
ASSESSMENT OF ATTENDANCE, BEHAVIOUR, AND PERCEPTION REGARDING THE COVID-19 OUTBREAK AMONG A SAMPLE OF JORDANIAN DENTAL PATIENTS

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ABSTRACT

Objectives: To determine the patients' awareness of the prospective risks of COVID-19 transmission during dental practice, to evaluate patients' behaviour and investigate their reactions to the professional restrictive measures imposed due to the pandemic.

Methods: Mixed methods were used; descriptive analyses were reported as frequencies and percentages to summarize the socio-demographic data (age, gender, marital status, level of education and region) of the participants and chi-square test for the qualitative categorical variable (number in attendance and questions relating to behaviour). The study, which involves a self-designed questionnaire composed of 18 questions, was distributed among a sample of dental patients who were treated in the hospitals of Jordanian Royal Medical Services.

Results: A total of (318) patients (182) females and (136) males. The included patient age range of 18 to 51 and above, were treated in three hospitals distributed in three major cities in Jordan; Amman, Irbid and Al-Karak. They were asked about their awareness of the COVID-19 pandemic in the Jordan Royal Medical Service (JRMS). The results of this study showed that around two-thirds of the participants were very concerned about being infected with COVID-19 and they chose not to attend their appointments. However, a statistically significant relationship was reported between education level and visits to the dental clinic during quarantine.

Conclusion: The results indicate that dental clinic patients displayed a relatively high level of knowledge, mature attitudes and suitable practices towards COVID-19 during the outbreak. In addition, a low level of attendance was observed at clinics, therefore, dental health specialists should recommend and apply prevention methods to reduce the spread of COVID-19 during dental procedures.

Key words: dental clinics, Jordan, COVID-19, pandemic, patients' behaviour, attitude

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INTRODUCTION

Coronaviruses (CoVs) are a large family of single-stranded Ribonucleic Acid (RNA) viruses, belonging to the Coronaviridae family and the subfamily, Coronavirinae. Morphologically, CoVs resemble a crown under a microscope, due to the envelope spike glycoproteins that include non-segmented positive-sense RNA viruses and have been classified into four genera (alpha-COV, beta-COV, gamma-COV

and delta-COV), characterized by various antigenic cross-reactivity and genetic composition. They are known to cause disease among animals and humans.^[1] In late 2019, in Wuhan, China, a new CoV strain was reported, which caused respiratory disease, and at the beginning of 2020, the World Health Organization (WHO) recognized the new disease under the term Coronavirus Disease 2019 (COVID-19).

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^[2] The COVID-19 outbreak has become the world's most significant health issue, which is causing major health problems and public concern. On 30 January, 2020, the WHO declared that the new CoV outbreak was a controllable, public health pandemic.^[3] The main transmission route for the virus is the inhalation of air droplets (suspended respiratory secretions) and these droplets spread when an infected individual coughs, sneezes or speaks or transmission may occur through direct contact between humans. The modes of transmission of COVID-19 increase the incidence of the disease among people who are in close contact with infected patients, such as healthcare doctors, nurses and other patients. Hospitals and dental clinics may be considered as areas with a high risk of infection among medical staff and their patients. Symptomatic/asymptomatic infected patients have triggered an emergency situation in the health system.^[4] The Covid-19 infection may, in certain cases, be symptom-free, with an incubation period from three to 14 days, and in some cases the infection may prove fatal.^[4, 5] Due to the rapid spread nature of COVID-19, millions of people all over the world have been affected; this has led to isolation, quarantine and in some cases the disease has been fatal, which led to the need to evaluate the psychological stress and fear on a global scale. Consequently, and due to the nature of dental care procedures and the proximity of the dental care team with patients, COVID-19 might be readily transmitted from an infected person to the dental team and vice versa, and subsequently to other individuals, if the correct Personal Protective Equipment (PPE) is not utilized. During dental procedures, COVID-19 can be transmitted through the inhalation of nasal or oral droplets from infected persons or direct contact with nasal mucous membranes, oral fluids and contaminated utensils and surfaces

.^[6] Therefore, to control the transmission of the virus among dental doctors and patients, screening tests should evaluate the infection control system in dental clinics, such as the use of sterile disposable gloves, face masks, gowns, warning signs, hazard labels, surfaces disinfectants and antiseptic hand sanitizers. Moreover, awareness programmes should be conducted to prevent further transmission of the disease. The aim of this study was to assess patients' awareness of the potential risks of COVID-19 transmission in dental practices, to evaluate patients' behaviour and investigate their reactions in relation to the COVID-19 pandemic.

Methods:

Study design

This study was a descriptive cross-sectional strategy of patients who attended dental clinics in three medical centres of the Jordanian Royal Medical Services (JRMS): King Hussein Medical Centre (KHMC), Prince Rashid Bin Al-Hasan Military Hospital, and Prince Ali Bin Al-Hussein Military Hospital. This study was conducted in between May 2020 to November 2020.

