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The influence of sociodemographic and health-related factors, clinical education status, and sleep quality on work-related quality of life among dental students

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Abstract

Introduction: With the premise that the demanding educational process and associated factors could influence the work-related quality of life (WRQoL) of dental students, this study aimed to investigate the influence of diverse sociodemographic and health-related factors, clinical education status, and sleep quality on the WRQoL of dental students.

Materials and Methods: A three-part questionnaire was administered to a group of preclinical and clinical dental students studying in different classes. The first part of the questionnaire included various sociodemographic and health-related questions. In the second part, the multidimensional 23-item WRQoL scale, with established validity and reliability, was applied to evaluate the WRQoL of the students. The last part of the questionnaire included the Pittsburgh Sleep Quality Index, comprising 19 items. General linear models were created to predict subscale scores using sociodemographic and health-related characteristics, as well as univariate significant independent variables.

Results: It was observed that the majority of the participants (78.2%) had poor sleep quality. Being clinical dental students had a significant and positive effect on the stress at work domain of WRQoL ($p = .006$), while it had a significant and negative effect on the home-work interface domain ($p < .001$). The decrease in sleep quality had a significant and negative effect on all domains of WRQoL ($p < .05$) except for the stress at work domain.

Conclusions: Clinical education status, regular smoking, and sleep quality significantly affect different domains of dental students' WRQoL. Changes in these factors should be considered in approaches to increasing students' WRQoL.

KEYWORDS
clinical education, dental students, quality of life, sleep quality, undergraduate students, work-related quality of life

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1 | INTRODUCTION

Work-related quality of life (WRQoL) is characterized as an individual worker's subjective assessment of both the physical and mental aspects related to their working conditions and the surrounding environment, which constitute the majority of their daily work experience. These conditions and factors comprise various effective, cognitive, and behavioural components such as working hours, income, positive and negative emotions, work and workplace physical conditions, competence, career opportunities, job satisfaction, interpersonal relationships, integrative functioning, and autonomy.[1,2] The concept of WRQoL is gaining more importance for workers. As the working culture undergoes transformation, there is a corresponding shift in the traditional understanding of work, which was once satisfied with meeting people's basic needs. The alterations in living standards and working systems have not only affected basic needs but have also brought about significant changes and diversifications.[3] WRQoL stands out as a critical variable in various healthcare facilities. Researchers have extensively examined the WRQoL of healthcare workers to understand their personal needs and how these needs influence the quality of care provided to patients globally. Within healthcare facilities, the management places a considerable emphasis on the quality of work as a vital component. Managers, deans, academics, and other executive personnel consistently explore avenues to enhance the quality of service delivery. This reflects a broader recognition of the evolving landscape and the importance of adapting to ensure optimal work quality in light of changing circumstances. Therefore, keeping the quality of life of its workers and/or students at a high level is critical to improving the quality of any organization.[4,5]

One of the crucial factors influencing human well-being and vitality is the quality of sleep. Sleep plays a pivotal role in various aspects such as learning, skill development, and overall physical and mental health.[6] Insufficient sleep can lead to detrimental effects on both health and behaviour, including daytime drowsiness, restlessness, diminished quality of life, and a sense of despondency.[7] Key indicators of sleep deprivation encompass reduced attention span, impaired psychomotor alertness, and an increased variability in behavioural responses. Students, in particular, may be susceptible to developing sleep-related issues during their academic endeavours.[8] The repercussions of inadequate sleep on neurobehavioral functions and learning capabilities can have a negative impact on academic performance and the overall quality of life for students, depending on their educational path.[8,9] A previous research study identified adequate sleep as the third most influential factor predicting semester grades, trailing behind prior academic achievement and regular course attendance.[10]

Dental schools are recognized as environments where learning is often accompanied by stress.[8] Dental students undergo a comprehensive educational experience, necessitating the acquisition and application of diverse competencies, including theoretical knowledge and clinical and interpersonal communication skills.[11] The prolonged and demanding nature of dental education can subject students to significant stress, exerting a negative impact on their overall quality of life.[12,13] The enduring stress experienced by students can have repercussions on their well-being and quality of life, potentially hampering productivity and hindering effective learning.[13] This chronic stress may manifest in challenges related to communication with patients, a diminished ability to sustain work, depersonalization, and ultimately a decline in both quality of life and academic success.[8] A prior study indicated that clinical dental students tend to experience higher stress levels compared to their preclinical counterparts.[14]

Studies have been conducted to measure WRQoL and the presence and level of various factors affecting it in different working lines, age groups, and populations.[15–17] Also, there are many studies investigating the effect of sleep quality and sleep disorders on quality of life.[18–20] Considering the physical working conditions of the dental profession and the difficulties that interpersonal relationships can bring, it is very important to determine the relationship between sleep quality and quality of life. As far as we know, there is no study in the scientific literature evaluating the WRQoL among dental students or any profession involving dentistry. Moreover, there is a noticeable absence of research evaluating the connection between sleep quality and WRQoL in any population. In light of this background, our study aims to explore the interplay between sociodemographic factors, health-related characteristics, clinical experience status, and, notably, sleep quality and WRQoL within a cohort of preclinical and clinical dental students. The null hypothesis of the study was that sleep quality has no effect on WRQoL.

