Original Research

Correlation of Depression, Anxiety, and Stress with Coping Strategies Among Dentistry Students: A Cross-Sectional Study

Caglar Bilmenoglu[1], Gözde Memisoglu[2], Aysegul Kurt[3], A. Altug Cilingir[4]

[1]*Department of Prosthodontics, Trakya University Faculty of Dentistry, Edirne, Türkiye. ORCID iD: 0000-0002-2580-9899. caglarbilmenoglu@trakya.edu.tr (Corresponding Author)*
[2]*Department of Prosthodontics, Istanbul Medipol University Faculty of Dentistry, Istanbul, Türkiye. ORCID iD: 0000-0001-5800-5080*
[3]*Department of Prosthodontics, Trakya University Faculty of Dentistry, Edirne, Türkiye. ORCID iD: 0000-0003-2775-3179*
[4]*Department of Prosthodontics, Trakya University Faculty of Dentistry, Edirne, Türkiye. ORCID iD: 0000-0002-0694-5772*

ABSTRACT

Aim: The aim of the study is to examine the level of stress and coping strategies of dentistry students in Türkiye in terms of variables such as sleep, personality, alcohol consumption, and smoking.

Methods: A questionnaire including socio-demographic questions, Depression, Anxiety, and Stress Scale, and COPE Inventory was administered to 293 students.

Results: The students' Depression, Anxiety, and Stress Scale scores were 13.88±10.03, 14.60±8.98, and 19.41±9.64, respectively. Income perception and the dentistry-personality relationship were the largest stress factors. No significant difference was found between years in terms of stress level. Problem-focus and emotional-focus coping strategies were negatively correlated, while less-useful coping strategies showed positive correlation with Depression, Anxiety, and Stress Scale scores. While the students who reported their sleep duration as "adequate" showed high problem-focus and emotional-focus coping scores, they had low less-useful coping strategies and Depression, Anxiety, and Stress Scale scores. The students who deemed dentistry suitable for their personality had higher problem-focus and emotional-focus coping scores and lower low less-useful coping strategies scores. Although alcohol consumption and smoking were unrelated to stress, they showed positive correlation with low less-useful coping strategies scores.

Conclusion: No difference was observed between the level and sources of Depression, Anxiety, and Stress Scale and the grade. Students utilizing effective coping strategies had lower stress than those using less-useful coping strategies. Therefore, dental education should include how to acquire and use effective coping strategies.

Keywords: depression, anxiety, coping strategies, dentistry, dental education

Introduction

Stress, which is a wide term used to define different psychological conditions, was defined by Lazarus and Folkman (1) as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being". People make a great effort to cope with the stress that affects them physically and psychologically. However, when this effort is insufficient, they can be exposed to prolong and intense stress, which can cause other discomforts. A study showed that long-term and high-level stress might be associated with depression while low-level stress might be associated with anxiety (2).

It is known that the profession of dentistry is quite stressful. Alexander (3) stated that with limited data, dentists abandon their profession during the most productive periods of their careers due to career change or suicide. Not only dentists but also dental students are generally reported as stressed, depressive, and suicidal (3,4). The process of dental education may cause a decrease in students' academic performance, mood changes, disappointment, reduced concentration, and absenteeism. These outcomes constitute major risk factors for depression, anxiety, and burnout (5,6). According to a 2009 study conducted in Türkiye, the most stressful factors for students were the fear of failure, noncompletion of clinical requirements, the amount of work assigned, patient examinations, the risk of communicable diseases, the difficulty of hand skills, and not having time to relax (7). Aside from academic stressors, factors such as housing problems, sex, financial problems, family, and social environment may all be sources of stress (7-10).

Individuals' ability to cope with perceived problems or stress, accept and try to overcome them, or choose to escape is determined by whether they regard coping resources as sufficient or insufficient, and whether they regard existing problems as manageable or uncontrollable. (1). Similarly, coping strategies are usually classified as problem-focused, emotion-focused, and less useful (11-13). The problem-focused coping strategies are directly for solving or preventing the problem. Emotion-focused coping strategies may cause positive impacts on the individual such as controlling one's emotional state and focusing on the problem, or negative impacts such as making the individual still and preventing them to take action. Less useful coping strategies are about avoiding the problem on purpose in stressful situations (11-14).

