

The psychosocial effect of the COVID-19 national lockdown on Dentistry and Oral Hygiene students

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ABSTRACT

Introduction

The COVID-19 lockdown has had a psychological and social impact on dental students globally.

Aim

To determine the psychosocial effect on students enrolled in dentistry and oral hygiene courses at UWC.

Objectives

To determine the psychosocial effects (living conditions, levels of anxiety, fear of COVID-19, and food security levels) experienced by students during the lockdown.

Design

A descriptive, cross-sectional study using a quantitative approach was used. Methods: A randomised sample (n=250), stratified by sex and academic year group, comprising undergraduate oral hygiene BOH total students = 90 and dentistry BDS total students = 450 (UWC, 2020) was used. Data was gathered via an online survey, (Google Forms). Survey questions included the GAD-7, FCV-19S questionnaire, and Food Security scales.

Results

The data were analysed using Epi Info 7. The response rate was 36% (n=90); 69.67% were female; the mean age was 22.34 (SD = 2.66); 91% lived with their parents during lockdown. Students' main sources of funding were parents

(47%), NSFAS or bursary (42%) and self-funded (11%). Substantial psychosocial effects with high anxiety (33%), fear of COVID-19 (47.3%), and a lesser effect for food insecurity (FI) (5.49%) was reported.

Conclusions

The study showed that the COVID-19 pandemic has contributed to psychosocial effects in a discipline that under 'normal' conditions is experienced as stressful. This requires educational institutions to develop a targeted approach through relevant support systems that would identify vulnerable students at critical times.

Keywords

COVID-19 lockdown, anxiety, fear of COVID-19, food insecurity, dental students, oral health/hygiene students, psychosocial factors.

Oral health and oral hygiene are designators for the qualification as an oral hygienist. At UWC the designator oral health is used for the qualification (BOH).

INTRODUCTION

The COVID-19 pandemic resulted in an immediate lockdown for an extended period for universities globally, followed by intermittent access as levels of lockdown fluctuated. In South Africa, the lockdown was initiated in March 2020, with students' return to campuses scaffolded as per the levels of lockdown imposed at a national level. The resultant disruption in academic activities has reportedly impacted living conditions, academic performance, food security, and the mental health of students,¹⁻⁶ resulting in increased anxiety and psychological distress.^{1,4,6,7} Psychosocial factors affecting students are multifaceted even under "normal pre-COVID conditions". Dimensions of these factors range from socio-economic, environmental to psychological factors.⁸

Psychological distress is particularly evident in students in the health sciences including medical, dental, and oral hygiene students during their academic and professional years.⁹⁻¹² Experiences in dental education are reportedly more stressful than in medical education.⁹ Some of the stressors of students studying dentistry and oral health/oral hygiene include the learning environment, fear of failure, heavy workload, difficulties in dealing with patients and with transitions in curricula, and challenging relationships with academic staff.^{10,12} A systematic review of stress among dental students reported that stress is mainly due to the demanding nature of the training and that elevated stress may have adverse effects on the health and well-

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being of students.¹¹ Anxiety appears to be extended into professional practice as noted by Majeed *et al.*¹³ who recorded severe fear and anxiety scores among Pakistan's dental surgeons (56.3%) and medical doctors (43.6%), however, the difference was not significant. Research investigating psychosocial effects related to the COVID-19 pandemic should therefore be cognizant of the fact that a confounding variable of results may be the inherently stressful nature of professions in the health sciences, particularly oral hygiene and dentistry.

COVID-19 related studies regarding dental students found differences across different contexts with high levels of anxiety reported by Hakami *et al.*⁹ and Losif *et al.*¹⁴ and lower levels reported by Cao *et al.*¹ and Khanagar and Alfadley.¹⁵ Results by Wang and Zhao¹⁶ showed that students suffered stress, fear, and unease due to the uncertainty of the pandemic. These results indicate that the COVID-19 pandemic has affected the levels of anxiety, albeit at varying degrees among dental students. Family support, economic stability, living with parents, and living in urban areas were protective factors in terms of college student anxiety, while a delay in academic activities, adverse economic effects, and stressful daily living were positively correlated to the experience of anxiety.¹ Symptoms of anxiety increased in instances where family members or acquaintances were COVID positive.¹