2 | MATERIALS AND METHODS

2.1 | Study design

This cross-sectional study was carried out with students in all classes from the first to the last year enrolled at the School of Dentistry, Çanakkale Onsekiz Mart University, in the 2022–2023 academic year. Ethical approval of the study with application number 2022-0250 was obtained from the Ethical Committee of the School of Graduate Studies, Çanakkale Onsekiz Mart University. Detailed information about the study was given to the dental students by the authors of the study in a classroom environment and face-to-face. Informed consent forms containing the details of the study were distributed to the students, and their signatures were obtained. It was especially emphasized that participation in the study was not compulsory and was on a voluntary basis. The research was carried out in strict adherence to ethical principles and complied with the guidelines set forth in the Helsinki Declaration, including its subsequent amendments, or equivalent ethical standards.

2.2 | Study participants

In the 2022–2023 academic year, a total of 307 students, 65 of whom are in the first grade of the School of Dentistry at Çanakkale

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Onsekiz Mart University, 63 from the second grade, 64 from the third grade, 64 from the fourth grade, and 51 from the fifth grade, were invited to the study. Dental education in Türkiye lasts for 5 years (ten semesters). Although there is theoretical education in all classes, preclinical training is applied in the first 3 years of practical education, while clinical practice is applied in the fourth and fifth grades.[21] Considering the physical and psychological difficulties brought by clinical practice training, students were grouped into preclinical and clinical groups. While preclinical dental students were composed of first, second, and third-year students, fourth and fifth-grade students were grouped as clinical dental students.

2.3 | Questionnaire

The questionnaire comprised three distinct sections. The initial section focused on gathering sociodemographic and health-related data. This part of the questionnaire included inquiries about the participant's age, sex, height, weight, level of clinical experience (whether preclinical or clinical), parental educational status, habits such as regular smoking and alcohol consumption, routine medication use, and the existence of diagnosed psychiatric, musculoskeletal, or chronic disorders. The second segment of the questionnaire focused on assessing participants' WRQoL. The evaluation employed the WRQoL scale, a validated instrument designed in 2007 specifically for gauging the perceived quality of work life within the healthcare system. Comprising 23 items, this multidimensional psychometric questionnaire stands as a widely utilized tool for appraising workers' competence on the job, tracking their workforce experiences, and evaluating their adaptability in response to institutional changes.[17] The WRQoL scale comprises 23 items rated on a 5-point Likert scale (ranging from 1, strongly agree, to 5, strongly disagree), organized into six distinct subscales to measure various dimensions of WRQoL. The "job and career satisfaction" subscale, encompassing six statements (S1, S3, S8, S11, S18, and S20), assesses the worker's contentment within their job or career. The "general well-being" subscale, consisting of six statements (S4, S9, S10, S15, S17, and S21), is linked to overall happiness and life satisfaction. The "control at work" subscale, comprising three statements (S2, S12, and S23), gauges the individual's sense of control over their circumstances in the work environment. The "stress at work" subscale, involving two statements (S7 and S19), addresses stress levels experienced in the workplace. The "working conditions" subscale, made up of three statements (S13, S16, and S22), focuses on the physical aspects of the working environment. The "home-work interface" subscale, encompassing three statements (S5, S6, and S14), explores the balance between family, home environment, and work. Prior to calculating the WRQoL subscale scores, three negatively phrased statements (S7, S9, and S19) underwent reverse coding. It is important to note that higher WRQoL scores indicate a more favourable WRQoL.[22] The Turkish validity and reliability of the WRQoL scale were established through a study conducted by Akar and Üstüner.[23]

In the third and final section of the questionnaire, the participants' sleep quality was assessed using the 19-item self-reported Pittsburgh Sleep Quality Index (PSQI) questionnaire, designed to measure sleep quality and patterns over the preceding month.[24] Developed in 1988, the PSQI has become one of the most widely used tools for evaluating sleep quality in epidemiological studies.[25] The questionnaire encompasses 19 items and assesses seven sleep components: subjective sleep quality, sleep latency, duration of the sleep period, sleep sufficiency, sleep disturbances, medication use for sleep, and daytime dysfunction. Participants rate each component using a scale of 0 to 3. The overall score reflecting general sleep quality is derived by summing the scores of all components, with a possible range from 0 to 21.[24] An increase in the PSQI score signifies a decrease in sleep quality. A general PSQI score equal to or greater than 5 indicates poor sleep quality, whereas a score less than five suggests good sleep quality.[25] Consequently, participants in this study were categorized into two groups based on their sleep quality: those with poor sleep quality and those with good sleep quality.