The main aim of this study is to examine the level and sources of stress, anxiety, and depression, as well as coping strategies of students in a dentistry faculty of a state university in Türkiye. Another aim of the study is to determine the relationship between stress and variables, such as smoking, alcohol consumption, sleep duration, family income, personality, and decision to study dentistry.

Methods

This study was reviewed and approved by Trakya University School of Medicine Scientific Ethics Committee (TUTF-BAEK 2019/103). Data were collected from the students of the Faculty of Dentistry at Trakya University on March 2019 and a cross-sectional design was used to test the hypotheses. Efforts were made to ensure that as many students as possible voluntarily participated in the questionnaire. Students who could not be reached due to suspending study or long-term absenteeism during the term of application of the questionnaire were not included in the study. This cross-sectional screening study included 293 students who studied in the Faculty of Dentistry (183 female and 110 male). The data were collected from students who received preclinical education (1st, 2nd, and 3rd grades) and students who perform occupational practice (4th grade) through self-administered forms via scales. After the students were informed on the content of the scales, they were asked to answer the questions anonymously, mark each item based on their last week, and give one answer for each statement. The questionnaire and scales were handed out to students and collected by hand at the end of the administration to minimize the

loss rate. The time required to complete the questionnaire and scales was determined as 7.5 minutes for the questionnaire and 10 minutes for the scale after testing by the researchers. A total of 30 min was given to students to answer these questions.

The sociodemographic data form included questions on grade, sex, health problems, family income, psychiatric support or medication, sleeping state, smoking, and alcohol consumption of students, and questions related to school. This questionnaire consists of 25 questions, including fill-in-the-blank and multiple-choice.

Depression, Anxiety, and Stress Scale

The "Depression, Anxiety and Stress Scale" (DASS), developed by Lovibond and Lovibond (15), is a scale commonly used to measure stress scores and contains 42 questions of which 14 are in the depression subscale, 14 in the anxiety subscale, and 14 in the stress subscale. The scale has a four-point Likert-type scoring as follows; 0: Did not apply to me at all, 1: Applied to me to some degree or some of the time, 2: Applied to me to a considerable degree or a good part of the time, 3: Applied to me very much or most of the time. High scores on each of the DASS subgroups indicate that the individual has the relevant problem. The scale has no reverse items and the total score changes between 0 and 42 for all subgroups. The stress, anxiety, and depression scores are grouped as follows; "Depression: normal = 0-9, mild = 10-13, moderate = 14-20, severe = 21-27, extremely severe ≥ 28"; "Anxiety: normal = 0-7, mild = 8-9, moderate = 10-14, severe = 15-19, extremely severe ≥ 20"; and "Stress: normal = 0-14, mild = 15-18, moderate = 19-25, severe = 26-33, extremely severe ≥ 34" (15,16).

The Turkish standardization of DASS was conducted by Akın et al (17). The correlation coefficients between the English and Turkish versions of the scale were 0.97 (p<0.001) for depression, 0.98 (p<0.001) for anxiety, 0.97 (p<0.001) for stress, and 0.99 (p<0.001) for entire scale. The Cronbach's Alpha internal consistency coefficients were 0.89 for the whole scale, and 0.90, 0.92, and 0.92 for the DASS subgroups, respectively. The test-retest reliability scores at the end of three weeks were 0.99 for the whole scale and 0.98 for subgroups (17).

COPE Inventory

The scale assessing coping strategies was developed by Carver, Scheier and Weintraub (11) in 1989 to determine coping strategies used in stressful situations. The scale is a self-report questionnaire consisting of 60 questions and is Likert-type with four options. The coping strategies are divided into three groups as "problem-focused coping strategies" (PFCS), "emotion-focused coping strategies" (EFCS), and "less useful coping strategies" (LUCS) in the scale. There are five sub-groups in each group. therefore the scale consists of 15 subscales in total. The scores of 15 subscales and 3 groups can be calculated separately (11).

