

Dental Patients' Attitudes towards COVID-19 Infection-Control Procedures in King Hussein Medical Centre

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Abstract

Objectives: To explore their attitudes towards infection-control procedures; to investigate patients' trust in dentists' knowledge regarding COVID-19; and to explore dental care-seeking behavior among dental patients in king Hussein medical centre.

Methods: This study was based on a descriptive cross-sectional survey. Data were collected by a self-administered questionnaire consisting of 17 closed questions. The questions were designed to collect data about the following: patient demographics; dental care-seeking behavior during the pandemic, preventative measures implemented in dental clinics and patients' attitudes towards prevention measures.

Results: Five hundred patients participated in this study. Almost half of all participants perceived dental clinics as a high-risk place for COVID-19 transmission. Seven out of ten participants reported being afraid of visiting a dental clinic during the pandemic, and eight out of ten reported visiting a dental clinic only in an emergency. One out of four patients thought that there should be even more protection procedures in dental clinics. Around 80% of the participants stated that they think it is acceptable to delay routine dental visits during lockdown, and 85% stated that triage procedures are effective against COVID-19.

Conclusion: Dental patients in king Hussein medical centre strongly support the new protection measures implemented to minimize the risk of SARS-CoV-2 transmission, and they have a high degree of trust in the knowledge of their dentists regarding COVID-19. Patients' involvement in protection measures and the use of new technology and innovations could provide effective and practical solutions to the challenges of dental care during and after the COVID-19 pandemic.

Keywords: COVID-19; SARS-CoV-2; Dentistry; Awareness; The Royal Medical Services.

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BACKGROUND

In December 2019, a novel infection started in Wuhan province in China (1). It is believed that this new coronavirus (2019-nCov) infection has a zoonotic origin and is likely to have started in a wet market where wild animals were sold for human consumption (2). Three months after the first reports about this new infection,

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the World Health Organization (WHO) announced a global pandemic emergency (March 2020) (1). By July 3, 2020, the pandemic status was such that the virus had reached 216 countries or territories; around 11 million people had been infected by COVID-19; and it had led to around half a million confirmed deaths (3,4). Jordan reported its first COVID-19 case on March 2, 2020 (5). According to the Jordanian Ministry of Health statistics, by June 17, 2020, 987 people had the infection; 9 people had died due to the COVID-19 infection (6).

The Jordanian COVID-19 prevention measures started with awareness messages issued to the public, followed by a complete lockdown on March 21, 2020 (7). During the lockdown, only emergency dental cases were treated at specific dental clinics across the kingdom (8). However, by the end of April, the Jordanian authorities had started to withdraw lockdown measures gradually, and dental clinics resumed their activities (8), implementing precise infection-control measures, such as social distancing in waiting areas, temperature measurement, limits imposed on patient companions and health workers' use of personal protective equipment (PPE) (8,9). A recently published study found that around 70% of dental patients in the United States were not comfortable visiting a dental clinic during the COVID-19 pandemic, although 42% of these reported that they trust the precautions taken by their dentist to prevent the spread of COVID-19 (10).

It is well known that dentistry is a high-risk industry in terms of transmission of SARS-CoV-2 (11). Due to the unique nature of dental procedures, contaminated aerosols can develop and spread from high-speed handpieces and other dental instruments (12). Therefore, regular dental infection-control procedures are not sufficient to protect dentists and patients from COVID-19 (13).

The new era of dental care is likely to bring new innovative procedures, equipment and treatments, enabling safe dental care to resume and minimizing the risk of exposure to COVID-19, even with close proximity between dentists and their patients (11,14,15).

A previous Jordanian study showed a high COVID-19 awareness level among Jordanian dentists, but it reported limited comprehension of the protection measures required during the pandemic (9). To the best of our knowledge, no previous research has studied COVID-19 perceptions among Jordanian dental patients.

The main objectives of this study were to explore Jordanian dental patients' attitudes towards COVID-19 infection-control procedures; to investigate patients' trust in dentists' knowledge about COVID-19 prevention; and to explore dental care-seeking behavior during and after the COVID-19 pandemic.