Compromised food security is increasingly becoming a feature contributing to student anxiety among university students.^{17,18} In recognition of economic challenges that may inhibit university access, the South African government implemented a structural support program for poor students by establishing the National Student Financial Aid Scheme (NSFAS). This initiative saw a fivefold increase in student loans between 1995 and 2005.¹⁹ Psychological distress and compromised food security may have been exacerbated by the additional pressure imposed by the various levels of the lockdown. Psychological well-being is defined as peace of mind, good physical and mental health, belonging to a community, having freedom of choice, a dependable source of income, and access to food.¹⁹ Thus, considering the disruption caused by the prolonged lockdown, one may assume a significant impact on the psychological wellbeing of students. Therefore, awareness of the psychosocial effects on students imposed by the additional stressors of a lockdown could guide planning and highlight the support that students may require.^{1,5}

It is within this constantly shifting landscape that teachers engage students in online learning environments characterised by a marked variation in technological access, parental support, and academic expectations.²⁰ In this context, the purpose of this research was to determine the psychosocial impact of the COVID-19 lockdown (Refer to Addendum A) on University of the Western Cape (UWC) dental faculty students to provide evidence of the type of support that students may require in the future.

METHODS

Study design: This was a descriptive, cross-sectional study using a quantitative approach.

Study population and sample: A randomised sample (n=250), stratified by sex and academic year group was selected, comprising undergraduate oral hygiene BOH

total students = 90 and dentistry BDS total students = 450 enrolled at UWC in 2020. Randomisation, by means of a computer-based randomised generator, and using class lists as a sampling frame was done to increase the power of the study and to limit selection bias. Students were grouped into junior (BOH1, BOH2, BDS1, BDS2) and senior (BOH3, BDS3, BDS4, BDS5) based on their clinical exposure at the time of the study. Junior students were deemed as preclinical and senior students as clinical.

Inclusion criteria: All undergraduate students registered in the BDS and BOH programmes in 2020 were included in this study.

Materials: In September 2020 the data were gathered by employing an online survey, using Google Forms. The questionnaire consisted primarily of closed-ended questions with several open-ended questions that allowed for elaboration on closed-ended questions posed.

Variables measured: These included student demographic information such as age, gender, place of residence, living conditions, and experiences of psychosocial stress. Living conditions, including experiences of food insecurity, were recorded on a validated, 10-item food security scale.²¹ The 10-item food security scale used the United States Department of Agriculture Community Food Security Assessment Toolkit, adapted by Hughes *et al.* for university students.²¹ Responses to the 10 questions were recorded as frequencies and categorised according to the level of food security (see Tables 11 and 111). The experience of psychosocial stress was guided by two instruments as indicated below:

1. Fear of Coronavirus-19 scale (FCV-19S), a valid tool for assessing fear of COVID-19.²² Participants responded to 7 questions on a five-item Likert scale, ranging from "strongly disagree," to "strongly agree". Total scores, ranging from 7-35, were obtained by summing the responses. The higher the score, the greater the fear of COVID-19.
2. Generalized Anxiety Disorder 7-item (GAD-7) scale,²³ a validated, brief, self-report screening tool for generalized anxiety symptoms. The GAD-7 score is calculated by assigning scores of 0, 1, 2, and 3, to the response categories of 'not at all', 'several days', 'more than half the days', and 'nearly every day', respectively, and adding together the scores for the seven questions. Scores of 5, 10, and 15 are taken as the cut-off points for mild, moderate and severe anxiety, respectively.
3. Food insecurity was measured using two different food insecurity measures, namely: A single-question measure, adapted by Hughes *et al.* (2011) (for university students from the Australian National Nutrition Survey), and a more sensitive 10-item food security scale (a multi-question measure) from the United States Department of Agriculture Community Food Security Assessment Toolkit, adapted by Hughes *et al.* (2011) for university students.²¹

Respondents were classified as:

- food insecure if they answered "yes" question1 in the food security questionnaire.
- having low food security, or being food insecure "without hunger", if they answered "often true" or "sometimes true" to statements 2-4 in the food security questionnaire.