The scale was translated into Turkish and its validity and reliability studies were performed by Ağargün et al (18) in 2005. The reliability calculations of the test were made with Cronbach's alpha statistic and Pearson's correlation analysis with the internal consistency method. The internal consistency of the Turkish form of the scale is high. The fact that Cronbach's alpha value was 0.79 and the subscale scores were positively and significantly correlated with the coping total score showing that the internal consistency of the Turkish form is at the intended level. The test-retest reliability of the scale was high (18).

Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 22.0 statistical program. Descriptive statistics were calculated as median (min-max) values and arithmetic mean±standard deviation. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to evaluate the normality assumption. Mann-Whitney U and Kruskal Wallis tests were used for data without normal distribution. Levene's test was used for determining the homogeneity/equality of variances. In cases where homogeneity and normality assumptions were met, ANOVA test was used for differences between groups. Independent Samples T and one-way ANOVA tests were used for data with the normal distribution. The frequency analysis was made for each grade and sex based on the severity ranking scores.

Results

All students participating in the study completed the forms. The data were collected from a total of 293 (183 (62.5%) female and 110 (37.5%) male) students 247 of whom were in the preclinical period (1st grade: 34.13%; 2nd grade: 32.42%; 3rd grade: 17.75%) and 46 of whom were in professional practice (4th grade: 15.70%).

According to the data obtained, 15.02% of the students had received or were receiving psychiatric help. Of these students, only 20.45% used psychiatric medicines. Furthermore, 9.22% of the students had a general health problem and 63.14% of the students stated that their sleep duration was "adequate".

While 87.71% of the students stated that they have chosen this department willingly, 22.87% thought that this profession is not suitable for their personality. Also, 70.91% of male and 80.87% of female thought that dentistry is suitable for their personalities. Moreover, 7.17% of the students stated that they did not choose dentistry willingly and dentistry is not suitable for their personality. 31.40% of students smoke and 48.12% use alcohol. Alcohol consumption was reported as "1-2 times a week" by 72.34%, "3-4 times a week" by 25.53%, and "5-7 times a week" by 2.13% (Table 1).

Table 1. Demographic characteristics of respondents by years and variables (n=293)

Variable		All	Year 1	Year 2	Year 3	Year 4
Gender	Female	62.50%	57.00%	63.16%	65.38%	69.57%
	Male	37.50%	43.00%	36.84%	34.62%	30.43%
Health Problem	Yes	9.22%	4.00%	10.53%	13.46%	13.04%
	No	90.78%	96.00%	89.47%	86.54%	86.96%
Perceived Family Income	Good	30.72%	26.00%	36.84%	32.69%	26.09%
	Moderate	65.19%	72.00%	58.95%	61.54%	67.39%
	Bad	4.10%	2.00%	4.21%	5.77%	6.52%
Sleep Duration per Day	Short	34.13%	27.00%	38.95%	40.38%	32.61%
	Adequate (6-10 hours)	63.14%	69.00%	60.00%	57.69%	63.04%
	Long	2.73%	4.00%	1.05%	1.92%	4.35%
Psychiatric Help History	Yes	15.02%	5.00%	17.89%	19.23%	26.09%
	No	84.98%	95.00%	82.11%	80.77%	73.91%
Psychiatric Drug Use History	Yes	3.07%	0.00%	2.11%	3.85%	10.87%
	No	96.93%	100.00%	97.89%	96.15%	89.13%
Decision to Study Dentistry	Self-made	87.71%	89.00%	88.42%	88.46%	82.61%
	Guided by Others	12.29%	11.00%	11.58%	11.54%	17.39%
Personality Assessment	Suitable for dentistry	77.13%	81.00%	82.11%	73.08%	63.04%
	Not suitable for dentistry	22.87%	19.00%	17.89%	26.92%	36.96%
Smoking	Yes	31.40%	31.00%	26.32%	42.31%	30.43%
	No	68.60%	69.00%	73.68%	57.69%	69.57%
Alcohol Use	Yes	48.12%	41.00%	51.58%	46.15%	58.70%
	No	51.88%	59.00%	48.42%	53.85%	41.30%
Alcohol Consumption Frequency	1-2 times a week	72.34%	65.85%	69.39%	83.33%	77.78%
	3-4 times a week	25.53%	26.83%	30.61%	16.67%	22.22%
	5-7 times a week	2.13%	7.32%	0.00%	0.00%	0.00%
Stage of Practice	Preclinic	84.30%	100.00%	100.00%	100.00%	0.00%
	Clinic	15.70%	0.00%	0.00%	0.00%	100.00%

Depression, Anxiety, and Stress Scores

The mean DASS scores of 293 students were 13.88±10.03, 14.60±8.98, and 19.41±9.64, respectively (Table 2).

