Title: European Student Wellness, Stress, Coping, Support, and Perceptions about Remote Dental Training during COVID-19

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Abstract

Objectives: To compare wellness, stress, ability to cope, social support, and perceptions about remote training among European dental students during COVID-19. **Methods:** 1795 undergraduate dental students from 6 countries and 8 dental schools participated. The anonymous survey collected data about different aspects in each of the following domains: wellness, stress, ability to cope, social support, and perceptions about remote training. Complex multi-item scales were used for all domains. **Results:** There were differences among countries in all the domains. Overall, student stress scores were lower than either their coping or support scores. The highest wellness score (mean ± sd) was observed in Romania: 62.5 ± 11.2% while the highest mean stress scores were observed in Albania: 46.3 ± 11.7% and Lithuania: 42.2 ± 13.8%. Overall, student stress and coping ability scores were lower and their support scores higher. Around 10% of students did not have any support. In the linear multivariable regression analysis, significant predictors of wellness were being female (β=0.073), not being in a graduating year (β=0.059), having less stress (β=0.222), ability to cope (β=0.223), and having support (β=0.179). The student positive perceptions about remote training were predicted by less stress (β=0.080), coping (β=0.182), and support (β=0.057). **Conclusions:** Students varied in wellness, stress, coping, social support, and perceptions of remote training. Also, there were significant differences among students from different countries. Coping was the best predictor of both student wellness and their positive perceptions about remote training.

Keywords: Teaching, students, COVID-19, psychosocioal factors

Introduction

The COVID-19 pandemic has caused substantial disruption to everyone's lives. Also, due to the pandemic, professional training needed immediate reorganization,[1] with the majority of universities around the world transitioning to online teaching,[2] for which neither students nor their educators had time to prepare. During this time, overall stress and anxiety levels in university students increased due to delays and worries about their academic progress, including concerns related to reduced clinical experience.[3] A multi-country dental study reported that the transition to online teaching went relatively smoothly, nevertheless almost half of the students were seriously concerned about the impact COVID-19 would have on their education.[4] In this study, having a smoother transition into online training, being male, and having completed more course work were associated with less stress, while concerns about academic progress related to more stress.[4] Another study found that during COVID-19 female students experienced more depression and anxiety than males, and that psychological distress differed among senior and junior students.[5] Remote training brought additional challenges for university students, such as having an unstable internet connection, difficulties with time management, and an inability to focus while learning online for long periods of time.[6] Other barriers to effective remote training included the students' reduced motivation to study, family difficulties, and faculty's inexperience with online teaching.[7] During the pandemic, additional stressors further increased already high levels of stress for anyone who had pre-existing anxiety and practiced maladaptive coping strategies.[8] In addition, dental students experienced fear of contracting/transmitting COVID-19 due to aerosol formation during their encounters with patients and exposure to their saliva and blood.[9]

Increased levels of anxiety, stress, and concerns about student physical and mental health have been a worry in dental education for some time.[4] Unsurprisingly, during the COVID-19 pandemic,

impaired sleep quality and increased depression, anxiety, and stress levels were observed among dental students.[10] Deteriorating mental health can also influence an individual's choices and behaviors, as well as have an impact on people's social connections.[11] During the COVID-19 pandemic, students' engagement in physical activity showed a positive impact on their mental health and well-being in spite of stressful life events.[12] However, a systematic review reported a general reduction in students' physical activities during the COVID-19 lockdown.[13] Due to the deterioration of students' psychosocial conditions their nutrition was also negatively impacted.[14] During the precarious times, social support plays a key role in increasing one's ability to cope efficiently,[15] for example, stress can be alleviated by support from faculty, family, and peers.[4,16,17]

No previous research explored how during COVID-19 students' psychosocial conditions relate to their wellness and perceptions about remote dental training. Thus, the aims of the current survey were to examine student wellness, stress, ability to cope, social support and their perceptions about remote training during COVID-19.

