

Predicting Factors Affecting Dental Patient Compliance in Primary Health Care

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ABSTRACT

The compliance of dentists with good hygiene practices was essential to minimize the transmission of infection, and the infection cycle has significantly interrupted the provision of oral health care to many individuals. Aim of study: aimed to examine, actors affecting dental patients' compliance in primary dental health. Research design: descriptive cross-sectional research design was utilized. The present study was conducted on 300 dental patients visiting four private dental offices in primary health care at Gaddah during the period June to August. Twenty-five of the participants indicated that they had visited a dentist for teeth cleaning in the past year when asked if they had complied with the recommendation. In the meanwhile, most stated that they intended to postpone prosthetic procedures (crown placements, implants, or dentures) out of concern for the spread of infection. The overwhelming majority of participants (59%) acknowledged the crucial role that dentists play in primary healthcare. "Has your fear of infection prevented you from attending your scheduled dental appointments?" 25% of respondents said they would be influenced if they knew the dentist had an infection, whereas 70% said they had not been impacted. Eighty-eight percent of interviewees said they would feel more secure if they knew their dentist was vaccinated. conclusion Based on patient views, we found that dentists had sufficient knowledge, attitudes, and practices regarding infection control methods. When performing dental work on patients, the great majority of dental professionals demonstrated a solid understanding of hand hygiene and adhered to all health precautions against cross-infection as directed by public health authorities.

Keywords: dental patients; vaccination; compliance; primary health care

INTRODUCTION

Numerous infection cases among medical staff are caused by aerosol-generating operations conducted in high-risk environments, such as intensive care units, emergency rooms, and respiratory medicine departments. elevated because the aerosol and droplet generation from dental instruments, along with the patient's blood, saliva, and other fluids, may enhance the risk of the spread of dangerous pathogens [Abedin et al., 2021]. Direct contact between dental care workers (DCWs) and patients at a dental clinic is one high-risk mechanism of transmission [Meng et al 2029].

In dental practices, dental fear is a significant issue for both patients and dentists. It is estimated that up to 21.3% of adults suffer from severe dental dread.^{2,3} People who are afraid of the dentist have more irregular dental attendance and worse psychosocial and psychosomatic disorders.^{1,4} A strong fear of the dentist may drive people to avoid routine dental treatment and to cancel or postpone appointments. Even going to the dentist is linked to dental pain or issues for those who are afraid of the dentist. Therefore, dental fear can impair oral

health, postpone dental care, increase treatment needs, and negatively affect frequent dentist attendance (Imai et al., 2021; Faasse et al., 2020)

Aerosols and droplets from procedures in dental clinics may carry viruses such as influenza, measles, as well as dangerous bacteria such as *Mycobacterium tuberculosis* [rUI et al., 2021; Kamate et al., 2020]. Numerous water droplets and aerosols are produced in front of the patient's face by dental chair unit (DCU) equipment, such as high-speed water-cooled handpieces, ultrasonic instruments, low-speed polishing handpieces, and dental air-water spray guns [World Health Organization 2021]. The second significant problem is the close (within 1 m) and extended interaction between patients and operators. While a normal endodontic session may take more than an hour, endodontic emergencies for acute pulpitis may take 30 to 40 minutes. The description of the working environment is completed by the presence of two to three DCWs close to the patient. There is a risk of viral diffusion when many DCUs are in close proximity to one another and are not segregated, particularly when there are airflows that could disperse droplets surrounding dental equipment (Global Health Cluster COVID-19 Task Team, 2020).

Aerosol particles (blood, water, and saliva) from DCU instruments on protective surfaces such as masks, goggles/face shields, gowns, glasses, equipment/furniture, and the floor are likely to infect all operators after a single clinical session. The conjunctiva and other body areas of the operator could become contaminated by droplets. Hand-pieces create airborne particles such as dentin-enamel debris, dentin smear layer, and composite/provisional cement/pastes, which can float for a long time before being dispersed by air turbulence brought on by instruments and operator movements. (Meng., et al., 2019)

Significant of the study

It is believed that one factor influencing health-related behaviors is threat assessment. Health behaviors, such as visiting the dentist, are governed by moderating factors and personal beliefs, according to the primary health care paradigm [5]. Many studies were conducted during the COVID-19 pandemic to examine the relationship between public perceptions of risk and preventive behavior [6,7]. In order to get the desired result, a dental clinic needs to adhere to stringent cleanliness regulations and infection control protocols. Dental professionals need to lead the way in managing cross-infections to protect patients' oral health and wellbeing. Public awareness must be increased and informed therapy decisions must be taken in order to prevent panic and support patients' dental health and well-being during these difficult times.