A convenient sampling (availability sampling) method was used in this study: a technique that depends on data collection from population members, who are available to participate in the study, using G. Power .3.1 software to calculate the sample size with effect size = (0.15), power (0.80) and significant level $p=0.05$.

The eligible participants were only Jordanian and aged above 18 years, therefore, could easily read and understand the survey. These citizens were chosen to represent a cross-section of Jordanians' responses to the COVID-19 pandemic. The self-designed questionnaire was designed in English which consisted of three sections.

The first section included five questions regarding socio-demographic characteristics. The second section included eight questions (with a maximum score of 8) related to information on patients' behaviour and awareness. Third section included three questions related to the perception. The sum scores of the answers relating to information on patients' behaviour and awareness were divided into two parts: negative (less than 4) and positive (4 or above). [9] [10,27, 28].

The questionnaire was created and designed in accordance with expert group discussions, expert evaluations and literature reviews, examining patients' behaviour towards the COVID-19 outbreak. [7, 8, 27, 28]

While collecting the data, a member of the research team was present, cooperative and was permitted by the patients to ask any questions. The nature and technique of

the study was described to each volunteer and provided assurances that all data would remain private and anonymous. In addition, the researchers guaranteed patients taking part in the study that their participation would not affect the dental service provided. Moreover, an ethical agreement was obtained from the Institutional Review Board (IRB) committees at the JRMS. The content validity of the questionnaire was ensured using the translation and back-translation procedure. A bilingual researcher translated the questionnaire from English to Arabic (Arabic, English) and subsequently, another multilingual researcher retranslated the questionnaire from Arabic to English to ensure its accuracy. The two English versions (original and translated/back-translated) were compared to ensure that the meaning of the items did not differ between the two versions. Cronbach's alpha was calculated to be 0.75 for the internal consistency reliability of the questionnaire.

Statistical analysis

Data analysis was completed using the SPSS

software program, version 25. Descriptive analyses were described as frequencies and percentages, so as to summarize the socio-demographic data for the volunteers. The chi-square test was used to compare the qualitative categorical variables. Differences with a P value < 0.05 were considered statistically significant.

Results

A total of 318 patients participated in the study. The responses were recorded from three regions of Jordan: central (n=195, 61.32%), south (n=102, 32.08%), and north (n=21, 6.60%).

Table 1 displays the socio-demographic characteristics of the participants, The majority of the patients were female (n=182, 57.23%). Around half of the participants were aged between 18 and 30 years old (46.23%). Moreover, 55.97% of the participants had been educated to secondary level and approximately 11.95% of the participants had a diploma or bachelor's certificate. More than half of the participants were married (54.09%). Around two-thirds of the participants were very concerned about being infected with COVID-19 and they chose not to attend their appointments, as shown in Table 2. The association between socio-demographic characteristics and visits to the dental clinic during quarantine were examined. The results showed no statistically significant association between visits to the dental clinic during quarantine on the one hand and gender, age, marital status and the location of the participants on the other (p-value >0.05), (see Table 3). A statistically significant relationship was reported between education level and visits to the dental clinic during quarantine, although the number of participants who visited the dental clinic

during quarantine was significantly higher among patients with a higher degree (66.7%, n=4) than those who did not visit the dental clinic (33.3%, n=2) (p-value=0.023).

Tables 4, show the behaviour and awareness of patients in relation to COVID-19, including their level of fear. Responses were scored as follows: yes response - 1, no response - 0. The results show that 70% of patients visited dental clinics as emergency cases associated with pain. Almost all participants (94.2 %) reported that they had sufficient data relating to the disease and 88.4% of patient knew how COVID-19 was transmitted, while 68.6% of patients believed that they would become infected with COVID-19 through direct contact with another infected patient. In terms of an evaluation of the protocol and procedures of the JRMS dental department during the pandemic, the answers were excellent (50 %), very good (43%), good (5.8%) and bad (1.2%), respectively.

In Table 5, half of the participants feared becoming infected through direct or indirect contact with another patient (50%), while only 4.7% considered the clinic equipment or co-workers to be a source of contamination.