- having low food security, or being food insecure “without hunger”, if they answered “sometimes not enough to eat” or “often not enough to eat” in response to statement 5 in the food security questionnaire.
- being very food insecure, or being food insecure “with hunger”, if they answered “yes” to any of the questions 6-9 in the food security questionnaire.

Data was exported to Microsoft Excel 2019 and then statistical analysis was done by using Epi Info 7. Statistical analysis included using students’ t-tests to compare the means of different groups in the sample to determine a statistically significant difference. Chi-square and Kruskal-Wallis tests were used to test for associations.

Ethical statement

An electronic link was emailed to selected students to enable them to access the online questionnaire accompanied by an information sheet explaining the purpose of the study, the voluntary nature thereof, anonymity and confidentiality, and their right to withdraw at any time without negative consequences. Information with relevant contact details about psychological support and food security assistance for students was included. Three reminders were sent out and students could only complete the questionnaire once. The study protocol was registered with the Biomedical Research and Ethics Committee (BM 20/8/1) of the University of the Western Cape.

RESULTS

Student demographics

The response rate was 36% (n=90) with the majority (69.67%) (n = 62) of participants being female with a mean age of 22.34 years. Students were grouped into junior (pre-clinical) and senior (clinical) years (Table 1). The majority (65%) of participants were staying in the Western Cape province at the time when the national lockdown was implemented and almost all (91%) stayed at their homes with parents or family members (Table I). The tables

illustrate examples of the questions and responses of the different scales.

Living conditions

Students could identify more than one source of support during the COVID-19 pandemic. Parents were reportedly the main source of support to most students (n=85), followed by friends (n=72), other students (n=47), and social media (n=36). More than half (59.3%) reported having duties besides their studies which included household chores, family commitments, community support, and some had part-time employment. From the findings in Table I, NSFAS was the main source of funding in the junior years whereas parents were the main source of funding in the senior years. Self-funding increased from the junior to senior years.

Almost three-quarters of students (73.3%) indicated that they were able to keep up with their studies with the remainder responding negatively to this question. On the question of having sufficient money for study and living expenses and their capacity to cope, 46% had enough money and coped very well, half (50.5%) had just enough money for study and living expenses and coped fairly well, and 3.3% did not have enough money and did not cope.

Participants’ response to statements related to food security during the COVID-19 lockdown is summarised in Table II below. 5% of participants indicated that there were times that they ran out of food and could not afford to buy any more food during the COVID-19 lockdown (Question 1). Almost 20% were worried that their food would run out before they had money to buy more and almost a quarter (22%) could not afford to eat a balanced meal.

Respondents were classified as having low food security, or being food insecure “without hunger”, if they answered “often true” or “sometimes true” to any of the statements in Table II (Table II illustrates 3 of the 10 items in the scale and presents an overview of the 10-item scale). An analysis of levels of food security among students is

Table I: Socio-demographic characteristics			
Demographic variables	Total number of students n (%)	Senior students n (%)	Junior students n (%)
Age (years) Mean (\pm SD)	22.31 (2.67)	23.34 (2.34)	20.92 (2.43)
Sex			
male	27 (30.34)	15 (28.30)	12 (34.29)
Female	62 (69.66)	38 (71.70)	23 (65.71)
Programme			
BDS (Dentistry)	82 (91.11)	51 (94.44)	31 (86.11)
BOH (Oral Health)	8 (8.89)	3 (5.56)	5 (13.89)
Course Seniority		54 (60)	36 (40)
No of people in household Mean (\pm SD)	4.52 (1.78)	4.24 (1.63)	4.94 (1.94)
Main source of funding studies			
Parents	46 (46.67)	28 (51.85)	14 (40)
National student funding scheme (NSFAS) or bursary	38 (42.22)	19 (35.19)	18 (51.43)
Self-funded	10 (11.11)	7 (13.73)	3 (8.57)
Living arrangements during this period			
At home with parents	82 (91.11)	47 (87.04)	34 (97.14)
On my own	1 (1.11)	1 (1.85)	0
Shared with other students	1 (1.11)	1 (1.785)	0
Other	6 (6.67)	5 (9.29)	1 (2.86)

