came in with a mix of responses ranging from holding a sense of duty, holding onto a job, to complete absenteeism or in some cases even quitting jobs.

By and large, most of the procedures in Orthodontics involve elective procedures but span over a course of two to four years or beyond. The follow-ups are scheduled nearly every month and the only dental emergencies are sharp wires that need to be cut, broken brackets that can potentially become an

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Received: April 29, 2022; Revised: March 01, 2023

Accepted: 01, March 2023

ingested/inhaled foreign body, and dislodged, lose or broken appliances^[8]. As with everyone in the health community, providing care during COVID-19 has been overwhelming for orthodontists. Globally, deaths of orthodontists were reported as well^[4]. Guidelines from CDC, NHS, American Association of Orthodontists, and the British Orthodontic Society had been issued to ease the process but there was fear amongst them as well^[5,6,7,8].

Due to the span of orthodontic treatments, regular follow-ups are needed, and guidelines have been created on virtual consultations in order to limit the spread of the disease and to cope with the public fear of visiting health practices^[7]. Organizations such as the British Orthodontic society and American Association of Orthodontists comprehensively elaborated the protocols orthodontists could adopt in prioritizing cases that could be managed virtually via social-media communication and in deciding the need to schedule live-visits in OPDs^[8].

The situation in Pakistan was different from countries such the USA and UK where these guidelines could be followed to the letter, due to the differences in systems of healthcare delivery. The advent of COVID-19 is a novel situation and demands evidence on the scenario of knowledge, attitudes, and practices of Orthodontists amidst the pandemic in Pakistan. Our study aimed to gather this evidence.

Materials and Methods

This cross-sectional study was conducted on a total population of 71 registered orthodontists of Pakistan with the data gathered at Ziauddin University and spanned over a course of one month from the 10th March to the 10th April 2021. Ethical approval for this study was taken from the Ethics Review Committee of Ziauddin University [3080121HMOM]. Confidentiality was maintained by individual administration of the questionnaire which was sent with an informed consent stating that the published data would keep their details confidential and anonymous. To meet inclusion criteria the participant had to be a qualified orthodontist, registered with the Pakistan Association of Orthodontists, and practicing in Pakistan. Pakistani orthodontists not practicing in Pakistan were not included in this survey.

A google-questionnaire designed to assess the knowledge, attitude, and practices of Orthodontists

in Pakistan during COVID-19, was created and validated by review of three orthodontic experts and a pilot.

run amongst 10 % of the total number of participants planned for the major study. After this it was distributed amongst the 71 study participants. Out of 30 close-ended questions, 3 were for epidemiological data (age, gender, and practice set), 5 questions were based on the participants, 19 were based on their practices and 6 were based on their attitude.

The knowledge component included questions regarding mode of transmission; keeping up to date with the latest guidelines and the frequency of doing so; the sources they found reliable and the medium of awareness (online or on-job training).

The questions regarding practice were based on patient appointments and screening; modifications in the duration; number and approach of treatments; changes in the seating arrangements of clinical and waiting areas; usage of protective gear amongst personnel and the workplace policies in case of infection amongst staff.

The participants' attitude was assessed based on the participants' response times (whether self-endorsed or in response to national policies), the variation in attitude during each wave in the country, the role of orthodontists in the spread of disease and finally, the willingness to receive vaccination and endorse compulsory vaccination at practice. The data was analyzed using IBM SPSS version 20. Percentages and frequencies were generated for all variables.

Results

The study included 60 orthodontists comprising of 22(36.7%) females and 38(63.3%) males, aged 32- 65 years with mean age 44.50±11.96 as shown in figure 1. The percentage of the type of practice setup of Pakistani orthodontists is shown in figure 2.