In 2020, a global study was carried out to assess dentists' perspectives, behaviours, and knowledge of the new pandemic data. Based on these results, every dentist (100%) agreed that it was possible to prevent contamination by using personal protective equipment and maintaining good hand hygiene, and that their practice could raise patients' awareness of COVID/19. People with a high risk of infection. It seems that this new condition affects people of all ages. The risk of infection is higher for those who have direct contact with infected people, especially hospital patients and healthcare workers.

Aim of study

The aim of the current study was to assess factors of compliance of dental patients among primary healthcare providers..

Research question:

- What is the level of primary health care providers' adherence to conventional precautions when providing dental care?
- What obstacles prevent primary care physicians from taking the recommended safety measures when providing dental care?

2. MATERIALS AND METHODS

Research design

Cross sectional descriptive research design was utilized to conduct this research

Settings: The research was conducted at the private dental clinics at Makkah, twelve clinics were randomly selected using automatic random sample.

Samples: 800 patients who visited the prementioned setting were assigned to participate in such research. The inclusion criteria were an age of over 18 and the provision of consent to be interviewed for the study.

Measurement

One tool was utilized divided into two parts:

General dental patient characteristics was developed by the researchers, age; sex; residency; medical and surgical history

Part II: it was developed by the researchers to assess the attitudes towards and perceptions of the implementation of preventive measures during dental care and the role of dentists. It consisted of 8 questions. The participants' response using five Likert scale, start from strongly disagree to strongly agree.

Data collection

A self-report questionnaire with questions on demographics and 8 questions on attitude/perceptions was used as a research tool. The questionnaire was initially distributed to 10 patients whose comments were used to shape the final version. In contrast, its final version was finalized after being examined by an experienced university researcher (ensuring content and face validity, respectively). The research was carried out during the period June – August 2024., informed consent was obtained from all participants prior to entering the study, as well as approval from the authoritative body

Statistical Analysis

Descriptive and inferential statistical analyses were performed. Relative (%) and absolute frequencies were presented for categorical variables, while continuous variables were presented as mean ± standard deviation. The chi-squared test (χ^2) was used for the univariate analysis of categorical variables; the t-test was used for the univariate analysis of continuous variables. A p-value of <0.05 was considered indicative of statistical significance. Logistic regression with the backward method was performed to identify which variables impact the decision to attend an appointment with a dentist. All data were analyzed with the SPSS software (IBM SPSS Statistics for Windows, Version 26.0).

3. RESULTS

Among the 450 patients, 300 were accepted to participate. The subjects' ages ranged from 18 to 86 years, and the study sample's mean age was 38.79 years with a standard deviation of 5.54 years. Of the participants, 60% of the sample as a whole were female, Two-thirds of the sample had at least one child (78%), two third of participants (62%) were married,. In terms of residence, 75% of the population lived in urban areas, and the rest lived in rural areas (Table 1).

Table 1. Frequency distribution of studied dental care patients

Socio- demographic data	No	%
Gender		
Female	180	60
Male	120	40
Age		
18<25	20	6.66
25<35	60	20
35<45	140	46.66
45<55	100	33.33
Marital status		
Married	188	62.66
Single	98	32.66
Divorced	14	4.6
Have Children		
Yes	204	68
No	96	32
Number of children		
0 children	2	.66
1 child	50	16.66
2 children	148	49.33
3 children	48	16
4 children	52	17.3
Residence		
Rural area	100	25
Urban area	200	75
Education		
Primary	30	10
Secondary	75	25
Graduate	150	50
Postgraduate	45	15

In terms of participants' educational backgrounds, two-thirds (65%) were postgraduates and university graduates, whereas 8% had just completed elementary school. Of the sample, 46% did not get their teeth cleaned, and 24%

postponed scheduled prosthetic work (dentures, implants, or crown placements) out of concern that an infection would spread (Table 2).

