Awareness and Attitudes Regarding COVID-19 Among Clinical Dental Technicians in Albayda, Libya

Yahya Saber E. Mansour^{1*}, Nusieba A. Mohammed Ibrahim¹, Asmaa Abdulaziz A. Rabee²

¹Department of Pharmacology and Toxicology, Faculty of Pharmacy, Omar Al-Mukhtar University, Albayda, Libya

²Department of Pharmacology, Faculty of Medicine, Omar Al-Mukhtar University, Derna, Libya

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Corresponding Author:

E-mail : yahya.saber@omu.edu.ly

Mob.: +218922832573

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Abstract

Despite the availability of prevention guidelines and recommendations on infection management, several dental practices lack the basic awareness of requirements for infection control. This study aimed to assess the amount of awareness, perception, and perspective relating to the coronavirus disease (COVID-19) and infection control among clinical dental technicians. The study population consisted of clinical dental technicians who worked in private clinics, hospitals, and health centers in Albayda, Libya. A questionnaire was sent to a sample of clinical dental technicians in August 2020. The questionnaire comprised of a series of questions about clinical dental technicians including the following: their demographic characteristics, their awareness of the incubation period, the symptoms of the disease, mode of transmission of COVID-19, and infection management measures for preventing COVID-19, and their perspective toward treating patients with COVID-19. This study enclosed a total of 35 clinical dental technicians aged 22–50 years (mean = 29.5 years, SD = 9.8 years). A total of 10 (28.5%) clinical dental technicians had completed a residency program in dentistry, 15 (42.8%) had received training in infection control in dentistry, and 10 (28.5%) had attended training or lectures regarding COVID-19. A total of 5 (14.2%) clinical dental technicians reported that the period of time is 1–14 days. The bulk of clinical dental technicians were aware of COVID-19 symptoms and ways patients are at risk of getting COVID-19, were able to correctly report best-known modes of transmission, and were aware of measures for preventing COVID-19 transmission in dental clinics. A total of 30 (85.7%) believed that it was necessary to wear masks when within the waiting room and to wash hands before going in the dental chair in order to decrease disease transmission. Clinical denturists were aware of COVID-19 symptoms, modes of transmission, and infection controls and measures in dental clinics. However, clinical dental technicians had restricted comprehension of the additional precautional measures that protect the dental staff and other patients from COVID-19.

1 Introduction

The coronavirus disease (COVID-19) is a recently discovered pneumonia-causing infection that was first found in Wuhan, China, and subsequently spread around the rest of the world. It has been found that the fast spreading virus is more infectious than the severe acute respiratory disease corona virus causing SARS and the middle east respiratory syndrome corona virus

causing MERS¹. A suggested route of human-to-human transmission is touching or coming into contact with an infected person or a contaminated surface or through airborne droplets. Other routes of transmission similar to blood or saliva have not been explored, however, they are possible because of the recognized transmission of blood-borne infectious diseases, for

example, AIDS/HIV, hepatitis B virus, and hepatitis C virus. These routes of transmission increase the priority of cautioning against COVID-19 within the dental practice². A large number of medical staff were reported to contract the disease while working with infected individuals³. The dental clinic isn't an exception as a similar risk of transmitting the infection between staff or individuals exists, moreover, the dental health center could be a riskier environment for spreading the virus owing to close contact with patients and the nature of dental treatment⁴. Although patients diagnosed with COVID-19 do not necessarily require dental treatments, in the case that a dental emergency takes place, close contact would be inevitable.

Furthermore, each relatively prolonged period of exposure increases the chances of contracting the malady^{5,6,7}. The post-infection period also makes it difficult for medical staff to recognize potential cases of COVID-19 that may further increase the chances of transmission of the disease during these lay periods. Therefore, patients infected with COVID-19 who do not show symptoms pose a significant threat to clinical dental technician and different members of the dental team. Therefore, clinical dental technicians should entertain a high level of awareness and integrity to wear down the disease and be able to control and manage its spread. There are practical guidelines recommended for clinical dental technician and dental workers by the Centers for Disease Control and Prevention (CDC), the American Dental Association (ADA), and the World Health Organization (WHO) to control the spread of COVID-19⁸⁻¹⁰. As with other contagious infections, these recommendations include personal protective equipment, hand washing, detailed patient evaluation, anti-retraction handpieces, rubber dam isolation, mouth rinsing before dental actions, and medical assistance in the clinic. In addition, some guidelines and reports have provided helpful information concerning the signs and symptoms of the disease, ways of transmission, and referral mechanisms to increase dentists' data and prevention practices so that they may contribute, at a population level, towards disease control and prevention^{1,8}.