Materials and Methods

Dental school recruitment. Due to the COVID-19 related challenges, we could invite only dental schools with which we had already established collaborations, i.e., the dental school recruitment for the current study was based on a dental school's willingness to participate. A total 10 schools were invited, of which 8 agreed and two dental schools declined participation. Participating dental schools agreed that acquiring information about how students feel during the COVID-19 impacted dental training is necessary, and that collected such information will be helpful to design student-centered support during COVID-19 and other challenging times. Concomitantly the unanimous decision was made to collect data anonymously and allow students not to answer any of the questions if they feel uncomfortable answering. Also, to ensure only voluntary participation, the

survey began with an informed consent; subsequently, students who agreed to participate were directed to the survey questions, while those who did not consent were directed to the survey exit page.

Student recruitment. Dental undergraduate students from six countries and 8 dental schools participated in the survey, which employed Qualtrics software for data collection. Data was collected from May to October, 2020 during a portion of the COVID-19 pandemic. The number of participating dental students in each of the countries (names of participating dental schools) were as follows: Albania: N=238 (Faculty of Dental Medicine, University of Medicine, Tirana); Macedonia: N=238 (Fakulteti i Mjekësisë Dentare Tiranë, Stomatoloski Univerzitet Kiril i Metodij Skopje); Lithuania: N=290 (Vilnius University, Faculty of Medicine and Lithuanian University of Life Sciences); Romania: N=205 (Universitatea de Medicină și Farmacie Victor Babeș Timișoara); Norway: N=66 (Universitetet i Tromsø); and Poland: N=782 (Medical University of Lublin and Pomeranian Medical University in Szczecin).

Study variables. The following background data were collected: the students' sex and timing of their dental program (non-graduating years versus graduating year). For each of the psychosocial domains, we used multiple item scales (see Table 2, first column). The student wellness domain included six items, the stress domain had four items, while the coping domain included six items, each of these were designed with the following frequency-related responses: never, only rarely, sometimes, often, or always. The composite social support domain included 12 items (see Table 2, first column), where each of the items were measured with Likert-type responses: strongly disagree, disagree, partly agree, agree, or strongly agree. The domain pertaining to student perceptions about remote training during COVID-19 included seven items (see Table 3, first column), their responses were never, only rarely, sometimes, often, or always.   We pre-tested the

survey questionnaire with a few faculty representatives in each of the participating countries. This Pilot testing showed that revisions were not needed.

For statistical analyses, IBM SPSS version 27.0 software was used, and the threshold for significance was set at $p<0.050$. The Chi-square test compared sex- and graduation time-related proportions among students from six participating countries. Subsequently, the information was combined by pooling student data to present student responses concerning specific questions related to each of the inquiry domains: 1) wellness, 2) perceived stress, 3) ability to cope, 4) social support, and 5) students' perceptions about remote didactic training during the COVID-19 pandemic. In preparation for further analyses, domain-specific frequency-related responses (often and always) or affirmative responses (agree and strongly agree) were used to calculate the summative domain-specific scores. As the domains had a varying number of questions, each of the domains summative scores were recalculated as percentage-based scores. This enabled us to perform further analyses. To examine interrelations among different psychosocial domains, Spearman's correlation associated wellness scores with stress, ability to cope, or social support scores. Country-based differences in each of our inquiry domains were evaluated by comparing means employing One-way ANOVA with the Post hoc Bonferroni adjustment for multiple comparisons. To identify significant predictors of two outcomes: student wellness (outcome 1) and student perceptions about their remote dental training (outcome 2), we applied multivariable linear multiple regression models, each tested with the following potential predictors; sex, being or not in a graduating year, stress, ability to cope, and social support.

Results

The COVID-19 related lockdown and initiation of an online dental training in participating schools started at similar dates, namely in March, 2020, while student return to clinical activities slightly

differed among dental schools, in Norway, students resumed clinical patient care in mid-May and in other dental schools in the fall term of the same 2020 year.