Table II: Responses on financial ability and food security

Statement/Question	Often true **	Sometimes true **	Never true	I don't know	I don't want to answer
1. "I worried that my food would run out before I had money to buy more."	5,49%	13,19%	72,53%	6,59%	2,20%
2. "I couldn't afford to eat balanced meals."	8,79%	13,19%	74,73%	1,10%	2,20%
3 "The food that we bought in the household just didn't last, and we didn't have money to get more."	1,10%	7,69%	84,62%	3,30%	3,30%

** indicates students with low food security who are food insecure.

Table III: Food security amongst students

Scoring	Grading of food security among students	%
Single item score (Q1)	Students who were food insecure	5,49%
Multi-item score (Q2-5)	Students with low food security being food insecure "without hunger"	13,19%
Multi-item score (Q6-9)	Students with low food security being food insecure "with hunger"	8,79%

Answers to three questions on the FI scale showed that a relatively low percentage of students reported being food insecure.

summarized in Table III.

Fear of Coronavirus-19 Scale (FCV-19S)

Table IV shows student responses to 7 questions of the Fear of Coronavirus-19 scale.

The results showed a fear of the disease and fear of loss of life due to the disease by a substantial number of students. Nearly half (47%) were very afraid of COVID-19. Approximately 30% felt uncomfortable when thinking about COVID-19. Almost half (48.4%) were afraid of losing their life because of COVID-19, while around 37% indicated that they became nervous or anxious when watching news and stories about COVID-19. Roughly 25% agreed that their heart was racing when thinking about getting COVID-19.

There were no significant differences between sex, study year or program and fear of COVID-19. Females and oral hygiene students scored higher than male and dental students in their fear of COVID-19 but the results were not statistically significant.

Generalized Anxiety Disorder 7-item (GAD-7) scale

Students completed questions dealing with general anxiety disorder on a 7-item scale instrument. Table VI reports on 7 questions from the GAD-7 scale. More than a third (36.3%-38.5%) of students reported experiencing nervousness or feeling on edge and worrying too much nearly every day. Between 20% and 30% report not being able to control worrying, having trouble relaxing, being so restless that it

was hard to sit still and becoming easily annoyed nearly every day. Just under 20% reported feeling as if something awful might happen almost every day. Based on the questions on feelings of anxiety, 19% of the sample indicated that they had no difficulty at all doing their work, taking care of things at home, or getting along with other people. Almost half reported that they found it somewhat difficult, 20% found it very difficult and 12%, extremely difficult.

No statistically significant differences in the GAD score were found by professional groups (0.23), clinical groups (0.07) or sex (0.26). However, mild to severe anxiety was experienced by 100% of the oral hygiene students, whereas 82.93% of dental students scored in that range. Females' mean scores (11.23) were higher than males' mean scores (9.85). More senior students (88,89%) scored mild to severe anxiety compared to junior students (77,78%).

Nearly a third (31.87%) of the study sample found it very difficult and extremely difficult to do their work, take care of things at home, or get along with other people.

DISCUSSION

Research on the physiological and psychological reactions to the pandemic suggests that various psychosocial vulnerability factors may play a role, including individual difference variables such as the intolerance of uncertainty, perceived vulnerability to disease, anxiety, and food insecurity.²⁴ University students are characteristically susceptible to developing stress disorder and depression and the possibilities of such implications are expected to grow during the Covid-19 quarantine period due to the psychologically challenging conditions faced daily.²⁴

Findings from a previous study on UWC oral hygiene (BOH) students found that factors associated with financial difficulties and lack of basic needs were additional stressors for first-year students.¹² Since many UWC students study under challenging conditions, their stress may be exacerbated by the implications of COVID-19 in terms of factors such as studying at home in overcrowded conditions,

Table IV: Fear of Coronavirus-19 Scale

Questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I am very afraid of COVID-19	3.3%	16.5%	18.7%	44%	3.3%
It makes me uncomfortable to think about COVID-19	9.9%	40.7%	18.7%	19.8%	11%
My hands become sweaty when I think about COVID-19	30.8%	40.7%	20.9%	4.4%	3.3%
I am afraid of losing my life	7.7%	8.7%	25.3%	29.7%	18.7%
When watching news and stories about COVID-19 on social media, I become nervous or anxious.	5.49%	26.4%	17.6%	31.9%	5.5%
I cannot sleep because I'm worrying about getting COVID-19.	33%	41.8%	18.7%	4.4%	2.2%
My heart races when I think about getting COVID-19	24.2%	26.4%	24.2%	17.6%	7.7%