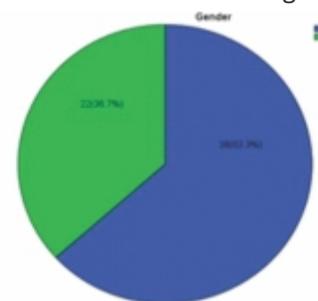


Figure 1: Gender Distribution of Pakistani Orthodontists [1: Male 2: Female]

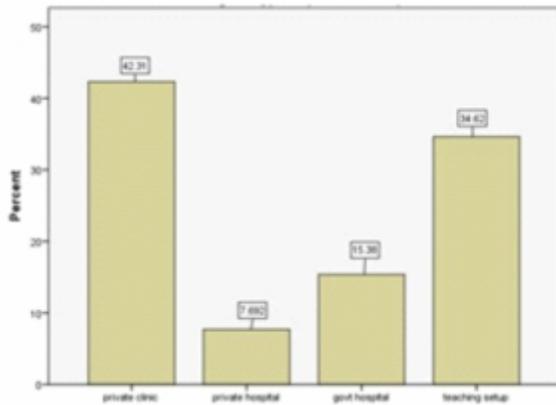


Figure 2: Percentage of the type of practice setup of Pakistani Orthodontists

Majority of the orthodontists (91.8%) were aware of the mode of transmission of the SARS-Cov2 virus. Most of the orthodontists (75.4%) were updated with the latest guidelines on COVID-19 prevention and 52.5% of them kept themselves updated monthly. Majority relied on W.H.O guidelines to update themselves (68.9%) followed by NHS guidelines (21.3%) and ADA (8.2%). Most of the orthodontists reported that they used internet articles for their awareness (55.7%) Table I.

Practices of Pakistani orthodontists in COVID-19 are depicted in Table II. Majority of orthodontists (58.3%) were treating only urgent cases and orthodontic emergencies. Almost sixty percent of Orthodontists (57.4%) were delivering orthodontic care to their patients by looking at the images sent by them. Patients were advised to use home gadgets such as nail cutters, after disinfecting them, to cut off poking wires, or in the case of any dislodged brackets they were given demonstrative videos on how to remove and keep them. If the patients were unable to attend to these themselves, these were classified as emergencies and appointed and treated. Cases of aligners were treated as non-emergency and deferred initially during the first wave. All had limited the number of patients they treated per day. In addition to this they had reduced the number of patients seated in the clinical area at a time. Majority of orthodontists (93.3%) asked their auxiliary and other support staff to get tested if they reported symptoms, with 96.7% asking their staff to quarantine for two weeks and 90% permitting them to resume work if testing negative. Majority of them

(68.3%) had increased their compliance with SOPs in response to news regarding new variants of SARS-Cov 2 virus and (48.3%) followed the Government's policy to keep OPDs open during the pandemic.

Table III depicts attitude of Pakistani Orthodontists towards Covid 19. Regarding spreading awareness to the public about COVID-19-Prevention, 68.9% orthodontists believed that they had a role. However 16.4% replied they do not play any role and 13.1% said that they were not sure regarding their role in spreading awareness to the public regarding COVID-19-Prevention. Nearly sixty percent (59%) provided their patients with information regarding COVID-19 prevention. Nearly 90 % of them (86.7%) expressed willingness to get vaccinated when a COVID-19 vaccine was made available in their region, however (13.3%) said they were not sure. Majority of the orthodontists (88.5%) replied that they will ask their patients to get vaccination done before resuming their treatment when a COVID-19 vaccine is made available in their region.

Table I: Knowledge of Pakistani Orthodontists Towards Covid-19

Question	Responses	Frequency	Percentage
1 Knowledge about mode of transmission of the SARS-Cov2 virus	Yes	56	91.8
	No	4	6.6
	Not sure	0	0
2 Are you updated with the latest guidelines on COVID-19 prevention	Yes	46	75.4
	No	2	3.3
	Not sure	12	19.7
3 Knowledge update frequency	Daily	12	19.7
	Weekly	16	26.2
	Monthly	32	52.5
	Bimonthly	0	0
4 Knowledge sources used by orthodontists	WHO	42	68.9
	N.H.S	13	21.3
	ADA	5	8.2
	CDC	0	0
	Others	0	0
5 Modes of knowledge source access	Internet articles	34	55.7
	Online courses	12	19.7
	On job training	14	23.0