Despite the availability of prevention tips and recommendations on disease control, many dental practices lack the minimum requirements for infection control that result from their low interest in taking the necessary precautions. This lack of interest in the extra, albeit essential, effort could be attributed to the high number of patients treated in clinics, which in turn reduced dental fees^{11,12,13}.

This situation is true for many settings, as well as some dental clinics in Libya that, like those of several other countries, include a wide range of dental services from clinics that properly apply infection control measures to clinics that unsuccessfully apply prevention measures.

Thus, it is important to implement sound disease prevention measures in dental clinics and to increase the level of awareness

among clinical dental technicians to boost disease control. Consequently, this study aimed to review the attitude and level of awareness regarding COVID-19 and infection control among clinical dental technicians in Albayda, Libya.

2 Methods and Materials

A cross-sectional questionnaire-based study design was used to study the selected population consisting of clinical technicians who work in Albayda city, regardless of their place of work in private clinics, hospitals, or health centers. This survey was conducted in August 2020. The study area and information assortment questionnaire format were developed and used. However, every participant who was randomly designated was contacted several times to make sure that they were a clinical dental technician and worked in Albayda city. The questionnaires were anonymous to ensure the privacy of participants and confidentiality of all information collected within the study. Ethical approval was obtained from the Institutional Review Board at Omar Al-Mukhtar University. The questions on the survey were developed upon reviewing pertinent literature as well as international guidelines^{1,8-10}. The questionnaire was designed in English and comprised of a series of questions referring to socio-demographic characteristics, the knowledge of clinical dental technicians, their attitudes and perceptions toward COVID-19, and infection control in dental clinics.

The survey was a structured multiple-choice questionnaire divided into the following sections: clinical dental technicians' demographics and profession-related characteristics, clinical dental technicians' awareness of the virus's incubation period and the symptoms, the mode of transmission, and the infection control measures for preventing COVID-19, and clinical dental technicians' perspective toward treating patients with COVID-19.

2.1 Data Analysis

Data were analyzed using SPSS. Descriptive statistical analysis was used to describe items enclosed within the survey. Means and standard deviations were used to describe the continual variables, and percentages were used to describe the categorical data.

3 Results

This study involved a total of 35 (15 female and 20 male) clinical dental technicians aged 22–50 years, with a mean age of 29.5 (SD = 9.8) years. Their experience in the dental practice ranged from 1 to 5 years with a mean of 8.4 (SD = 7.9) years. The participants' characteristics are shown in table 1. A total of 10 (28.5%) had completed their residency program in dentistry, 15 (42.8%) had received training in infection control in dentistry, and 10 (28.5%) had attended training or received lectures relating to COVID-19.

3.1 Awareness concerning the incubation period, symptoms, and mode of transmission of the COVID-19 infection

When asked about the incubation period, over one-third of the clinical dental technicians surveyed properly reported a time period of 1–14 days. The percentage of clinical dental technicians who reported the various symptoms of the COVID-19 infection are shown in table 2. The majority reported cough and fever as symptoms. Vomiting, diarrhea, and runny nose were reported by virtually one-third of the clinical dental technicians. Joint and muscle pain was reported by only a few clinical dental technicians. Over one-third of clinical dental technicians reported that patients with COVID-19 infection may show no symptoms.

Table 1: The characteristics of the 35 clinical dental technicians enrolled in the study

Variable	Clinical dental technicians; n(%)
Gender	
Male	20 (57.1)
Female	15 (42.8)
Age (years)	
< 30	25 (71.4)
≥ 30	10 (28.5)
Years of practice	
< 2	8 (22.8)
2–5	15 (42.8)
> 5	12 (34.2)
Health sector	
University clinics	5 (14.2)
Private sector	18 (51.4)
Public sector	12 (34.2)

3.2 Awareness of measures for preventing COVID-19 transmission in dental clinics

The majority of 35 clinical technicians reported that cleaning hands frequently using alcohol-based hand rub or soap and water, routinely cleaning and disinfecting surfaces that patients come into contact with, and wearing personal protecting equipment will help prevent transmission from patients known or suspected to have COVID-19. The percentages of clinical dental technicians who reported other specific measures are shown in table 3.