Data was available from a total of 1795 undergraduate dental students from six European countries. Table 1 compares student participants from different countries according to background information (sex and being or not in a graduating year). In all participating countries, a consistent trend was observed with a higher proportion of females participating than males. As expected, there were significantly lower proportions of students in a graduating year compared to the proportions of students in earlier years of dental undergraduate training.

Table 2 presents the distribution of student responses to specific questions regarding the following psychosocial domains: wellness (6 questions), stress (4 questions), and ability to cope (6 questions). In total, 71.4% of dental students regularly (often or always) had 8+ hours of sleep daily, most (85.4%) regularly (often or always) communicated with their family, and the majority (93.9%) practiced regular (often or always) oral self-care. In total, 45.7% felt nervous or stressed on a regular basis (often or always) and 22.7% felt difficulties were piling up (often or always) so high that they could not overcome them. Approximately one-third of students (27.7%) reported they were frequently (always or often) unable to control important things in their life. A similar proportion of students (34.4%) could not cope with everything they had to do during COVID-19.

Table 2 presents student responses regarding their social support while undergoing remote dental training during the COVID-19 pandemic. High proportions of students (~ two-thirds) had a special person in their lives to support them, similar proportions of students received support from their family and friends. However, there were some students (less than 10.0%) who did not have any social support.

Table 3 presents student perceptions about their remote dental training during COVID-19. There was considerable variation in student responses. Given that COVID-19 imposed unexpected challenges to delivering the same material in a timely manner compared to pre-COVID-19 times, student answers regarding several aspects of remote dental training need special consideration. Around half of the students (48.4%) reported that their teachers were often or always able to clearly teach the course content online, a higher proportion (57.8%) indicated that their teachers were available for consultations, and around two thirds of students (67.1%) reported that lectures were delivered on time.

Furthermore, combined responses in each of the five domains (wellness, stress, ability to cope, social support, and student perceptions about remote dental training) were compared among students from the six European countries. Comparison of the domain-based distributional patterns (graphs not presented) among the participating countries identified several trends: 1) relatively similar distributional patterns (no obvious substantial differences) were observed in all six countries and in each of the aforementioned domains; 2) a wide range of variation among students was observed in all countries and in each of the five domains; 3) overall, social support scores were higher than coping scores; and 4) stress scores were lower than either coping or social support scores.

Spearman's correlation analyses showed that wellness scores were significantly correlated ($p<0.001$) with stress, student's ability to cope, and their social support. The effect sizes, as indicated by the correlation coefficients, were as follows: a negative correlation between wellness and stress (ρ=-0.351); positive correlations between student wellness–and their ability to cope (ρ=0.389) and between wellness and social support (ρ=0.335).

Table 4 compares the percentage-based means among the participating countries concerning our domains of interest. In each of the domains, the following country-based differences were found:

Wellness (Table 4). For Albanian students, their mean wellness score was significantly higher (by 10.2% on average) than for Lithuanian students. For Romanian students, their mean wellness score was higher than the corresponding means in any of the other countries.

Stress (Table 4). In Albania and Lithuania, student mean stress scores were higher than the corresponding means in other countries. Self-reported stress in Norwegian and Polish students were lower than stress-related means of students from Albania, Lithuania and Macedonia.

Ability to cope (Table 4). Country-based differences were less pronounced for student coping than for their wellness or perceived stress. Only a few significant country-based differences were observed: coping was significantly lower in Albanian students than Polish students (p=0.044). Also, Macedonian students had lower coping scores than Polish (p<0.001) or Romanian students (p=0.009). Compared to other countries, Norwegian students reported the highest coping scores, but the means of coping ability did not differ significantly between Norway and other countries.

Social support (Table 4). The support-related mean for Albanian students was higher (by 12.9% on average) than for the Macedonian students. Also, the mean of social support for the Macedonian students was lower than the corresponding means for students from other countries.