When all eight items were combined, the mean score for behaviour and awareness was 6.28 (range 1-8) which was higher than the mean (mean=4), indicating that patients displayed positive behaviour and awareness. Almost all patients who visited the dental clinic during quarantine (86.3%) exhibited positive behaviour and awareness (Figure 1)

Discussion:

The COVID-19 pandemic has generated intense and immediate change in terms of the nature of dental care. Justifiably, pausing and ending the routine and elective dental service, and only treating emergency cases, has been the general response in dealing with this

pandemic situation. Moreover, many preventive measures are required to deal with the situation, such as a supportive attitude from the population.^[11] During the pandemic, psychological reactions such as anxiety, panic and fear are natural, mainly due to the rise in the number of infected cases and mortality rates. This was shown by Chew et al., who found that the common psychological responses toward COVID-19 were anxiety/fear, depression, loss and post-traumatic stress.^[11] The present study reported that most of the patients were concerned about becoming infected while attending dental clinics during the current viral outbreak; this is consistent with the results of a previous study that evaluated similar transmittable diseases, such as Severe Acute Respiratory Syndrome (SARS) and found that it led to psychological suffering in patients, including the fear of contracting the virus during dental treatment.^[12] This may be due to the fact that droplets and aerosols are the primary routes of transmission of coronavirus, thereby increasing the possibility of dental patients becoming infected and spreading the virus. The present study reported no statistically significant relationship ($P > 0.05$) between visiting the dental clinic during quarantine and gender, age, place of residence or marital status.^[13] In contrast to the results of this study, previous studies conducted in China and Saudi Arabia found that gender and marital status affected the visits to dental clinics and awareness of vaccine acceptance was statistically significant.^[14-16] ^[15] ^[17] Regarding the relationship between patients' educational level and visits to the dental clinic during quarantine, the results of this study showed a statistically significant relationship, which is consistent with the results of Gebretsadik et al.^[18] Except for high

degree educated patients, this could be due to the fact that patients with a higher level of education have relatively more knowledge of the pandemic compared to others and may have general infection control knowledge. Additionally, the results of this study found that married participants (54.09%) attended dental clinics more often than non-married participants (45.91%). The results of this study showed that the groups which attended most regularly were younger than 40, which is similar to the findings of Ahmad et al.[19] Our findings suggest that there was a relatively higher percentage (57.23%) of female patients attending the dental clinic; this is in stark contrast to the characteristic demographic patients accessing emergency dental care, who are predominantly male.[20-22]

Of the total number of 318 participants, 72.96 % were afraid of becoming infected with COVID-19 and chose not to attend their appointments. This observation is in line with another study by Ustun et al.,[23] who observed that there was a significant reduction (decreased to half) in clinical dental visits during the pandemic by comparison with the pre-pandemic period. This could be due to the lockdown measures imposed by the government to prevent the spread of infection. Essentially, any interpretation of these conclusions should reflect the socio-demographic characteristics of respondents. Moreover, in such circumstances, patients who are suffering from dental pain and have booked multi-visit treatment sessions may be subject to postponements in their dental care. In this observation 50% of the patients who visited dental clinics were for emergency treatment associated with pain.[24] A large percentage of patients wished to delay their dental treatment sessions due to fear of contracting the disease and the recommendations and guidelines relating to COVID-19, which recommended that all elective dental treatment be postponed and that only patients suffering from pain, swelling or bleeding should attend the clinic for treatment.

In the current situation, all non-critical dental treatment for all patients must be postponed until the pandemic is under control. Furthermore, the present study found that the respondents were aware of the route of transmission of COVID-19. Therefore, such information should be made available during dental treatment as part of an infection control programme. This is critical in terms of applying advanced procedures and guidelines to control the pandemic and reduce the generated number of aerosols. In contrast, Daniel et al. found that a high number of study participants had limited knowledge in relation to the key symptoms of the COVID-19 infection and the fact that the virus could be transmitted via asymptomatic individuals. Similar results were observed in other studies, which reported that in Iran, 85% of participants had a good knowledge score and in China, 90% had a good knowledge score. [18, 25, 26] Therefore, the present study showed that 68.6% believed that they will be highly susceptible to get infected with COVID-19 through direct contact with another infected patient. This response matches the observations of the rest of the population, with individuals claiming to be fearful of becoming infected by other individuals in a public place during the rapidly rising pandemic. The present study reports that a large number of patients had anxiety as a result of becoming infected from other patients (50%) rather than from clinic equipment or from co-workers; they were also fearful of becoming infected from dental treatment procedures and subsequently passing that infection to their own families. This may be due to the fact that coronavirus can survive on several surfaces for long periods of time. Moreover, there is a long incubation period before symptoms appear. Panic levels could be significantly reduced if patients follow the precaution recommendations, such as wearing a face mask, which is essential in controlling the spread of respiratory infection.

Table 1: Socio-demographic characteristics of the participants (n=318).

Variable	Group	Frequency	Valid percentage %
Age (years)	18-30	147	46.23
	31-40	89	27.99
	41-50	42	13.2
	51≤	40	12.58
Gender	Male	136	42.77
	Female	182	57.23
Marital status	Single	146	45.91
	Married	172	54.09
Level of education	Secondary school or less	178	55.97
	Diploma	38	11.95
	BA	96	30.19
	Higher degree	6	1.89
Region	Central	195	61.32
	North	21	6.6
	South	102	32.08

Table 2: The attendance of participants at dental clinics during the COVID-19 pandemic (n=318).