The majority of clinical dental technicians (n = 34, 97.5%) reported that it was important to change masks and gloves regularly to decrease the probability of infection transmission to patients and to themselves.

3.3 Awareness of COVID-19

A total of 12 (34.2%) of the 35 clinical dental technicians perceived COVID-19 as very dangerous, 20 (57.5%) perceived it as moderately dangerous, and 3 (8.5%) perceived it as not dangerous. The majority (n = 34, 97.5%) reported that it was necessary to educate people regarding COVID-19 to prevent the spread of the disease.

Table 2: Clinical dental technicians' awareness about incubation period, symptoms, and mode of transmission of the coronavirus disease infection (n = 35)

Variable	Clinical dental technicians; n(%)
1–14	5 (14.2)
2–7	7 (20.0)
7–14	10 (28.5)
7–21	13 (37.1)
Symptoms of COVID-19 infection	
Cough	15 (42.8)
Shortness of breath	12 (34.2)
Diarrhea	30 (85.7)
Vomiting	28 (80.0)
Runny nose	22 (62.8)
Fever	1 (2.8)
Sore throat	34 (97.1)
Joint or muscle pain	30 (85.7)
May present with no symptoms	33 (94.2)
Mode of transmission	
Hand shaking	33 (94.2)
Coughing and sneezing	18 (51.4)
Touching surfaces such as doorknobs & tables	20 (57.1)

3.4 Attitude towards treatment of patients with COVID-19

More than half (n = 18, 51.4%) of the 35 clinical dental technicians reported that COVID-19 symptoms often resolve with time and do not need any special treatment. Concerning clinical dental technicians' precautionary actions within the dental clinic, 28 (80.0%) believed that it was necessary to ask patients to take a seat distanced from every other patient, wear masks while in the waiting room, and wash hands before getting in the dental chair to decrease disease transmission, while 12 (34.2%) believed that this was not necessary and could cause panic.

However, a total of 30 (85.7%) clinical dental technicians reported that they prefer to avoid operating on a patient suspected to have COVID-19.

Table 3: Clinical dental technician' awareness of measures for the prevention of coronavirus disease transmission in dental clinics (n = 35)

Measures for prevention	Clinical dental technicians; n(%)
Putting face masks on patients known or suspected to have COVID-19	30 (85.7)
Frequently cleaning hands using alcohol-based hand rub or soap and water	34 (97.5)
Wearing personal protective equipment such as dental goggles, masks, and gloves	32 (91.5)
Avoiding moving and transporting patients out of their area unless necessary	28 (80.0)
Routinely cleaning and disinfecting surfaces that patients known or suspected to be infected come into contact	34 (97.5)

4 Discussion

This survey provides an insight into the level of awareness, perception, and perspective of clinical dental technicians about infection control with a special stress on COVID-19 during its outbreak in 2020. This study involved a sample of clinical dental technicians. The number of male participants were higher in this sample, which could be explained by the skewed gender ratio of practicing clinical dental technicians. The estimated incubation period of the COVID-19 is up to 14 days^{6,7}. Clinical dental technicians in this study varied in their knowledge regarding the incubation period of the disease despite this knowledge being essential as a result of its role in determining the safe period to treat suspected patients¹⁴.

However, it's imperative for clinical dental technicians to continue carrying out preventive measures for all their patients, all the time. Data regarding respiratory disorder contagion was detected in other studies to be lower among clinical dental technicians¹⁵ than among other health care providers¹⁶, despite patient-provider proximity in dental care⁴. Nonetheless, clinical dental technicians in this current study's sample have reported most of the symptoms of COVID-19 that help dentists to acknowledge possible cases and take the required actions considered essential to the management¹⁴ and control of the spread of the disease¹. Clinical dental technicians' response to interference measures were higher for personal protecting equipment and disinfection and sanitation procedures than for measures applying to dental staff or patients, such as special clothing or ventilation.