Perceptions about remote dental training (Table 4). Student perceptions differed significantly between some countries. Albanian students perceived remote training as more positive in comparison to students from either Macedonia or Romania. Overall, Norwegian students were most positive about their remote training during the COVID-19 pandemic compared to dental undergraduate students from other countries.

To identify what explains/predicts student overall wellness (outcome 1) and student more positive perceptions about remote dental training (outcome 2), multivariable regression models tested five potential determinants: sex, being or not in the graduating year, stress, coping, and social support.

Outcome 1: Predictors of student wellness (%) (see Table 5A). The overall linear regression model was highly significant ($p<0.001$) and the five predictors jointly explained 23.1% ($R^2=0.231$) of the variation in student wellness scores. The strongest positive predictors were students' ability to cope ($\beta=0.223$; $p<0.001$) and social support ($\beta=.179$; $p<0.001$), while negative significant predictors of wellness were stress ($\beta=-0.222$; $p<0.001$) and being in the graduating year ($\beta=-0.059$; $p=0.005$). Females reported higher levels of wellness compared to males; this trend remained significant ($\beta=0.073$; $p=0.001$) even when it was controlled for the other four predictors (being in the graduating year, stress, ability to cope, and social support).

Outcome 2: Predictors of student perceptions about remote training (%) (see Table 5, part A). The same five predictors jointly explained only 6.3% of the variance ($R^2=0.063$) in student perceptions about remote training. In this model, three significant predictors were: stress ($\beta=-0.080$; $p=0.033$), ability to cope ($\beta=0.182$; $p<0.001$), and social support ($\beta=0.057$; $p=0.023$).

Predictors of student wellness: comparisons among countries (see Table 5B). Comparisons among countries were accomplished by employing separate multivariable regression models for each of them. Concerning student wellness (outcome 1), the following differences among countries were observed, the explained variance score was highest in Albania ($R^2=0.322$) and lowest in Macedonia ($R^2=0.207$). The importance (effect size) of the predictors also differed among the countries. Sex was a significant predictor of student wellness when controlled for the other model predictors (being in the graduating year, stress, ability to cope, and social support) in Albania and

Poland, but not in the other countries. Being in the graduating year of the program was negatively associated with decreased student wellness in Lithuania and Romania, but not in other countries. Having more stress was negatively related to wellness in all countries; however, for Norwegian students the effect of stress on wellness was low and non-significant (β=-0.076; *p*>0.050).

Predictors of student perceptions about remote training: comparisons among countries (see Table 5B). Overall, in all countries the explained variance scores concerning outcome 2 were lower than the corresponding explained variance scores for outcome 1. In Norway, sex was a significant predictor, with females being more positive about their remote training compared to males. In the other countries there were no sex-based differences in perceptions about remote training. In all the countries, except for Romania, higher coping scores were positively associated with positive perceptions about remote training.

Discussion

We collected the student data during the earlier stages of the COVID-19 related lockdown. Therefore, we consider the timing of data collection to be an advantage, consequently our findings may reflect a true picture of student overall being, their stress and viewpoints about their online training during the pandemic, for which neither students nor their students were prepared.

As the COVID-19 pandemic struck, the dental education community faced unprecedented challenges. However, dental institutions should not miss out on the valuable lessons learned about reinforcing their curricula; they should also consider how to maximize student learning under both usual and unprecedented circumstances.[18] Experiencing the COVID-19 pandemic brought new opportunities for the further development of dental education; this was mainly in terms of the benefits of online dental training, effectively sharing resources among different dental schools, and

improving infection control in dentistry, the latter experience might be helpful in preparing for future contagious diseases.[19]

Even before the pandemic, university students were known to have relatively high levels of stress, and COVID-19 has substantially raised these levels.[20] In all participating countries during the COVID-19 pandemic-related lockdown (quarantine) there were no possibilities for students to have additional job offers or practice clinical patient care. It is known that due to increased isolation and the abandoning of daily routines, students had reduced motivation and experienced pressure to learn independently.[21]