Table V: Fear of COVID-19 scores for Programme, Sex and Course seniority

Fear of COVID-19 Scale Score	mean (SD) (range)	p-value
Total sample (n = 90)	19.66 (6.18) (7 - 35)	
Programme		0.036 *
BOH (Oral Hygiene)	24.75 (7.38) (15 - 35)	
BDS (Dentistry)	19.25 (5.85) (7 - 32)	
Sex		0.135
Males	18.19 (5.90) (7 - 31)	
Female	20.02 (6.04) (8 - 32)	
Course seniority		0.598
Junior	19.72 (6.74) (9 - 35)	
Senior	19.76 (5.80) (7 - 31)	

* p-value is less than 0.05 which resembles statistical significance

food and financial insecurity, limited social support due to the disruption of daily activities, and uncertainty of the future. Consequences related to using remote, online learning and teaching impact students differently and could influence their mental state. In addition, a large number of students at UWC have internet connectivity limitations (UWC, Communications 2020) that influence their academic activity and progress.

A study conducted in Saudi Arabia to assess the psychological impact of the pandemic on dental students found that female students, students who lived alone, and students in the beginning years of dental college were more likely to experience mental health issues.⁹ Chaturvedi, *et al.*²⁵ reported that students from less privileged backgrounds experienced larger negative impacts due to the Covid-19 outbreaks. The present study showed that 40% of students were dependent on the NSFAS indicating that they came from less privileged backgrounds. This could suggest that their less privileged background would

have a similar negative impact due to the pandemic as reported by Chaturvedi, *et al.*²⁵ Preclinical (junior) students were more dependent on NSFAS support whereas in the senior years more students were dependent on parents. Although the majority (91%) of the students in the present study lived at home with their families, the high incidence of fear (47%) and anxiety (83% experienced moderate and severe anxiety) indicates the possible psychological impact of the COVID 19 lockdown as an additional factor to the already challenging professional programmes. This study shows some ambivalence regarding the protective nature of living at home. Most students (91%) lived at home during the lockdown and reported being able to cope with their studies (72%), yet relatively high levels of stress and anxiety were reported. For this group of students, living at home may have been a protective factor in terms of daily support to cope with their studies rather than protective in terms of COVID-19, as reported by other studies.¹ However, the high levels of stress and anxiety reported in this student population may be indicative of a broader dynamic within the family or community that was not the purview of this study, highlighting the complexity of factors influencing stress and anxiety.

The almost instantaneous closure of Universities resulted in emergency remote teaching (ERT). ERT offers rapidly developed temporary instructional support in a crisis without pre-planned resources or infrastructure.²⁰ This new context places demands on students to work independently, be disciplined, and learn new technologies with no prior preparation. The finding that almost three-quarters of students (72%) were able to keep up with their studies despite the concurrent report of fear and anxiety, gives some indication of the resilience of these students. Most (91%) of the students in this study lived at home during this lockdown period, suggesting that living at home and having parental support, despite possible economic challenges, may act as protective factors during the

Table VI: Responses on Generalized Anxiety Disorder 7-item (GAD-7) scale

Over the past month, how often have you been bothered by the following problems?	Never	Several days	Not at all sure	Over half the days	Nearly every day
Feeling nervous, anxious, or on edge	6.6%	40.7%	0%	16.5%	36.3%
Not being able to stop or control worrying	17.6%	37.4%	0%	14.3%	30%
Worrying too much about different things	4.4%	41.8%	0%	15.4%	38.5%
Trouble relaxing	17.6%	35.2%	0%	18.7%	28.6%
Being so restless that it's hard to sit still	38.5%	26.4%	0%	14.4%	20.9%
Becoming easily annoyed or irritable	12.1%	46.2%	0%	18.7%	23.1%
Feeling afraid as if something awful might happen	24.2%	37.4%	0%	20.9%	17.6%