METHODS

This study is a descriptive cross-sectional survey of a sample of dental patients who were invited to participate in this research at King Hussein Medical Center. The principal investigators developed a structured questionnaire based on a previously published research during the COVID-19 pandemic. Data were collected in June 2020 by a self-administered questionnaire consisting of 17 closed questions. The questions were designed to collect data on the following: preventative measures implemented in dental clinics; and patients' attitudes towards prevention measures. (Table I) shows the translated questionnaire.

Table I. Study questionnaire

Question	Answers
Age	<input type="radio"/> 20–29 <input type="radio"/> 30–39 <input type="radio"/> 40–49 <input type="radio"/> ≥50
Gender	<input type="radio"/> Male <input type="radio"/> Female
Educational level	<input type="radio"/> Elementary school <input type="radio"/> Secondary school <input type="radio"/> University education
In your opinion, how do you rate the risk of transmission of this virus at dental clinics?	<input type="radio"/> High <input type="radio"/> Moderate <input type="radio"/> Low <input type="radio"/> No risk
Are you afraid to visit a dental clinic during the current pandemic?	<input type="radio"/> Yes <input type="radio"/> No
Have you visited a dental clinic in an emergency only?	<input type="radio"/> Yes <input type="radio"/> No
Are you aware that Royal Medical Services dental clinics only accept emergency cases?	<input type="radio"/> Yes <input type="radio"/> No
Did you try to visit a Royal Medical Services dental clinic during the lockdown period?	<input type="radio"/> Yes <input type="radio"/> No
If yes, which transportation method did you use?	<input type="radio"/> Private car <input type="radio"/> Public transport
Do you believe that the protection procedures implemented	<input type="radio"/> Yes

in Royal Medical Services dental clinics are enough to prevent the spread of this infection?	<input type="radio"/> No
Do you think that the dentist has enough knowledge about protection methods?	<input type="radio"/> Yes <input type="radio"/> No
Do you think that there is a need to implement additional procedures for infection control?	<input type="radio"/> Yes <input type="radio"/> No
Is it important to have physical distancing in the waiting area?	<input type="radio"/> Yes <input type="radio"/> No
Is it ok to delay routine dental visits as a public safety measure and for infection control?	<input type="radio"/> Yes <input type="radio"/> No
Do you think that triaging a patient before entering the OPD is a useful procedure?	<input type="radio"/> Yes <input type="radio"/> No
Would you prefer to go back to the previous (normal) situation regardless of the risk of spreading the infection?	<input type="radio"/> Yes <input type="radio"/> No

The study inclusion criteria required all participants to be literate dental patients seeking dental care at a King Hussein Medical Center Dental Clinic and to be native Arabic speakers. Anonymous data were numerically coded and entered into an Excel spreadsheet (Microsoft® Office Excel). The data were then analyzed using SPSS statistical data-analysis software (IBM Corporation, version 25.0). Data analysis was performed using a Pearson's chi-square (χ^2) test or Fisher's exact test, and data were interpreted as statistically significant when a p-value was less than 0.05.

Ethical approval for the research was obtained from the Research Ethics Committee of the Jordanian Royal Medical Services. A briefing about the purpose of the study was given to the patients by the investigators, and verbal voluntary informed consent was obtained from all participants. No identifying data were collected. This research was carried out in accordance with the Helsinki Declaration.

RESULTS

Five hundred dental patients agreed to participate in this research study. Demographic details of the study participants are presented in (Table II). Around half of the participants were female patients, and 72.6% of the participants were between 20 and 39 years old. The most frequently occurring educational level (53.3%) was high-school education, followed by university education (38.2%).

Table II: Characteristics of study participants

		N	%
Age (in years)	<i>20–29</i>	200	40.0
	<i>30–39</i>	163	32.6
	<i>40–49</i>	79	15.8
	<i>≥50</i>	58	11.6
Gender	<i>Male</i>	217	43.4
	<i>Female</i>	283	56.6
Educational level	<i>Elementary school</i>	43	8.6
	<i>Secondary school</i>	265	53.2
	<i>University education</i>	190	38.2

Almost half of all study participants perceived dental clinics as a high-risk place for COVID-19 transmission. The difference in perceived COVID-19 transmission risk at dental clinics was not statistically significant in terms of the gender or age group of participant's p-value 0.0162 and 0.053, respectively (Table III).