Question	Yes (%)	No (%)
Visiting the dental clinic during the COVID-19 pandemic	86 (27.04)	232 (72.96)

Table 3: The association between socio-demographic characteristics and visits to the dental clinic during quarantine (n=318).

Variable	Visiting the dental clinic during the COVID-19 pandemic		Chi-square	p-value
	Yes (n%)	No		
Age (years)			5.76	0.124
18-30	35 (23.8)	112 (76.2)		
31-40	21 (23.6)	68 (27.99)		
41-50	17 (40.5)	25 (59.5)		
>= 51	13 (32.5)	27 (67.5)		
Gender			0.097	0.756
Male	38 (27.9)	98 (72.1)		
Female	48 (26.4)	134 (73.6)		
Marital status			0.141	0.707
Single	38 (26.03)	108 (73.97)		
Married	48 (27.9)	124 (72.1)		
Level of education			9.493	0.023*
Secondary school or less	40 (22.47)	138 (77.53)		
Diploma	9 (23.68)	29 (76.32)		
BA	33 (34.37)	63 (65.63)		
Higher degree	4 (66.7)	2 (33.3)		
Region			0.984	0.611
Central	52 (26.7)	143 (73.33)		
North	4 (19.05)	17 (80.95)		
South	30 (29.4)	72 (70.6)		

Table 4: Patients’ awareness and behaviour (n= 86)

The following questions assessed the behaviour and awareness of patients who attended the dental clinic during quarantine (n=86)

Item	Yes (%)	No (%)
1. Is your appointment an emergency visit to the dental clinic (due to pain)?	60 (70)	26 (30)
2. Are you up-to-date with the current medical data regarding COVID-19?	81 (94.2)	5 (5.8)
3. Are you aware of the mode of transmission of COVID-19?	76 (88.4)	10 (11.6)
4. Are you afraid of becoming infected with COVID-19 from contact with a patient or a member of the medical team?	59 (68.6)	27 (31.4)
5. Do you maintain a considerable physical distance from others?	69 (80.2)	17 (19.8)
6. Do you trust the sterilization tools in the dental clinic?	80 (93.023)	6 (6.977)
7. If you have regular treatment, do you think it is worth the risk of becoming infected with COVID-19 and putting yourself and your family in danger?	77 (89.535)	9 (10.465)
8. Do you follow all the safety precautions by (wearing a mask and gloves) before coming to the dental clinic?	55 (63.95)	31 (36.05)

Table 5: Patients’ perception in relation to COVID-19.

Variable	Frequency	Percentage %	
What do you think of the protocol of JRMS’ dental department during this pandemic?	Excellent	43	50
	Very Good	37	43
	Good	5	5.8
	Bad	1	1.2
Where do think you are most likely to become infected?	Dentist	35	40.6
	Patient	43	50
	Co-workers	4	4.7
	The clinic equipment	4	4.7
From which source did you get your information on coronavirus?	Medical team	15	17.4
	News	56	65.2
	Social media	15	17.4

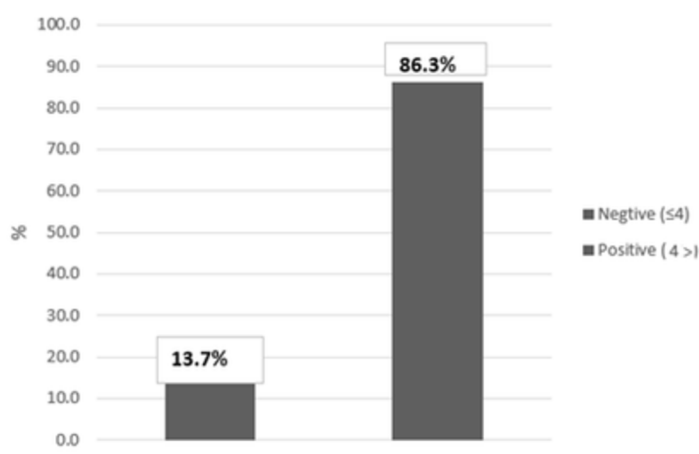


Fig. 1: Patients’ behaviour and awareness

Conclusion:

Dental clinic patients have a relatively high level of knowledge, mature attitudes and an awareness of suitable practices towards COVID-19 during the outbreak. In addition, a low level of attendance at clinics was reported, therefore, dental health specialists should recommend and apply prevention methods to reduce the spread of COVID-19 during dental procedures. Researchers should estimate the effects of COVID-19 on dental practice and suggest solutions that can be applied during the current and future pandemics.

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28. Fear of COVID-19 in Madrid. Will patients avoid dental care
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