Table II: Practices of Pakistani Orthodontists in Covid-19

	Question	Responses	Frequency	Percentage
1	Clinical approaches by the doctors during the pandemic	Regularly appointing and treating patients	19	31.7
		Treating only urgent cases and orthodontic emergencies	35	58.3
		Deferring practice throughout the pandemic	1	1.7
		Deferring the practice until vaccination processes begin in the region	5	8.3
2	Method used by the orthodontics for clinical consultation	Online consultation by video calls	7	11.5
		Live messaging and guiding by looking at the images sent by patients.	35	57.4
		Via email by sending guidelines for at-home care	1	1.6
		Treatment at the clinical sites	17	11.5
3	For treatments of the patient inside clinical site, which of the following measures do you/your team take	Triage and/or Telescreen	12	20
		Check the Patient's temperature	43	71.7
		Request the patient to not have electronic devices/ bags/ jewelry on them inside.	5	8.3
		Take a brief travel-history.	41	59.4
		Disinfect the dental unit after the patient leaves	19	31.7
		Have the patient rinse their mouth with hydrogen peroxide	10	14.5
4	Do you ask them if they experienced the common symptoms associated with COVID-19?	Yes	42	68.9
		No	5	8.2
		Not always	13	21.3
5	Which of the following symptoms do you ask them about? (You can mark more than one)	Cough	55	91.7
		Flu	45	75
		Runny Nose	5	8.3
		Body Ache	15	25
		Fever	53	88.3
		Shortness of Breath	7	11.7
6	Do you require your patients to get tested for COVID-19 before any treatment or appointment	Yes	1	1.6
		No	33	54.1
		Only when they will undergo procedures of longer duration	14	23
7	Lab test used for the screening of patients	Serology for COVID-19	6	10
		PCR	45	75
		Rapid Antigen Test	9	15
8	Do you modify the treatment duration?	Yes	33	55
		No	2	3.3
		Not always	21	34.4
9	If yes, what is the usual treatment duration during one visit?	Up to 5 min	7	11.5
		5- 10 min	26	42.6
		10-20 min	27	44.3
		Above 20 min	1	1.6
10	Have you limited/reduced the number the number of patients you treat per day?	Yes	60	100
		No	-	-
11		Yes	60	100

	Have you limited/reduced the number of patients seated in the clinical area at a time?	No	-	-
12	Have you made any of the following changes in the waiting area arrangement?	Allowing only one attendant per patient to be in the waiting area	6	10
		Making people sit at 6ft from each other	-	-
		Place patient awareness posters or wall mountings regarding COVID-19	4	6.7
		Appoint a fixed number of patients at a time to ensure limited number of people sitting inside the waiting area	50	83.3
13	How are the appointment schedules for regular, ongoing treatment patients spanned?	Frequent short visits every two weeks/shorter duration	3	5
		Regular visit with patient recalled after a month	47	78.3
		Regular visit with patient recalled after two months or more	10	16.7
14	Which of the following personal protection gear do you use? (You can mark more than one)	Surgical Three-ply Masks	47	78.3
		N95 Masks	57	95
		Face shield	55	91.7
		Disposal drapes	53	88.3
		Washable Drapes	9	15.0
		Safety goggles	33	54.1
		Hazmat suit	2	3.3
15	Which of the following approaches do you adopt if your auxiliary and other support staff reports symptoms? You may mark more than one)	Ask them to get tested	56	93.3
		Ask them to go in quarantine for one week	1	1.7
		Ask them to quarantine for two weeks	58	96.7
		Ask them to resume work if tested negative	54	90
		Ask them to stay at home if symptomatic even if tested negative	51	85
		Ask them to quarantine only if positive	5	8.3
		Ask them to resume work after symptoms subside	9	15
		Ask them to resume work after symptoms subside and they test negative	4	6.7
16	If you follow any of the above-mentioned measures, when do you tend to do so?	When I hear more cases reported	4	6.7
		Only during the first wave	1	1.7
		Only during the second wave	55	91.7
		Throughout the pandemic so far		
17	In response to news regarding new variants of SARS-Cov 2 virus how do you modify your practice?	Continue to use the same measures as above	7	11.7
		Increase compliance with SOPS	41	68.3
		Create clinical audits to assure the preventive measures are being strictly followed	12	20.0
		Consider closing practice for an indefinite period	-	-
18	What is your decision to deliver care at the clinical site is based on?	Government policy to keep OPDs open	29	48.3
		Workplace policy to keep elective procedures open	8	13.3
		Both above	23	38.3