Table III: Perception of COVID-19 risk at dental

		High Risk		Moderate Risk		Low Risk		No Risk		P-value
		N	%	N	%	N	%	N	%	
Overall		246	49.2	146	29.2	74	14.8	34	6.8	
Age (in years)	<i>20–29</i>	100	50.0	63	31.5	22	11.0	15	7.5	0.053
	<i>30–39</i>	82	50.3	49	30.1	26	16.0	6	3.7	
	<i>40–49</i>	37	46.8	24	30.4	14	17.7	4	5.1	
	<i>≥50</i>	27	46.6	10	17.2	12	20.7	9	15.5	
Gender	<i>Male</i>	100	46.1	60	27.6	38	17.5	19	8.8	0.162
	<i>Female</i>	146	51.6	86	30.4	36	12.7	15	5.3	
Educational level	<i>Elementary school</i>	22	51.2	10	23.3	9	20.9	2	4.7	0.014
	<i>Secondary school</i>	115	43.4	83	31.3	40	15.1	27	10.2	
	<i>University education</i>	107	56.3	53	27.9	25	13.2	5	2.6	

Similarly, 46.1% and 51.6% of male and female patients, respectively, reported a high risk of COVID-19 transmission at dental clinics. On the other hand, 10.2% of participants with a secondary-level education reported no risk of COVID-19 transmission at dental clinics, compared with 4.7% and 2.6% of participants with an elementary-level and university-level education. Differences in perceived risk in relation to educational level between study participants was statistically significant (p-value 0.014).

Seven out of ten participants reported being afraid of visiting a dental clinic during the COVID-19 pandemic, and eight in 10 reported visiting a dental clinic only in an emergency. Around a quarter of interviewed patients reported trying to visit a dental clinic during the lockdown period. Meanwhile, eight in 10 patients reported that they believe in the protection procedures in place at Royal Medical Services dental clinics, and 9 in 10 trust their dentist’s knowledge about protection methods. Nevertheless, 76.2% of participants reported that there is a need for additional COVID-19 protection procedures in dental clinics, and 94.4% believe in the importance of social distancing in the waiting areas of dental clinics. In the same way, 83.2% believe that it is acceptable to delay routine dental visits during the lockdown period, and 85% perceive that triage procedures (measuring temperature) at the OPD entrance is an effective procedure to guard against COVID-19 transmission. On the other hand, 4 in 10 patients would prefer to go back to the normal situation (as it was before the COVID-19 pandemic) (Table IV).

Table IV: Patients’ dental care-seeking behaviors during the COVID-19 pandemic and perceptions of protection measures

	N	%
• Afraid of visiting a dental clinic during the current pandemic	352	70.5
• Visited the dental clinic only in an emergency	388	77.8
• Knew that Royal Medical Services dental clinics only accept emergencies	342	68.4
• Tried to visit a Royal Medical Services dental clinic during the lockdown period	138	27.6
• Believe that the protection procedures at dental clinics are sufficient	386	77.5
• Think that the dentist has enough knowledge about COVID-19 protection methods	455	91.0
• Think that there is a need to implement additional protection procedures	380	76.2
• Think that it is important to have physical distancing in the waiting area	472	94.4
• Believe that it is ok to delay routine dental visits	416	83.2
• Think that triaging patients before entering the OPD is a useful procedure	425	85.0
• Would prefer to go back to the previous (normal) situation regardless of the risk of spreading the infection	199	39.8

Lastly, a multivariate analysis showed that patients educated to university level were more afraid of visiting a dental clinic, compared with patients educated to elementary level (after controlling for other variables) (p-value 0.036). Meanwhile, gender and age group were not significantly associated with being afraid of visiting a dental clinic. (Table V) shows the results of the logistic regression model for factors associated with being afraid of visiting a dental clinic during the COVID-19 pandemic.