Our multi-country survey identified two trends, namely that there was substantial variation among students concerning different psychosocial domains and that country-based differences were less pronounced in the coping domain compared with either the wellness or stress domains. We found that the ability to cope was a significant predictor of both student wellness and of a more positive outlook concerning their remote dental training. The strongest positive predictors of student wellness were students' coping ability and having social support, while students' stress and being in the graduating year of their program were associated with decreased wellness. During pandemic, the psychological help to support student wellbeing was offered in Lithuania and Poland, where students could access the support from the psychological department, however if students sought such service is still unknown. Our findings support the need to monitor students' experiences, especially during critical times. To alleviate their stress we need to implement health-focused interventions,[22] and designing such interventions for lockdown periods is essential.[23] To reduce negative psychosocial outcomes in situations requiring social isolation, academic institutions should develop guidelines for health-promoting practices.[14,21] For example, high levels of stress and anxiety in university students can be mitigated by training students to adopt proper coping

strategies and stress management skills.[8] Student stress levels should be determined at certain intervals, and future longitudinal interventional studies could evaluate the effectiveness of different coping strategies towards reduction of stress levels in student populations.[24] Consequently, we can expect that by facilitating effective and practical coping strategies in dental students during online sessions can decrease the risk of their psychological distress, as well as support student health and their overall well-being.[25]

The importance of social support, especially in precarious times, should not be underestimated; for example, meta-analyses of the Seabrook *et al.* systematic review indicated that positive social support and online connectedness were associated with less depression and anxiety.[26] Similarly, a Swiss study showed that student resilience and social support were associated with less anxiety.[27] Currently we do not have sufficient evidence to mitigate dental students' fear and negative perceptions about getting infected with COVID-19, as the recent 2020 Cochrane systematic review found no studies that evaluated potential disease transmission via aerosols in a dental setting.[28]

Our survey showed that dental students have mixed feelings about online dental training being continued in the future. Consequently, different pros and cons of online training need to be considered. Machado *et al.* discussed some favorable aspects of online training, they also introduced new perspectives we might consider for training of our future dental professionals.[29] Given that Millennials are comfortable with new technologies, we could integrate digital dentistry into dental curricula;[30] this might be an essential step to enhance student acceptance of technology-based learning.[31] Given that university teachers will embrace customized interactive and collaborative online education, this may compensate for the current lack of interaction in larger classes, and mitigate the risks associated with student isolation inherent in distance education.[32]

The quality of learning has been impacted by the pandemic, therefore a follow-up study on the impact pandemic had on student learning is fully justified. Such study can have several positive implications including acquiring the relevant information for inter-university collaboration that in turn may guide the necessary curricula revisions and enhance student training. A distinction needs to be made between the temporary acceptance of remote learning due to COVD-19[11] and long-term student acceptance of continued online teaching.[33] Important considerations are that students consider lecture recordings as supplementary resources rather than a substitute for live lectures[34] and that students do not consider their online training as a substitute for face-to-face clinical practice.[35] Concomitantly, we need to keep in mind that online evaluation and or exams might enable various technological possibilities that may facilitate students' unethical (e.g. cheating) behaviors.[1]

The study limitations. We understand that a non-random recruitment of dental schools is a limitation of the current study. However, given that dental students from all years of undergraduate training were included and that eight different dental schools in six European countries participated, we think the evidence acquired during the current study is at least partly relevant to students from other European dental schools. As information was collected anonymously, we are unable to follow up with the same students in the future. Another limitation is that we were not able to perform separate analyses comparing domestic students with international students trained at the same university due to relatively small numbers of international students. This would be an important inquiry for future studies, as international students tend to experience higher levels of stress compared to domestic students.[8] Another inherent deficiency in performing health-related surveys is the lack of objective clinical data that could either confirm or repute our subjective findings.