Table 2. Variable mean scores of respondents by years (n=293)

	All	Year 1	Year 2	Year 3	Year 4
Stress	19.41	17.73	19.79	20.25	21.30
Anxiety	14.60	13.42	14.59	16.19	15.41
Depression	13.88	12.76	13.89	15.60	14.33
PFCS	54.80	55.01	55.32	53.37	54.91
EFCS	53.98	54.62	53.77	52.42	54.80
LUCS	41.09*	41.20	39.91	41.87	42.39

PFCS: Problem-focus coping strategies, EFCS: Emotional-focus coping strategies, LUCS: less-useful coping strategies

The highest scored items in the DASS were the 13th item for depression as "I felt sad and depressed" (1.43); the 9th item for anxiety as "I found myself in situations that made me so anxious, I was most relieved when they ended" (2.12); and the 14th item for stress as "I found myself getting impatient when I was delayed in any way" (1.77).

There were no significant differences between grades in terms of DASS scores. Perceived family income and whether the personality is suitable for dentistry were found as the largest source of stress among students (mean ratings = 22.60 or higher). All DASS scores of students who perceived their family income as "bad" were found to be significantly higher than other students (Table 3).

Among the students, the highest DASS scores were reported in students who received psychiatric help (mean ratings=19.30 or higher) and used psychiatric medicines (mean ratings=26.78 or higher) ($p<0.05$). Furthermore, the DASS scores of the students who received psychiatric help and used psychiatric medicines were found to be significantly higher than the students who did not receive any help or medicines in this regard. All DASS scores of the students who stated their sleep duration as "adequate" were found to be significantly lower than those who stated "short" or "long". Only the depression subscale scores of students who did not choose the department willingly were significantly higher than those who

chose willingly. There was no statistically significant difference in the stress and anxiety subscales. The DASS scores of students who thought that dentistry is not suitable for their personality were higher than those who thought otherwise. There was no significant difference in the DASS scores in terms of sex, health status, smoking, alcohol consumption, and grade variables ($p<0.05$).

Table 3. Scores of DASS by variables

Variable		Depr	Anxiety	Stress
Gender	Female	13.64	15.42	20.11
	Male	14.26	13.25	18.24
Health Problem	Yes	16.19	17.37	22.22
	No	13.64	14.32	19.12
Perceived Family Income	Good	13.59	13.90	18.99
	Moderate	13.73	14.49	19.27
	Bad	18.42*	21.75*	24.75*
Sleep Duration per Day	Short	15.70	16.08*	21.62*
	Adequate (6-10 hours)	12.85*	13.73*	18.19*
	Long	14.88	16.38*	19.75*
Psychiatric Help History	Yes	19.30*	19.84*	25.93*
	No	12.92*	13.68*	18.25*
Psychiatric Drug Use History	Yes	26.78*	27.33*	32.33*
	No	13.47*	14.20*	19.00*
Decision to Study Dentistry	Self-made	13.37*	14.59	19.12
	Guided by Others	17.50*	14.72	21.42
Personality Assessment	Suitable for dentistry	12.06*	13.53*	18.46*
	Not suitable for dentistry	20.01*	18.22*	22.60*
Smoking	Yes	14.67	14.51	19.49
	No	13.51	14.65	19.37
Alcohol Use	Yes	14.26	13.98	19.16
	No	13.52	15.18	19.63
Alcohol Consumption Frequency	1-2 times a week	16.32	16.21	22.66
	3-4 times a week	11.68	14.23	17.33
	5-7 times a week	16.52	15.73	20.88
Stage of Practice	Preclinic	13.79	14.45	19.05
	Clinic	14.33	15.41	21.30
Grade	1st	12.76	13.42	17.73
	2nd	13.89	14.59	19.79
	3rd	15.60	16.19	20.25
	4th	14.33	15.41	21.30
	Total	13.88	14.60	19.41

*Depr = Depression, * $p<0.05$*

When comparing the grades, the perceived family income, the choice of dentistry decision, and the suitability of the personality for dentistry were significantly lower in the first grade. Although not statistically significant, stress scores increased as the grade increased (Table 4).

