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Original research

Assessment of the effective factors for returning to work among dental students during the COVID-19 pandemic

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Abstract

Occupation incapacity imposes a massive economic burden on society, which results in individual, social and economic consequences during the coronavirus disease 2019 (COVID-19) pandemic. In this regard, we decided to investigate the effective factors for returning to work among dental students under the influence of the COVID-19 pandemic. This cross-sectional study was conducted from September to November 2021. Demographical data, clinical characteristics, and duration of return to work of dental students of Guilan University of Medical Sciences, Bandar Anzali, Iran, who were working in the dental clinic during the COVID-19 pandemic and willing to participate in the study, were collected. The mean duration of return to work was 7.18 ± 3.29 months. Gender was related to the duration of return to work with the mean of 9.17± 4.89 months in males, and 6.25± 1.63 months in females. Body mass index (BMI) was reported as a related factor to the duration of return to work, consequently by increasing the BMI, the duration of returning to work also increases. Age, underlying disease, academic year (fifth or sixth), COVID-19 infection, duration of hospitalization, recovery duration, and physical and psychological status were not related to the duration of returning to work. In this study, complete readiness to return to work was 62.5%. Also, gender and BMI were determined as the most significant factors that related to the duration of return to work.

Keywords: Return to work, Disabilities, COVID-19, SARS-CoV-2, Risk factor

1. Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) novel infection has spread worldwide since early 2020, and the World Health Organization (WHO) has declared coronavirus disease 2019 (COVID-19) as an internationally concerned health emergency that results in a pandemic [1, 2]. Coronaviruses cause mild to severe respiratory complications, which can result in death outcomes in some patients [3]. Symptoms usually begin 2 to 14 days after infection, with clinical manifestations including fever, dry cough, myalgia, fatigue, normal or decreased white blood cell count, and radiographic evidence of pneumonia [4, 5]. Complications of COVID-19 include sepsis, respiratory failure, acute respiratory distress syndrome, heart failure, septic shock, coagulopathy disorders, acute heart damage, acute kidney damage, and secondary infection [6]. Laboratory analysis illustrated some abnormalities in liver and kidney function enzyme, myocardial enzyme, and inflammatory markers such as interleukin 6 (IL-6) in patients with COVID-19 infection that could lead to cytokine storm and result in death [7]. Also, computed

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tomography (CT) scan analysis reported mild to severe lung damage in these patients [8]. The most common ways of SARS-CoV-2 transition include direct transmission through respiratory droplets and saliva during coughing and sneezing, person-to-person transmission, and contact with the mucous membranes of the mouth, nose, and eyes [9]. Preventive protocols such as masking, hand hygiene practices, avoidance of public contact, case detection, and quarantine have been suggested to reduce infection [10]. Based on some studies, the most at-risk patients with this disease include people with a history of hypertension, diabetes, and heart disease, liver and gastrointestinal diseases. Also, patients with cancers and immune system deficiencies are vulnerable to this infection [11–13]. Analyzing and discussing the different ear, nose, and throat manifestations of those with COVID-19 in several studies represented that the most frequent ear, nose, and throat (ENT) manifestations were sore throat (11.3%) and also headache (10.7%) [14].

According to the infection entry through the mouth, nose, and eyes, dentistry is one of the medical procedures that is most at risk for infection due to the frequent production of aerosols and the constant presence of saliva. The coronavirus has challenged businesses and health systems around the world [15]. The role of dental professionals in preventing the transmission of COVID-19 is crucial. While all routine dental care has been suspended in countries experiencing COVID-19 during the epidemic, the need for urgent care organized by teams provided with appropriate personal protective equipment is a priority. Dental professionals can also help with medical care. Dental professionals had a moral duty to reduce routine care for patients for fear of spreading COVID-19, but they were significantly concerned about the financial consequences [16, 17]. Dentists have always been taught how to protect themselves and their patients from potentially transmitted pathogens, but the coronavirus epidemic poses an unprecedented new challenge. Furthermore, young people, those who spent a lot of time thinking about outbreaks, and also health care workers were at high risk of mental illness. Continuous monitoring of the psychological effects of outbreaks should be done on a daily basis as part of global precautions [18]. Consequently, in light of the prevalence and management of COVID-19, more attention should be paid to the psychological problems faced by healthcare professionals [19]. On the other hand, the decision to return to work for individuals who have recovered from COVID-19 is primarily based on clinical symptoms or negative polymerase chain reaction (PCR) tests. The PCR tests can remain positive for 3 months after the onset of symptoms, test-based strategies can unnecessarily increase isolation and incapacity time. In other words, prolonged viral shedding does not necessarily mean that it is contagious or contagious [20]. Therefore, in this study, we decided to evaluate the effective factors for returning to work among dental students under the influence of the COVID-19 pandemic.