Table III: Attitude of Pakistani Orthodontists towards Covid-19

	Questions	Responses	Frequency	Percentage
1	Do you believe that orthodontists have a role in spreading awareness to the public regarding COVID-19 Prevention?	Yes	42	68.9
		No	10	16.4
		Not sure	8	13.1
2	Do you provide your patients with information regarding COVID-19 prevention?	Yes	36	59.0
		No	8	13.1
		Not always	16	25.2
3	Would you be willing to get vaccinated when a COVID-19 vaccine is made available in your region?	Yes	52	86.7
		No	0	0
		Not sure	8	13.3
4	Would you ask your patients to get vaccinated before resuming their treatment when a COVID-19 vaccine is made available in your region?	Yes	54	88.5
		No	3	4.9
		Not sure	3	4.9

Discussion

During the pandemic of COVID-19 dental practices were affected worldwide with dentists exhibiting different responses to the situation. This included and affected orthodontists as well. Our study is the first to have assessed the knowledge, attitude and practices of all registered Orthodontists in Pakistan. According to our study, majority of the orthodontists in Pakistan (91.8%) were aware of the mode of transmission of the virus, were regularly updating

themselves with newer findings(75.4%). Most of them kept up through the information provided by internet articles (55.7%) which is comparable to the findings of a study conducted on orthodontists in China by Hua et al ⁹ where 92.8 % were using the internet as the main source of receiving knowledge. In another study conducted in the United States by Motavasel et al ¹⁰, internet articles were the second main source of information for orthodontists after the information provided by professional associations especially the state dental associations and the American Association of Orthodontists. In our study the participants relied mostly on the guidelines of the World Health Organization (WHO) (68.9%) whereas in that of Motavasel et al WHO was the least common accessed source (less than 10%). The fear and anxiety of the pandemic was experienced by both the orthodontists and the patients. Majority of the participants of our study were treating mostly emergencies (58.3%), had reduced the number of patients they were treating per day (60%), and had modified the treatment duration (55%) making visits shorter (44%). This corresponds with the findings of several studies. In one study conducted by Chaudhary et al ¹¹ on oral healthcare workers, only 26% were willing to work during the pandemic. Another study, by Almas et al ¹² showed that dentists in general were reluctant about directly treating patients in the COVID-19 pandemic. Despite the above findings, majority did not alter patient appointment scheduling which is often once a month. This could be because of patients' concerns regarding delay in treatment according to a study done by Cotrin et al ¹³, or due to financial concerns. According to our findings, majority of the participants' practices did include some screening measures taken before commencing with treatment. Most common practices were checking the temperature (71.7%) and obtaining a brief travel history (59.4%). This is similar to the findings of Thakur et al ¹⁴ where screening for temperature was done in 88% of the orthodontic set ups in Hyderabad, India. However compared to Thakur et al 's study where only 32% of the orthodontic practices were enquiring COVID-19 symptoms from their patients , majority of our participants followed this practice (68.9%). Majority of the orthodontists (68.9%) in our study

believe that they do have a role in spreading awareness and that they do play the role relaying information on prevention of COVID-19 to their patients. 59% of the participants did convey information to their patients. According to Seneviratne et al the role of the dental fraternity goes beyond dentistry in COVID-19 and that community dentistry drills can upscale the needed work to stop the transmission of communicable diseases such as COVID-19¹⁵.

Vaccine-hesitancy is a complicated issue globally¹⁶. Our study findings were collected during the time public vaccination was about to commence. Our results regarding vaccination showed an overall willingness of orthodontists to get vaccinated (86.7%) and a similar percentage (88.5%) would advise their patients to do so as well. A few were unsure (13.3%) but none of them refused the possibility of getting vaccinated. This concurs with the findings of a study by Kaur et al in India, where majority of the medical and dental practitioners showed willingness to getting vaccinated and had full confidence in its efficacy¹⁷.

Future studies could be conducted on a detailed comparison in retrospect of the common practice-patterns throughout the course of the pandemic. In addition, holding evidence-based practice shall go a long way in preparedness for future such events.

Conclusion

The Orthodontic community of Pakistan has largely shown a good standing in knowledge, practice and attitudes. Their knowledge is updated regularly, put into practice diligently and they have a positive attitude to meet with emerging COVID-19 challenges. The practices chosen are all compliant and function considering the latest research and guidelines of regulatory authorities.

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CONFLICT OF INTEREST

Authors declared no conflicts of Interest.

GRANT SUPPORT AND FINANCIAL DISCLOSURE

Authors have declared no specific grant for this research from any funding agency in public, commercial or nonprofit sector.

DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon request.

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