Table VII: Analysis of the GAD-7 scale by professional, clinical groups and sex

GAD-7-scale score	mean (SD)	p-value	No anxiety n (%)	Mild n (%)	Moderate n (%)	Severe n (%)
Total sample (n = 90)	10.9 (6.21)		15 (16.48)	31 (34.07)	17 (18.68)	28 (30.77)
Programme		0.23				
BOH (Oral Hygiene) (n=8)	13.25 (6.65)		0 (0)	4 (50.00)	1 (12.50)	3 (37.5)
BDS (Dentistry) (n=82)	10.76 (6.15)		14 (17.17)	27 (32.93)	16 (19.51)	25 (30.49)
Sex		0.26				
Males	9.85 (6.92)		7 (25)	8 (28.57)	3 (10.71)	10 (35.71)
Female	11.23 (5.85)		8 (12.7)	23 (36.51)	14 (22.22)	18 (28.57)
Course seniority		0.07				
Junior	9.5 (6.21)		8 (22.22)	14 (38.89)	6 (16.67)	8 (22.22)
Senior	11.96 (6.05)		6 (11.11)	17 (31.48)	11 (20.37)	20 (37.04)

COVID-19 pandemic. Living with parents may not in itself reduce stress and anxiety but could be a facilitating factor in student resilience. The fact that almost half of the students (46%) had sufficient money for their studies and living expenses and coped very well may be an indication of the support these students can access as well as an indication of the economic diversity of the student population.

Social capital, embedded in the relationships that develop at an individual or group level contributes to personal and interpersonal resources.²⁶ The social support of students in terms of family, friends, and social media indicates their networks. The creation of an environment that would foster a culture of social capital amongst students may support them and enhance resilience to cope with challenges ahead and serve as a protective factor in support of student wellbeing.

The levels of food insecurity experienced by participants in this study were substantially lower than reported in international studies^{2,17} and South African literature.¹⁷ A South African study found that 60% of students experienced food insecurity "with hunger" and 26% experienced food insecurity "without hunger".¹⁷ According to Defeyter *et al.*² the best predictor of food security during the COVID-19 pandemic was the living arrangements of students. Students living with parents were less likely to experience low or very low levels of food security than those living on their own or with other students. The role of parents as a factor of living conditions is supported in this study where most students identified their parents (85%) as their main source of support. Most students (91%) in this study lived at home and a fairly high percentage (73%) were from the Western Cape, the province where the University is located, which may have been a protective factor in terms of food security. Although minimal, it is of concern that there were students who were food insecure during this period. Poor students are more likely to drop out of university than to expose their poverty, as the stigma of being poor silences them.¹⁹ We could argue that some of the students that participated in this study could have been reluctant to respond truthfully. For university students, institutions of higher education should be cognisant of the background characteristics and needs that include the pressing issue of 'hungry students', which is a fairly recent unaddressed phenomenon.⁸

While the present study found that 47% of students were afraid of Covid-19, a study by de Souza *et al.*²⁷ found most dental students at a private university in Brazil showed little fear of COVID-19 using the FCV-19S. These differences may be an indication of how social contexts possibly influence student experiences. Differences in anxiety were reported in terms of sex and student levels of seniority in several studies.^{7,9,10,12,28} In a study by Majeed *et al.*¹³ gender was significantly related to anxiety and fear scores ($p < 0.05$). Our study found higher scores in females, but the results were not significant ($P > 0.05$) and since the distribution of males and females in our study was skewed (69.67% being females) no substantiated conclusions could be drawn.

Approximately 33% of the sample in the present study indicated that they experienced severe anxiety, while 50% experienced a moderate level of anxiety. These findings are consistent with a study conducted in Saudi Arabia on the psychological impact of the COVID-19 pandemic on dental