Conclusions

There was considerable variation in the students' wellness, stress, ability to cope, and student social support. In addition, the students' psychosocial experiences differed among countries. Having more stress was negatively related to student wellness in all countries. Higher coping scores predicted student wellness and a more positive perception about remote dental training.

Conflict of Interest Statement

The authors do not have any financial, economic, or professional interests that may have influenced the study design, execution, or presentation of the scholarly work.

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Table 1. Distribution of student participants in regard to country, sex and whether they were in a graduating or non-graduating year.

Dental school in	Sex †		Time of the program †	
	Males	Females	Non-graduating (years: 1-4)	Graduating year (years: 5 & 6)
	N (%)	N (%)	N (%)	N (%)
Albania	54 (22.7)	184 (77.3)	217 (91.2)	21 (8.8)
Lithuania	63 (21.9)	225 (78.1)	229 (79.0)	61 (21.0)
Macedonia	66 (32.2)	139 (67.8)	140 (68.3)	65 (31.7)
Norway	10 (15.6)	54 (84.4)	54 (84.4)	10 (15.6)
Poland	232 (29.7)	548 (70.3)	588 (75.2)	194 (24.8)
Romania	58 (26.9)	158 (73.1)	204 (94.4)	12 (5.6)
Total	494 (27.2)	1320 (72.8)	1442 (79.3)	376 (20.7)

† *In some countries, the program duration is 5 years, while in a few countries the program lasts 6 years.*

† *Significant proportional differences (Chi-square test) among participating countries concerning sex (p=0.002) and being in the graduating year (p<0.001).*

Table 2. Student wellness, stress, ability to cope, and their social support during COVID-19 †

Student responses	Never n (%)	Only rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
WELLNESS (6 items) ‡					
8+ hours of sleep daily	38 (2.1)	132 (7.4)	343 (19.1)	734 (40.9)	548 (30.5)
Healthy diet	14 (0.8)	121 (6.7)	397 (22.1)	866 (48.2)	397 (22.1)
Quality oral self-care	7 (0.4)	19 (1.1)	84 (4.7)	473 (26.4)	1212 (67.5)
Having leisure time/hobbies	48 (2.7)	328 (18.3)	554 (30.9)	572 (31.9)	293 (16.3)
Communicate with friends	31 (1.7)	281 (15.7)	461 (25.7)	619 (34.5)	403 (22.5)
Communicate with family	14 (0.8)	80 (4.5)	187 (10.4)	579 (32.3)	935 (52.1)
STRESS (4 items) ‡					
Felt nervous and stressed	60 (3.4)	314 (18.0)	574 (32.8)	611 (34.9)	190 (10.9)
Upset because of something that happened unexpectedly	104 (5.8)	366 (20.9)	566 (32.4)	558 (31.9)	155 (8.9)
Angered because things happened that were outside of their control	135 (7.5)	365 (20.9)	540 (30.9)	534 (30.5)	175 (10.0)
Felt difficulties were piling up so high that they could not overcome them	349 (19.8)	541 (30.1)	460 (25.6)	314 (17.5)	85 (4.9)
ABILITY to COPE (6 items) ‡					
Were on top of things	87 (4.8)	399 (22.8)	686 (39.2)	487 (27.8)	90 (5.1)
Felt that things were going their way	119 (6.6)	371 (21.2)	657 (37.6)	501 (28.6)	101 (5.8)
Confident about his/her ability to handle personal problems	48 (2.7)	224 (12.8)	571 (32.6)	665 (38.0)	241 (13.8)
Unable to control important things in their life	168 (9.6)	473 (27.0)	621 (35.5)	410 (23.4)	77 (4.4)
Could not cope with all the things they had to do	137 (7.8)	412 (23.6)	634 (36.2)	474 (27.1)	92 (5.3)
Unable to control irritations in their lives	112 (6.4)	376 (21.5)	567 (32.4)	547 (31.3)	147 (8.4)