Table 4. Stress scores of respondents by years and variables

Variables		Year 1	Year 2	Year 3	Year 4
Gender	Female	17.70	19.93	21.94	22.78
	Male	17.77	19.54	17.06	17.93
Health Problem	Yes	21.25	23.40	21.86	21.33
	No	17.58	19.36	20.00	21.30
Perceived Family Income	Good	18.15	18.54	18.76	22.42
	Moderate	17.64	20.02	20.56	20.35
	Bad	15.50*	27.50*	25.33*	26.66*
Sleep Duration per Day	Short	21.81	22.73	20.48	20.13
	Adequate (6-10 hours)	16.10	18.00	19.90	21.79
	Long	18.25*	13.00*	26.00*	23.00*
Psychiatric Help History	Yes	22.80	26.41	25.40	27.00
	No	17.46	18.35	19.02	19.29
Psychiatric Drug Use History	Yes	0.00	33.00	30.50	32.80
	No	17.73	19.51	19.84	19.90
Decision to Study Dentistry	Self-made	17.69	18.98	21.13	20.39
	Guided by Others	18.09*	26.00*	13.50*	25.62*
Personality Assessment	Suitable for dentistry	16.98*	19.05	19.45	19.69
	Not suitable for dentistry	20.89	23.18	22.43	24.06
Smoking	Yes	18.90	21.16	17.55	20.86
	No	17.20	19.30	22.23	21.50
Alcohol Use	Yes	16.39	20.84	20.38	19.26
	No	18.66	18.67	20.14	24.21*
Stage of Practice	Preclinic	17.73	19.79	20.25	0.00
	Clinic	0.00	0.00	0.00	21.30
Stress		17.73	19.79	20.25	21.30

p<0.05

According to the severity ranking, as the grade increases, the rate of students who stated their stress level as "normal" decreased statistically significantly, while the rate of students who stated it as "severe" increased (p<0.05) (Figure 1).
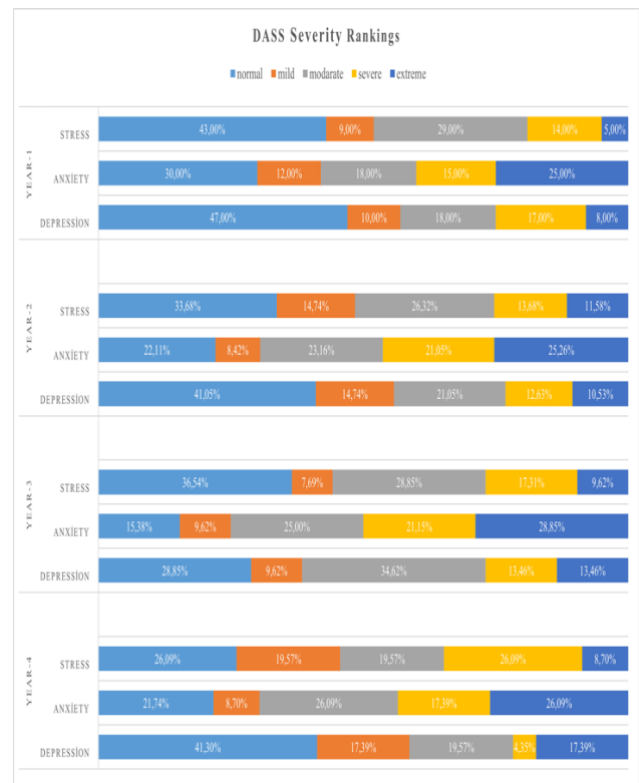