students by Hakami *et al.*⁹ who recorded high levels of anxiety (37.02%) as well as elevated levels of stress and depression among students. Losif *et al.*¹⁴ found high (26.54%) and very high (24.26%) levels of anxiety among Romanian dental students which is consistent with the findings of our study. Cao *et al.*¹ using the GAD-7 scale, found that 0.9% of the respondents in a Chinese student population experienced severe anxiety, 2.7% moderate anxiety, and 21.3% mild anxiety. An assessment of the psychological impact of the COVID-19 pandemic on dental interns in Saudi Arabia, who were primarily female (mean age 25.1 years) found levels of anxiety to be considerably lower (7.3%)¹⁵ than our study (28.57% of females showed severe anxiety) and was not seemingly influenced by demographic characteristics ($p > 0.05$). Lingawi and Ibtesam²⁸ studied the anxiety levels during Covid-19 on dental students in Saudi Arabia using the GAD-7 scale. The authors noted moderate (17%) and severe (4%) anxiety in students, respectively, with non-significant associations between anxiety and gender or level of study. Although anxiety among students as a consequence of the COVID-19 is a reality, there appear to be variations in the global picture of student experiences thereof. The dental profession is considered to be highly stressful. Mild and severe anxiety scores in dental students may be due to academic and socio-cultural factors (e.g. Covid-19 lockdown), while social support issues (emotional and financial) may act as mitigating factors. It can thus be concluded that the COVID-19 Lockdown, while not the sole cause of anxiety as indicated in the GAD-7 scores, may have been a contributing factor.

Higher anxiety was recorded in senior students in our study, possibly due to being in the clinical setting as opposed to junior students who had online teaching. Hakami *et al.*⁹ on the other hand found that junior students were more likely to experience psychological problems.

The experiences of stress and anxiety in students in this study is a matter of concern, considering that these professions are inherently stressful.¹¹ Elani *et al.*¹¹ reported that the effects of stress are felt on academic performance, psycho-emotional wellbeing and physical health. Although our study did not look at physical health, student reports of the other dimensions as noted by Elani *et al.*¹¹ suggest that COVID-19 has resulted in additional experiences of stress. One may thus argue that actions need to be taken to embed the necessary skills to manage stress and anxiety in dental educational programs as a 'new norm' rather than an intervention. In addition, it should be acknowledged that students studying in the current COVID-19 environment may need additional and targeted actions to provide the necessary support and skills to cope with their current situation. This may better prepare them for entering the world of work, having had a substantial aspect of their education under COVID-19 related conditions. In this regard, new policies and guidelines would mitigate some of the negative effects and prepare educators and students for future health crises.²⁵

CONCLUSION

Results of this study indicated that the COVID-19 national lockdown affected dentistry and oral hygiene students in terms of anxiety. Students reported significant experiences of stress, yet most were able to cope with their studies. Living with parents or at home did not appear to be as

much a protective factor as reported in the literature. However, living at home or with parents did appear to contribute to student resilience in coping with their studies. The study further showed that the COVID-19 pandemic has added to psychosocial effects in a discipline that under 'normal' conditions is experienced as stressful. Given that various psychosocial vulnerabilities contribute to the students' anxiety and stress, the authors are cautioned to make assumptions and conclusions regarding isolating the impact of COVID-19 on the psychosocial effect of dental students. It is however clear that the COVID-19 impact on dental education highlights the importance of holistic student support that embeds the mental health and well-being of the students.

Recommendations

Students in this study appeared to cope with their studies despite experiencing substantial stress and anxiety, possibly due to their resilience and support structures. However, these effects may have long term effects on their well-being. The multiplicity of stressors such as financial concerns, food insecurity, psychological stressors, and unsuitable study environment highlights the need for support by parents, fellow students, academic staff, and the university. Considering the inherent stressors of the professions in this study, we recommend that skills to empower students for the challenges of their professional training be embedded in the curriculum and that these be targeted to the specific challenges that students face over their academic program. Such an initiative, provided by suitably trained professionals may enrich the curriculum and encourage holistic development of graduates able to manage stressors associated with the professions. This requires educational institutions to develop a targeted approach through relevant support systems that would identify vulnerable students at critical times of their study.

Limitations of the study

The fact that the sample for this study only represents one university's dental students restricts the generalisation of the results. The small sample of oral hygiene (BOH) students who responded to the study may also have skewed the results for oral hygiene students in the study.

Addendum A

The term "Lockdown" refers to the National Lockdown gazetted by the National Government implemented from the 26th March and applies to all levels (Gazette 43168 of 26 March 2020).

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