The most recently declared precautionary actions might be viewed by dentists as additional protective measures that aren't necessary, if combined with their understanding that infections occur primarily through direct contact between mucous membranes and contaminated hands⁹. There has been no evidence-based specific treatment for COVID-19 patients, and

the management of COVID-19 has mostly been supportive⁸. The present approach to COVID-19 is to regulate the spread of infection, use infection interference and control measures to lower the risk of transmission, and provide early diagnosis, isolation, and support while taking care of affected patients¹⁷. This was reflected by the response of the participants to treatment, virtually half of the clinical dental technicians thought that the sickness resolves over time, not requiring special treatment. This perception regarding the disease's self-resolution resulted in most participants perceiving COVID-19 as moderately dangerous (n = 20, 57.5%).

However, this perception might further be explained by the fact that there have been no "local" cases in Albayda at the time of data collection. In addition, clinical dental technicians' perception about the seriousness of the sickness may be as a result of some (n = 12, 34.2%) not seeing the necessity to ask patients to sit away from other patients, wear masks while within the waiting room, or wash hands before getting in the dental chair to decrease disease transmission. However, the overwhelming majority (n = 30, 85.7%) would prefer to avoid operating with a patient suspected to have COVID-19 as a result of the possibility of disease transmission during the incubation period.

Some clinical dental technicians (n = 17, 30.3%) reported that they direct dental workers to inquire with patients if they had flu-like symptoms. Throughout the occurrence of COVID-19, clinical dental technicians ought to gauge the risk of transmission through measurements of the temperature of each staff and patient as a routine procedure. Patients should also be questioned about their current health and any history of recent contact or travel¹⁸. Patients and their accompanying persons should be supplied with medical masks upon entry to the clinic. Those with a fever should be registered and referred to selected hospitals. If a patient has travelled to pandemic-associated regions within the last fourteen days, a quarantine for at least 14 days should be recommended. In areas where COVID-19

spreads, non-imperative dental treatment ought to be postponed¹⁸.

However, these measures also extend post-dental care. Over half of the clinical dental technicians (n = 18, 51.4%) knew whom to contact if they encounter a situation of an unprotected exposure to a known or suspected COVID-19 patient, and 80.0% (n = 28) reported that they knew what to try and do if they had signs or symptoms of a suspected COVID-19 infection.

Till date, there has been no consensus on the provision of dental treatment during the COVID-19 pandemic. Supported by relevant guidelines and research, clinical dental technicians should take strict personal protection measures and avoid or minimize operations that may produce droplets or aerosols¹⁸. A 4-handed technique is beneficial for infection control, and the use of spittle ejectors with low or high volume reduces droplet and aerosol production¹⁹. The agreement of the overwhelming majority (n = 33, 94.2%) of clinical dental technicians regarding the importance of training others about COVID-19 to prevent the spread of the disease was high, however, they ought to follow the CDC recommendations for infection interference and control based on the local pandemic situation.

Despite the findings introduced here, it's necessary to fret that this survey had limitations, as well as the comparatively low response rate, which has resulted in a smaller than expected sample size. This may have resulted in a limited knowledge collection, however, this is often the case with moderate sample sizes. Moreover, this pandemic has motivated several to constantly observe news and take extra care of private affairs. This suggests that people who were active on social media throughout the short period of data collection were the only ones that had the chance to participate in the study. This may have led to a selection bias and sampling error, that further prevents the generalization of our results.

5 Conclusion

Clinical dental technicians were mostly up to date on COVID-19 symptoms, modes of transmission, infection control, and measures to be taken in dental clinics. However, they had a restricted comprehension of the additional precautionary measures that defend dental staff and other patients from COVID-19.

6 Conflicts of Interest

We hereby declare that there are no conflicts of interest regarding the publication of this research study.

7 Acknowledgement

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8 Author's Contributions

This work was carried out in collaboration with all of the authors. Author YSEM designed the study, wrote the protocol, and performed all of the statistical analyses. Author NAMI collected the data and wrote the manuscript. Author AAAR managed the literature review. All authors reviewed and approved the final manuscript.

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