Figure 1. Severity ranking of DASS scores by years

COPE Inventory Scores

According to the mean of all results, the utilization rates of coping methods are PFCS = 54.80, EFCS = 53.98 and LUCS = 41.09, respectively (Table 2). Those who consume alcohol, cigarettes and psychiatric medications were found to prefer LUCS more. Additionally, LUCS scores significantly increased as the amount of alcohol consumed increased. The PFCS and EFCS scores of the individuals who considered their sleep duration as "adequate" were higher than other groups and their LUCS scores were lower. The PFCS and EFCS scores of students who thought that the profession of dentistry is suitable for them were higher and their LUCS scores were significantly lower than other groups. Additionally, students who did not choose the department willingly used LUCS more against problems. In terms of sex, women (54.75) chose EFCS

more compared to men (52.71). Similarly, those who did not receive psychiatric help (54.27) chose EFCS more than those who received psychiatric help (52.36). There was no significant difference between PFCS, EFCS, and LUCS scores in terms of grades (p<0.05) (Table 5).

Table 5. Scores of COPE Inventory by variables

Variable		PFCS	EFCS	LUCS
Gender	Female	55.08	54.75*	41.16
	Male	54.35	52.71*	40.95
Health Problem	Yes	52.67*	51.30*	43.37
	No	55.02*	54.26*	40.85
Perceived Family Income	Good	55.02	53.93	40.72
	Moderate	54.70	54.10	41.12
	Bad	54.75	52.50	43.33
Sleep Duration per Day	Short	54.09*	52.70*	41.05*
	Adequate (6-10 hours)	55.29*	54.78*	40.89*
	Long	52.38*	51.50*	46.00*
Psychiatric Help History	Yes	54.36	52.36*	42.86
	No	54.88	54.27*	40.77
Psychiatric Drug Use History	Yes	52.56	51.89	44.78*
	No	54.87	54.05	40.97*
Decision to Study Dentistry	Self-made	54.81	54.09	40.70*
	Guided by Others	54.75	53.25	43.86*
Personality Assessment	Suitable for dentistry	55.45*	54.58*	40.32*
	Not suitable for dentistry	52.63*	51.96*	43.66*
Smoking	Yes	55.15	53.93	43.67*
	No	54.64	54.00	39.90*
Alcohol Use	Yes	54.89	53.33	43.21*
	No	54.72	54.59	39.11*
Alcohol Consumption Frequency	1-2 times a week	55.22	53.02	7.05*
	3-4 times a week	53.69	53.94	9.44*
	5-7 times a week	58.33	56.33	12.00*
Stage of Practice	Preclinic	54.78	53.83	40.84
	Clinic	54.91	54.80	42.39
Grade	1st	55.01	54.62	41.20
	2nd	55.32	53.77	39.91
	3rd	53.37	52.42	41.87
	4th	54.91	54.80	42.39
Total		54.80	53.98	41.09*