2. Materials and Methods

2.1 Study design

This cross-sectional study was conducted following the consent of the research ethics committee of Guilan University of Medical Sciences (IR.GUMS.REC.1400.233), from September to November 2021. Demographical data and clinical characteristics of 56 out of 65 dental students of Guilan University of Medical Sciences, Bandar Anzali, Iran, were recorded in the study. Recorded data included gender, age, body mass index (BMI), underlying disease, academic year (fifth or sixth), SARS-CoV-2 infection, positive PCR test for COVID-19, CT scan result, clinical symptoms of COVID-19, physician diagnosis in favor of COVID-19, duration of hospitalization, home hospitalization, recovery duration, health insurance, physical and psychological status, and duration of return to work that was collected via a checklist prepared by the researcher. The inclusion criteria included dental students of Guilan University of Medical Sciences, Bandar Anzali, Iran, academic year (fifth or sixth), who were working at a dental clinic during the COVID-19 pandemic, and all information of the individuals remains confidential and the results were stated in general. The presence of COVID-19 infection was determined based on a checklist and having one of the following conditions: positive PCR result, CT scan result or physician's diagnosis.

2.2 Statistical analysis

The statistical data were analyzed by SPSS software version 22, and Man-Whitney, Kruskal–Wallis, and Spearman correlation coefficient tests

were performed to find a relation between variables and duration of return to work by a significant level of *P* value less than 0.05.

3. Results

The result demonstrated that 17 (32.1%) of the participant were male and 36 (67.9%) were female. The mean age and BMI were 25.64±3.86 and 23.34±2.82, respectively. Clinical characteristics and demographical data of students have been illustrated in Table 1. According to statistical analysis, the majority of participants (62.5%) were ready to get back to the work. The mean duration of return to work under the influence of the COVID-19 pandemic in dental students was 7.18 ± 3.29 months, with a minimum return time of 3 months and a maximum return time of 18 months.

Analysis of the association of variants with a duration of return to work revealed a significant association between gender and duration of return to work (*P*=0.028), in which males represented a higher duration of back to work in comparison to females, Table 2. Also, BMI was related to this duration, which individuals with higher BMI had a longer time duration to back to work (r=0.3, *P*=0.032), while age (r=0.242, *P*=0.081), underlying disease, academic year, COVID-19 infection, hospitalization, home hospitalization, and physical and psychological readiness represented no association with duration of return to work.

Table 1. Frequency distribution of personal information of the studied students

Variables		**Number**	**Percentage**
Gender	Male	17	32.1%
	Female	36	67.9%
Age	Mean±SD	25.64±3.86	
	(Minimum, Maximum)	(20, 47)	
BMI (kg/m^2)	Mean±SD	33.34±2.82	
	(Minimum, Maximum)	(17.93, 30.82)	
Underlying disease	Yes	3	5.6%
	No	51	94.4%
Academic year	Fifth	25	49%
	Sixth	26	51%
Health insurance	Yes	41	83.7%
	No	8	16.3%
COVID-19 infection	Yes	14	25.9%
	No	40	74.1%
PCR positive result	Yes	7	13%
	No	47	87%
Cynical symptoms in favor of COVID-19	Yes	4	7.4%
	No	50	92.6%
Physician's diagnosis	Positive for COVID-19	7	13%
	Negative for COVID-19	47	87%
Hospitalize duration	Mean±SD	11.28±6.32	
	(Minimum, Maximum)	(2, 21)	
Home hospitalization	Yes	11	20.4%
	No	43	79.6%
Duration of home hospitalization	Mean±SD	12.9±4.79	
	(Minimum, Maximum)	(3, 21)	
Physical readiness	Completely	35	72.9%
	To some extent	12	25%
	Not at all	1	2.1%
Psychological readiness	Completely	30	62.5%
	To some extent	12	25%
	Not at all	6	12.5%