SOCIAL SUPPORT (12 items) ‡	Strongly disagree n (%)	Disagree n (%)	Partly agree n (%)	Agree n (%)	Strongly agree n (%)
HAVING A SPECIAL PERSON					
There is a special person around when student is in need	64 (3.7)	114 (6.6)	274 (15.8)	522 (30.2)	755 (43.7)
There is a special person with whom I can share joys and sorrows	42. (2.4)	86 (5.0)	214 (12.4)	467 (27.0)	920 (53.2)
I have a special person who is a real source of comfort to me	67 (3.9)	129 (7.5)	219 (12.7)	458 (26.5)	860 (49.3)
There is a special person in my life who cares about my feelings	94 (5.4)	129 (7.5)	249 (14.4)	408 (23.6)	849 (49.1)
FAMILY SUPPORT					
I can talk about my problems with my family	53 (3.1)	134 (7.8)	374 (21.6)	458 (26.5)	710 (41.1)
My family really tries to help me	64 (3.7)	111 (6.2)	265 (15.3)	530 (30.7)	759 (43.9)

I get the emotional help and support I need from my family	32 (1.8)	146 (8.4)	403 (23.3)	602 (34.8)	546 (31.6)
My family is willing to help me make decisions	22 (1.3)	79 (4.6)	323 (18.7)	554 (32.0)	751 (43.4)
PEER SUPPORT					
My friends really try to help me	34 (2.0)	131 (7.6)	398 (23.0)	636 (36.8)	530 (30.7)
I can count on my friends when things go wrong	25 (1.4)	59 (3.4)	252 (14.6)	513 (29.7)	880 (50.9)
I have friends with whom I can share my joys and sorrows	38 (2.2)	86 (5.0)	321 (18.6)	620 (35.9)	664 (38.4)
I can talk about my problems with my friends	34 (2.0)	130 (7.5)	361 (20.9)	614 (35.5)	590 (34.1)

† *Frequencies calculated as a percentage of the total valid responses.*

‡ *Missing data: none about overall wellness, for 46 students (2.6%) no information was available about stress and coping. 66 students (3.7%) chose not to provide information about social support.*

Table 3. Dental students' perceptions about their remote dental training during the COVID-19 †

DENTAL TRAINING ‡	Never n (%)	Only rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
Teachers showed the ability to teach course content clearly	78 (4.5)	264 (15.3)	546 (31.7)	619 (36.0)	213 (12.4)
Teachers were available for consultations	52 (2.9)	223 (13.0)	452 (25.2)	661 (38.4)	332 (19.3)
Teachers held lectures regularly	129 (7.5)	257 (14.9)	379 (22.0)	558 (32.4)	397 (23.1)
Lectures and seminars were delivered on time	66 (3.8)	177 (10.3)	323 (18.0)	638 (37.1)	516 (30.0)
Lectures had good structure	107 (6.2)	216 (12.6)	511 (29.7)	593 (34.5)	293 (17.0)
Time for education was used rationally	107 (6.2)	253 (14.7)	534 (31.0)	554 (32.2)	272 (15.8)
Assessment of knowledge and skills was fair	108 (6.3)	189 (11.0)	446 (25.9)	610 (35.5)	367 (21.3)

† *Frequencies calculated as a percentage of the valid responses.*

‡ *75 (4.2%) students chose not to provide information about the quality of remote dental training.*

Table 4. Comparisons among countries of dental student responses regarding their wellness, stress, ability to cope, social support, and perceptions about remote didactic dental training †