*Depr = Depression, *p<0.05*

When all students were evaluated, LUCS scores were found to be significantly lower than PFCS and EFCS. Figure 2 shows the sub-group scores of the students in terms of coping strategies. The most voted coping strategies among the subtitles were "positive reinterpretation" (12.43), "planning" (12.04), and "instrumental social support" (11.74). The least voted coping strategies were "substance use" (6.24), "denial" (6.53), and "behavioral disengagement" (6.88). There was a significant difference in the "active-coping" scores between the students with no health problems and with health problems. Additionally, there was a significant difference in the "focus on & venting of emotions" and "humor" scores of students with a history of psychiatric help. The "active-coping" and "positive reinterpretation" subtitle scores of students with a good perception of income were significantly high. Additionally, the "focus on & venting of emotions" and "behavioral disengagement" scores significantly increased as the perception of income worsened. The "turning to religion" score, which was common in students who smoked and consumed alcohol, was significantly low while their "humor", "acceptance", "behavioral disengagement" and "substance use" scores were high. The "substance use" score significantly increased as the weekly alcohol consumption increased.
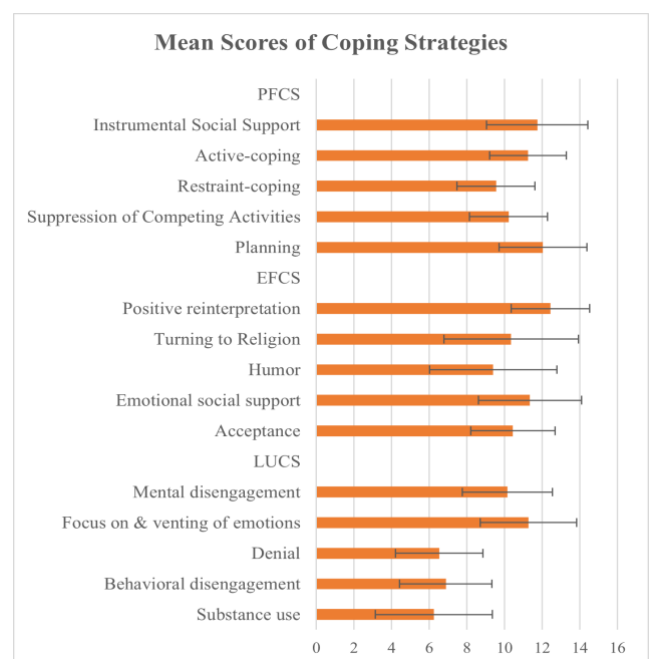

Figure 2. Mean scores of sub-groups (coping strategies)

"Focus on & ventilation of emotion", "mental disengagement" and "acceptance" sub-groups were found to be significantly higher in 4th-grade students than in other grades. The "turning to religion" sub-group was found to be significantly higher in 1st grades than in other grades. Apart from this, no significant difference was found between the grades in terms of subgroups (p<0.05) (Figure 3).

Figure 3. Mean scores of coping strategies by years

Correlations between DASS and coping strategies scores are shown in Table 6. Accordingly, there was a significant negative correlation between each of the PFCS and EFCS scores and the DASS scores. PFCS scores, a more effective coping strategy, had a stronger negative correlation with DASS scores than EFCS scores. This showed that more effective coping strategies reduced stress levels. There was a positive correlation between LUCS scores and DASS scores. This showed that ineffective coping strategies did not reduce stress scores.

Table 6. Correlations of depression. anxiety. and stress scores with coping strategies scores

r	Depr	Anxiety	Stress
PFCS	-0.1502	-0.0918	-0.0547
EFCS	-0.0903	-0.0238	-0.0360
LUCS	0.3838	0.3310	0.2566

*PFCS: Problem-focus coping strategies, EFCS: Emotional-focus coping strategies, LUCS: less-useful coping strategies, Depr: Depression, *p<0.05*

Discussion

It has been reported in many publications that dental students experience a high level of stress. Therefore, students need to learn more effective coping strategies. Students generally reported normal and moderate levels of stress based on their DASS scores in this study. However, DASS scores were related to the type and number of coping strategies students use. Consistent with other studies, a negative correlation was found between effective coping strategies and DASS scores (19).

Murphy et al (20) mentioned that these students are individuals who showed high performance in certain exams to be accepted to this department, who are motivated to be successful after getting accepted to the department, and who are generally competitive and perfectionist. Thus, it can be stated that students chose this profession through a certain study plan and routine in order to be successful in certain exams. This explains why the "planning" score was high in this study, as in other studies (21,22).

There are also students in Türkiye who choose dentistry unconsciously without knowing the profession, who study dentistry because of high scores in entrance exams, or who are directed to this department by their families. Haslach et al (23) reported that 50% of Turkish students are self-motivated and the other 50% are directed to dentistry by family members, friends, or mentors. As shown in this study, the depression scores of these students (17.50) were significantly higher than those who chose this department willingly (13.37). It can also be said that students who do not want and do not aim for dentistry are less motivated and prefer LUCS against problems. All DASS scores were high among students who thought that the department is not suitable for their personality. The higher PFCS and EFCS scores of students who believe their personalities are appropriate for this profession indicate that these students are more motivated towards this profession and to the problems that may arise in this profession, as well as exhibiting more positive coping strategies. A study conducted with only preclinical students

showed that the "factor affecting the choice of studying dentistry" is not a stress factor but the stress levels of those who chose dentistry as their first choice in the university entrance exam were lower (24). In the study by the same author conducted with clinical grades, it was shown that the stress scores of those who chose the department willingly were lower (22).