Table V: Factors associated with patients being afraid of visiting dental clinics during the COVID-19 pandemic (results of logistic regression analysis)

Variable		Odds Ratio	P-value
Age (in years)	<i>20–29</i>	Reference	
	<i>30–39</i>	1.3	0.318
	<i>40–49</i>	0.9	0.823
	<i>≥50</i>	0.6	0.072
Gender	<i>Male</i>	Reference	
	<i>Female</i>	0.9	0.776
Educational level	<i>Elementary school</i>	Reference	
	<i>Secondary school</i>	1.5	0.269
	<i>University education</i>	2.3	0.036*

* Significant at $\alpha < 0.05$ level

DISCUSSION

During their practice, dentists and maxillofacial surgeons come into close proximity with their patients (16–18). Usually, dental interventions are aerosol-generating procedures which present a high risk due to the possibility of contaminated saliva and blood ejectors (1,19,20). Previous studies have reported that dental clinics are associated with a high risk of SARS-CoV-2 nosocomial infection (16,21,22). In addition, this infection presents a particularly high-level occupational hazard for dental practitioners (19,21,23). Therefore, it is not surprising that half of the study participants perceived dental clinics as a high-risk place in terms of transmission of COVID-19. Sun et al. reported similar risk perception among parents of pediatric dental patients in China (24). However, it seems that patients educated to secondary level might have lower perceptions of COVID-19 risk, so they might benefit from targeted awareness-raising activities.

Widespread modern media messages may seem to be providing plenty of public information about SARS-CoV-2 incubation periods and common symptoms (24,25). Not knowing the mode of SARS-CoV-2 transmission could jeopardize infection-control efforts in dental clinics because patients play a significant role in applying certain infection-control procedures, such as handwashing, wearing face masks and social distancing (19,23).

During the COVID-19 lockdown period in Jordan and other countries, all routine dental visits were cancelled, and only emergency dental services were available. The participants in our study indicated that they support delayed routine visits. An American study reported that 43% of patients had delayed their visits to dental clinics (10,26). However, the same American study showed a lower level of trust in dentists' procedures for COVID-19 prevention. In the USA, only 42% of the studied population reported that they trusted dentists' protection measures, compared with 78% of Jordanian patients reporting that the protection procedures in dental clinics are sufficient to protect people from COVID-19 (10,18). Furthermore, it seems that Jordanian patients have a very high level of trust in their dentist's knowledge regarding COVID-19 (91%). This high level of trust should be maintained by keeping dental teams up to date with COVID-19 developments (27). Fortunately, a recent social media survey has shown that Jordanian dentists are well informed about COVID-19 (9,28).

On the other hand, delaying seeking emergency dental treatment could have negative consequences (such as development of complications), which could potentially be life-threatening if there is a risk of airway obstruction (18,29,30). Therefore, emergency cases (such as maxillofacial injuries or dental abscesses not responding to drug management) should be encouraged to seek urgent dental care, and primary dental practitioners could have a crucial role in triaging and referring these urgent cases to timely dental care (1,15,16).

Several attempts have been made to introduce new procedures and protocols in order to provide safe dental care during the COVID-19 pandemic (1). The general theme of these procedures is to focus on the use of PPE, changes in dental clinic structures (e.g., use of new equipment or minimizing use of high-speed handpieces), having 30-minute slots between dental appointments and fresh air ventilation (21,23). Further measures such as social distancing in waiting areas (or totally abolishing the waiting area concept) and rapid COVID-19 tests (31) are also encouraged. Lastly, teledentistry has plenty of potential in terms of providing effective remote care, which could eliminate the risk of COVID-19 transmission. This could be used for triage purposes and to provide dental consultations, follow-up care for patients and other benefits (16,27,32).

The convenient sampling method used in this study could limit the generalizability of the findings. However, to the best of our knowledge, this study is one of the very first studies to explore dental patients' knowledge about COVID-19 and attitudes towards seeking dental care during the pandemic.

CONCLUSION

Dental patients in King Hussein Medical Centre strongly support the new protection measures that were implemented to minimize the risk of SARS-CoV-2 transmission, and they have high levels of trust in dentists' knowledge regarding COVID-19. Most dental patients perceive visiting a dental clinic to have a high degree of risk in terms of SARS-CoV-2 transmission. One out of four patients think that

there should be even more protection procedures in dental clinics. The dental industry is expected to enter a new era with ‘a new normal’ regarding protection measures (11,31). Patients’ involvement and the use of new technology and innovations could provide effective and practical solutions to the challenges associated with dental care during and after the COVID-19 pandemic (24,32).

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