Table 2. Dental patients and their compliance with primary health care services

Questions	N	%
Did you undergo teeth cleaning during the last year?		
Yes	100	25
No	200	75
Did you cancel planned prosthetic work (dentures, implants, crown placements) before due to the fear of the infection transmission?		
Yes	75	24
No	225	76
The dentist's role is important in dealing with the tooth care?		
Strongly agree	110	37
Agree	155	52
Strongly disagree	6	2
Disagree	29	9
The information you received from the dentist about the dental care were sufficient?		
Strongly agree	130	43.33
Agree	100	33.33
Strongly disagree	5	1.6
Disagree	65	21.6
Has fear from cross infection discouraged you to keeping your scheduled dental appointments?		
Yes	90	30
No	210	70
You consider for your appointments whether the dentist follows all health protocols against infection according to guidelines of public health authorities.?		
Strongly agree	200	75
Agree	65	21.66
Strongly disagree	5	1.6
Disagree	30	10
If you knew that the dentist he had fallen ill from infection and fully recovered, would it affect your visit to the dental office?		
Yes	75	25
No	225	75
Would you feel safe knowing that your dentist was vaccinated against the blood transmitted diseases ?		
Yes	264	88
No	36	12

Twenty-five of the participants indicated that they had visited a dentist for teeth cleaning in the past year when asked if they had complied with the recommendation. In the meanwhile, most stated that they intended to postpone prosthetic procedures (crown placements, implants, or dentures) out of concern for the spread of infection. The overwhelming majority of participants (59%) acknowledged the crucial role that dentists play in primary healthcare. "Has your fear of infection prevented you from attending your scheduled dental appointments?" 25% of respondents said they would be influenced if they knew the dentist had an infection, whereas 70% said they had not been impacted. Eighty-eight percent of interviewees said they would feel more secure if they knew their dentist was vaccinated.

Regarding the information that dentists receive, 88% of participants believed that dentists play a crucial role in treating infections, and 89% of them thought the information they received from dentists was adequate. Of the entire sample, 43% of them kept their planned dental appointments, while 25% said that their fear of infection made it difficult for them to do so. 98% of participants said that the dentists followed all infection prevention measures and that their office was set up to comply with health regulations (Table 2). A logistical regression with the backward method was performed in order to identify

Table 3. Multiple logistic regression results with willingness to keep appointments as the dependent variable and focus on the impact of fear from infection on different aspects, including, among others, the use of certain specific services, such as maternal and child healthcare, child vaccination, or chronic diseases in the initial stages of the pandemic [12–14].

Results of Multiple Logistic Regression with Willingness to Keep the Appointment as Dependent Variable

	Full model		Reduced model			
	Odds Ratio	p-Value	Odds Ratio	CL 95%	p-Value	
Important role of dentists against the pandemic	0.65	0.02	0.65	0.79	0.06	0.02
Information about COVID-19 from dentists	1.42	0.06	1.50	0.07	0.75	0.01
Illness of dentist and patient's visit	1.70	0.07	1.77	0.01	1.14	0.04
Constant	0.32	0.04	0.47	1.40	0.12	0.02

which variables can affect the decision of patients to attend appointments with a dentist.

According to the regression analysis, the prognostic factors that play an important role in patients keeping their appointments are the perception that dentists have an important role in the pandemic (OR = 0.654), the information that dentists give to their clients (OR = 1.502) and the illness and recovery status of dentists (OR = 1.773), (Table 3). Of all the dentists and dental health care workers who participated in the present study, 100% were fully vaccinated

DISCUSSION

A community's modifiable traits or access obstacles to health services can be impacted by health policies, programs, or interventions. Vaccination is a crucial strategy in the combat against COVID-19. Worldwide vaccination campaigns began in December 2020, and a significant percentage of the populations of various nations have since received vaccinations. In order to protect the public from COVID-19, vaccination is essential. According to the current study, one of the factors influencing patients' decision to continue seeing dentists was their level of vaccination. Health professionals in Greece have a very high vaccination rate. A prior survey of medical professionals in Central Greece shows that doctors, dentists, and chemists have a high level of acceptance of the COVID-19 vaccine [Papagiannis, et al., 2021].

The population benefits from increased awareness and immunisation due to dentists' strong support for COVID-19 vaccination and their patients' correspondingly good acceptance of protection. Additionally, individuals with high levels of fear of COVID-19 were more likely to accept receiving the vaccine than those with low levels of fear, and those with moderate to high levels of knowledge about COVID-19 vaccination were more likely to accept receiving the vaccine [Nasr, et al., 2021].