It is known that dentistry education is costly and even though the students study in state universities, they spend more money compared to other departments. Expenses of students such as school expenses and accommodation and living costs affect their stress levels. Students who are supported by their families in this regard might have an increase in their stress and depression scores in correlation with the "perceived family income". In line with these results, relevant studies have shown that the depression and stress scores of students from poor families are higher (24,25)

There was no significant difference in the DASS scores of female and male students. There are studies which support this result (22,25), while in some studies, the scores of females are higher (26,27). Some studies determined that females chose PFCS (13,24). Although not statistically significant, a similar result was found in this study. The main difference in this study was that EFCS was chosen at a significantly higher level.

A study conducted with Turkish students evaluated the preclinical years and reported that there is no difference in terms of stress level (24). In the study by the same author on the clinical years, it was found that the stress level increased as the years proceeded (22). Although not significant, it was seen that the stress level increased as the years proceeded in this study. Based on these results, it can be thought that there might be different sources of stress that can cause the same stress level in different years of dentistry education.

A study conducted with Turkish students found no difference in the stress scores of preclinical students who had a history of psychiatric treatment and who did not (24). On the other hand, a similar study conducted with clinical students showed that the stress scores of students with a history of psychiatric treatment were significantly higher than those without a history of psychiatric treatment (22). Similarly, it was found that all DASS scores of students who had a history of psychiatric treatment including those who used psychiatric medication were significantly higher in the present study. Also, it was observed that EFCS scores were lower in students receiving psychiatric help, while LUCS scores were higher in students using medication. In the sociodemographic data form, reasons for these students to apply to psychiatrists were determined as exam stress, anxiety disorder, post-traumatic stress disorder, depression, and inability to concentrate. The reason for the high DASS scores in the current study may be that the students, who have problems with issues that could increase their DASS scores and seek treatment, were studying in a stressful department.

American Academy of Sleep Medicine (AASM) and Sleep Research Society (SRS) reported that 7-9-hour long of sleep is necessary to maintain optimal health (28). Many studies in the literature stated that shorter or longer duration of sleep than recommended is associated with increased stress/anxiety level and the risk of depression (28-30). The results of the study were compatible with the literature although the sleep duration (6-10 hours) specified as "adequate" in this study is in a wider range than recommended. Lebensohn et al (31) stated that longer sleep duration and more physical activity increased satisfaction with life in family physician assistants and decreased their depression and burn-out scores. Another study conducted with pediatric assistants determined that especially exercising and other positive coping strategies reduced stress (19). It was found in this study that students who expressed that they get enough sleep chose more positive coping strategies. On the other hand, consuming alcohol to cope with stress was determined to be related to higher stress, emotional exhaustion, desensitization, and depression (31). It was also found in this study that not only alcohol consumption but also smoking increased LUCS. Additionally, increasing alcohol consumption also increased these scores.

The most important limitation of this study was that it was a sectional study and had a small sample size. Considering that the stress perceptions of the same individuals may change in different years and conditions, the evaluation of the stress and coping strategies of different individuals under different conditions decreases the reliability of this study. Since this study was conducted at a faculty in one province of Türkiye, it cannot be assumed that it represents a large population. There were no senior students in the faculty, so the study was conducted with the students from the first 4 years. As required by the education program of the faculty, the first three years consist of preclinical education, and the 4th year consists of clinical education. Thus, the majority of the participants was in the preclinical period. Additionally, the low number of 4th-grade students compared to other grades can be explained that the number of vacancies for students increases year after year.

Conclusion

This study shows that dentistry students experience normal and moderate levels of stress, mainly from the relationship between personality-profession, self-decision to the profession, and from financial considerations. No difference was observed in terms of grade for dentistry in this study. However, DASS scores varied by coping strategies used. Students utilizing effective coping strategies had lower stress than those using less-useful coping strategies. We believe that effective coping techniques should be taught and practiced as part of the dental education.

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