Table 2. Relationship between variables and duration of return time to work

Variables		**Mean±SD** (Minimum, Maximum)	***P* value**
Gender	Male	9.71±4.89 (4, 18)	0.028
	Female	6.25±1.63 (3, 12)	
Underlying disease	Yes	6.67±0.58 (6, 7)	0.803
	No	7.21±3.38 (3, 18)	
Academic year	Fifth	7.36±3.78 (4, 18)	0.299
	Sixth	7.19±2.97 (3, 18)	
Health insurance	Yes	6.98±3.06 (3, 18)	0.494
	No	8.37±4.47 (5, 18)	
COVID-19 infection	Yes	6.93±0.99 (5, 9)	0.18
	No	7.27±3.79 (3, 18)	
Hospitalize	Yes	7.14±1.34 (3, 9)	0.231
	No	7.19±3.49 (3, 18)	
Home hospitalization	Yes	6.54±4.81 (3, 9)	0.606
	No	7.35±3.57 (4, 18)	
Physical readiness	Completely	7.43±3.41 (4, 18)	0.926
	To some extent	7.08±3.92 (3, 18)	
	Not at all	7.00±0.00 (7, 7)	
Psychological readiness	Completely	4.2±3.33 (4, 18)	0.428
	To some extent	8.00±3.79 (4, 18)	
	Not at all	6.67±3.93 (3, 14)	

Man-Whitney and Kruskal–Wallis were used to finding relation between variables and duration of return to work by a significant level of P value less than 0.05.

4. Discussion

Dental and oral care workers have many concerns about COVID-19, including economic, ethical, social, and professional factors. Resolving concerns may include improving patient management and infection control strategies, adopting new technologies for virtual contact with patients without the risk of infection, and convincing situations to return to work [17]. In our study, the most related factors to return to work included gender and BMI, which significantly affect the duration of back to work among participants. A review study by Rafeemanesh et al. reported that there is a general consensus to return to work after COVID-19 recovery within 10-14 days after the onset of recovery signs in a symptom-based approach. Regarding the test-based approach, the presence of two negative PCR tests at least 24 hours apart has been mentioned as an acceptable indicator for the resumption of job activities] Also, the reported duration of return to work was shorter than our result, which this contrast might refer to the different population volumes in studies. Moreover, Darenhal et al. conducted a study on related factors affecting return to work after lumbar disc herniation surgery, and reported a significant relationship between gender, BMI, and return to work, which was consistent with our study. They also reported a significant association between age and return to work, which was not consistent with our study [21]. In a retrospective cohort study by Sedighi et al., it was stated that age and gender had no effect on patients' return to work circumstances [22]. Rahimpour et al. observed that the patient's satisfaction with the organization or workplace, the feeling of support from the employer and colleagues, and the individual's attitude toward their disease and occupation play an important role in returning to work [23], while in our study, the physical and psychological condition was not related to the duration of return to work. In our study, 30 participants (62.5%) were completely prepared to back to work. Meanwhile, Pelissier et al., demonstrated that only 64 out of 402 individuals were eligible to return to work. They also reported that older age, hard work, prolonged disease duration, and fear of returning to work, were negative factors that affect return to work. Also, higher levels of education, job satisfaction, and satisfying professional relationships are in a favor of a sooner return to work [24]. In a study

by Oyeflaten et al., it was illustrated that the fear of work was the main risk factor for not returning to work, which 48% of those fears were referred to as mental health, disease perception, and related training. While facing responsibility was only 1% of the fears [25]. The limitations of our study were the small sample size and study duration, which has been suggested to design a study with a larger sample size in a longer duration with considering more psychological, psychological, and social variables.

In this study, complete readiness to return to work was 62.5%. Also, gender and BMI were determined as the most significant factors that related to the duration of return to work.

Authors' contributions

Study design and supervision: AA, RT, MA. Data collection and analysis: RT, SF. Interpretation of results: AA, RT, MA. Drafting: HR, SF. Critical revisions: HR, MA. All authors read and approved the final version of manuscript.

Conflict of interests

None to declare.

Ethical declarations

This study was approved by the research ethics committee of Guilan University of Medical Sciences, Rasht, Iran with number code [IR.GUMS.REC.1400.233].

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