According to a Czech Republic study, 79.6% of dentists who participated said they had received all recommended vaccinations. Dentists' more favourable views of COVID-19 vaccine may be related to the kind of training they received [18]. Higher educated people had a more favourable attitude towards vaccination, according to research by Abedin et al. [Abedine et al 2021]. The refusal of vaccination by medical personnel is one of the main causes of the community's increased vaccine reluctance. As crucial is ensuring vaccine acceptance, particularly among medical professionals; a number of research looked into people's readiness to receive a possible COVID-19 vaccine or vaccination (Malik et al 2020; sheker et al., 2021)

According to the current study, one of the main factors lowering patients' anxiety when they visited the dentist during the second pandemic wave was the immunization of dentists. Eighty-eight percent of participants in the current survey said that knowing their dentist was COVID-19 vaccinated would make them feel safer. How adequate the information patients received from specialists was another crucial concern throughout the pandemic. In line with previous research, the current study found that during the COVID-19 epidemic, health professionals were essential in educating the public and integrating social and health services [Yi et al 2020].

Fear is a unique way of dealing with infectious diseases in contrast to other disorders. The rate of COVID-19 transmission, its somewhat rapid and undetectable spread, as well as its morbidity and mortality, are all directly correlated with fear. Psychosocial issues such as stigmatization, prejudice, death, or appointment cancellation in primary healthcare facilities are also brought on by fear [25, 26]. Schepers et al. found that patients were more likely than providers to cancel appointments, and that medical specialists like dentists or ophthalmologists were more likely to do so than general practitioners (Alqahtani et al., 2021).

According to the current study, 24% of participants cancelled their scheduled visits out of concern of infection, while 76% of participants did not postpone scheduled prosthetic work (dentures, implants, or crown installations). In contrast to the current findings, a fear of infection decreased people's willingness to visit a doctor, which led to missed doctor's visits during the epidemic. In early 2020, during the first wave of the COVID-19 pandemic, the number of missed medical visits significantly increased, according to another review from many disciplines and areas [Olorunsaiye, et al., 2020].

Hand washing is advised by the Greek Public Health Organisation (EODY) as a necessary precaution before and after dental procedures, before departing the dentist office, and after coming into contact with anything contaminated by following contact with anything tainted by blood, saliva, or other secretions, as well as when one's hands are obviously filthy. Participants in the current survey concurred that 94% of dental practitioners demonstrated good hand hygiene expertise and adhered to all COVID-19 health protocols as directed by public health authorities when performing dental procedures on patients. Our findings contradict those of other studies [29,30] and concur with those of other studies [Dhada et al., 2021].

In a similar vein, Elhadi et al. (2020) discovered that only roughly 13% of healthcare professionals believed that medical institutions were ready for the COVID-19 outbreak, whereas 18% of them acknowledged the existence of an isolation room and protocol. In contrast, a Saudi Arabian study by Al Ghobain et al. (2017) showed that over half of the hospital staff had received infection control training. They also stated that their hospitals had an infection control program, enough staff, and a plan in place to deal with the Middle East Respiratory Syndrome (MERS) outbreak.

The fact that this study was carried out in primary health care facilities may be the likely cause of the findings that differ from those of other studies. The results of this study showed that during the COVID-19 pandemic, all of the healthcare practitioners under investigation exhibited high and moderate levels of adherence to recommended precautions. Health care providers' awareness of the gravity of disease outbreaks in general and COVID-19 in particular, as well as the fact that the only way to safeguard themselves against them is to follow stringent infection control standard procedures, is reflected in the comparatively higher self-reported compliance. This result is in line with research conducted in Uganda by Amanywa et al. (2020), Egypt by Refeai et al. (2020), and Abdel Wahed et al. (2020).

The need of health care professionals adhering to infection control procedures in order to combat such a global pandemic may be the reason for this uniformity across research, regardless of the location. According to this study, most healthcare professionals mentioned that they cover their mouth and nose when coughing or sneezing and that they wash their hands more frequently before and after interacting with patients. This result emphasises how important it is to strictly follow proper hand and respiratory hygiene in order to prevent and control illnesses, particularly during the COVID-19 pandemic. This is in line with the Chinese study by Zhou et al. (2020), which found a comparatively high level of overall hand hygiene compliance.

These results are in line with research conducted in Ethiopia by Assefa et al. (2020), Loftus et al. (2019), Houghton et al. (2020), Refeai et al. (2020), and Nkomazana et al. (2015). However, the results of the aforementioned study showed that the least accepted obstacles were the health facility's non-participation in infection control programs, the lack of knowledge regarding the COVID 19 transmission routes, and the absence of guidelines for standard precautions in the health center.

5. CONCLUSIONS

Based on patient views, we found that dentists had sufficient knowledge, attitudes, and practices regarding infection control methods. When performing dental work on patients, the great majority of dental professionals demonstrated a solid understanding of hand hygiene and adhered to all health precautions against cross-infection as directed by public health authorities.

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