Countries	OUTCOME DOMAINS				
	Wellness lifestyle (%)	**Stress (%)**	**Coping (%)**	**Support (%)**	**Perceptions about remote training (%)**
	mean (sd)	mean (sd)	mean (sd)	mean (sd)	mean (sd)
Albania	58.9 (9.3)	46.3 (11.7)	41.9 (16.1)	74.3 (25.7)	55.2 (35.6)
Lithuania	54.5 (12.1)	42.2 (13.8)	43.3 (16.1)	77.7 (25.8)	60.6 (33.6)
Macedonia	61.0 (10.2)	41.9 (13.2)	39.6 (17.4)	61.4 (31.4)	43.5 (35.2)
Norway	55.8 (10.3)	38.8 (10.7)	45.8 (15.4)	81.6 (28.0)	65.2 (28.1)
Poland	59.1 (10.7)	37.9 (15.4)	45.4 (14.1)	71.5 (28.2)	54.5 (36.5)
Romania	62.5 (11.2)	38.8 (14.2)	45.0 (15.8)	80.1 (24.4)	38.6 (36.3)
Significance ‡	<.001	<.001	<.001	<.001	<.001

† Individual percentage scores were calculated for each outcome domain based on student summed responses on specific domain questions. ‡ One-way ANOVA with Post hoc Bonferroni adjustment for multiple comparisons.

Table 5. Predictors of student wellness and perceptions about remote training during COVID-19 (multivariable linear regression models)

Part A: GENERAL COMPARISONS (students from all countries combined)

Outcome 1: Student Wellness Scores (%). **Model summary**: R^2=.231; p<.001

Predictors	B (95%CI)	β	Significance	Tolerance
Sex (males vs. females)	1.8 (0.8; 2.9)	.073	.001	0.939
Non- vs. graduating year	-1.6 (-2.7; -0.5)	-.059	.005	0.992
Stress (%)	-0.2 (-0.2; -0.1)	-.222	<.001	0.735
Ability to cope (%)	0.2 (0.1; 0.2)	.223	<.001	0.697
Support (%)	0.1 (0.1; 0.1)	.179	<.001	0.863

Outcome 2: Perceptions about Remote Training Scores (%). **Model summary**: R^2=.063; p<.001

	B (95%CI)	β	Significance	Tolerance
Sex (males vs. females)	2.6 (-1.1; 6.3)	0.033	.166	0.939
Non- vs. graduating year	0.5 (-3.5; -4.5)	0.005	.816	0.992
Stress (%)	-0.2 (-0.3, -0.1)	-0.080	.003	0.735
Coping (%)	0.4 (0.3; 0.5)	0.182	<.001	0.697
Social support (%)	0.1 (0.0; 0.1)	0.057	.023	0.863

Part B: COMPARISONS AMONG PARTICIPATING COUNTRIES †

	Outcome 1: Student Wellness Scores (%)					
	Albania	**Lithuania**	**Macedonia**	**Norway**	**Poland**	**Romania**
	R^2=.322	R^2=.306	R^2=.207	R^2=.322	R^2=.219	R^2=.255
Predictors	β	β	β	β	β	β
Sex	.129*	.015	.066	.116	.123**	.016
Graduating year	.014	-.107*	-.072	-.003	.035	-.121*
Stress	-.217*	-.205*	-.163*	-.076	-.277**	-.143*
Coping	.338**	.305**	.124	.487*	.170**	.277**
Support	.203*	.189*	.357**	.257*	.150**	.240**
	Outcome 2: Student Perceptions about Remote Training Scores (%)					
	Albania	**Lithuania**	**Macedonia**	**Norway**	**Poland**	**Romania**
	R^2=.118	R^2=.144	R^2=.076	R^2=.148	R^2=.024	R^2=.064
Predictors	β	β	β	β	β	β
Sex	.030	.025	.038	.179	.031	.016
Graduating year	.029	.022	.025	-.179	-.063	.108
Stress (%)	-.238*	-.130*	-.109	-.294*	-.027	-.132
Coping (%)	.181*	.305**	.257*	.046	.106*	.099
Support (%)	.034	.020	.015	.162	.063	.111

† *Part B: all country-based models were significant (p<0.050). *Significant predictors (p<0.05); **(p<0.001).*