2.4 | Statistical analysis

Categorical variables were presented as frequencies and percentages (%), while continuous variables were described as mean ± standard deviation (SD) and median and interquartile range (IQR) due to non-normality, as assessed by the Shapiro–Wilk test for continuous variables. Descriptive and univariate statistics were computed for each subgroup and factor within the questionnaire sections. Participant responses were compared between relevant cohorts using the Mann–Whitney *U* test and the Kruskall–Wallis test, as appropriate. General linear models (GLM) were constructed to predict the subscale scores, utilizing sociodemographic characteristics and significant independent variables identified in univariate analyses. All significant variables were included in the model, with only those that remained as significant predictors retained within the GLM. Subsequently, primary interactions were examined between the remaining variables and were included in the model if found significant. Finally, a linear regression model was developed with the significant variables and pertinent sociodemographic characteristics (age, sex, and clinical education status). The two-tailed threshold for statistical significance was set at $\alpha = .05$. All statistical analyses were performed using SPSS, version 26.0 (IBM Corp., Armonk, NY, USA).

3 | RESULTS

3.1 | Description of participants

The study extended invitations to a total of 307 dental students enrolled at Çanakkale Onsekiz Mart University's School of Dentistry. However, 46 students declined to participate, distributed across the first (13 students), second (nine students), third (13 students), fourth (nine students), and fifth (two students) grades.

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Additionally, 13 students were found to have incompletely or inaccurately filled out the questionnaire forms. Consequently, the data analysis focused on the responses of 248 dental students who actively participated in this cross-sectional study, resulting in a study participation rate of 80.8%. The age range of participants spanned from 18 to 24 years, with a mean age of 20.73 ± 1.42. Predominantly, the participants were female (58.9%), and based on body mass index (BMI) calculations, 70.6% maintained a normal BMI. Categorically, 55.6% were identified as preclinical students, encompassing those in their first, second, and third years, while clinical students constituted 44.4% of the total participants. Notably, a significant proportion of dental students (78.2%) reported poor sleep quality. For a comprehensive overview of the sample population's sociodemographic and health-related characteristics, refer to Table 1.

TABLE 1 Sociodemographic and health-related characteristics of the participants.

	N (%)
Sex	
Male	102 (41.1)
Female	146 (58.9)
Body mass index (BMI)	
Underweight	29 (11.7)
Normal	175 (70.6)
Overweight	34 (13.7)
Obese	10 (4)
Clinical education status	
Preclinical	138 (55.6)
Clinical	110 (44.4)
Mother's educational degree	
Primary school	95 (38.3)
High school	89 (35.9)
University or higher	64 (25.8)
Father's educational degree	
Primary school	66 (26.6)
High school	89 (35.9)
University or higher	93 (37.5)
Regular smoking	
Yes	79 (31.9)
No	169 (68.1)
Alcohol consumption	
Yes	141 (56.9)
No	107 (43.1)
Regular medicine usage	
Yes	38 (15.3)
No	210 (84.7)
Presence of diagnosed psychiatric/musculoskeletal/chronic disorders	
Yes	43 (17.3)
No	205 (82.7)
Sleep quality	
Good sleep quality	54 (21.8)
Poor sleep quality	194 (78.2)

Abbreviation: *N*, number.

3.2 | Description of work-related quality of life and sleep quality

When the subscales of the WRQoL scale were examined separately, the mean value for the job and career satisfaction subscale was 18.01 ± 4.08, 14.75 ± 5.01 for the general well-being subscale, 7.35 ± 2.89 for the control at work subscale, 7.81 ± 2.44 for the working conditions subscale, 6.03 ± 2.53 for the home-work interface subscale, and 5.34 ± 2.09 for the stress at work subscale. The overall WRQoL scale score was 59.28 ± 13.60 for all participants. The mean sleep quality score was calculated as 7.11 ± 2.52. The mean, standard deviation, minimum, and maximum values of WRQoL and its subscales and sleep quality data are shown in Table 2.

3.3 | Effects of demographic and health-related factors, clinical education status, and sleep quality on WRQoL

The association of the WRQoL scale and its subscales with various sociodemographic and health-related factors, clinical education status, and sleep quality is shown in Table 3. There was no significant relationship between sex, BMI, parental education status, regular medicine usage, and the presence of diagnosed disorders and WRQoL and subscale scores ($p > .05$). Control at work, working conditions, home-work interface, and WRQoL total score were found to be statistically significantly higher in preclinical students ($p = .006$, $p = .014$, $p < .001$, and $p = .019$, respectively), while stress at work score was significantly higher in clinical students ($p = .004$). While the general well-being score was found to be significantly lower in students with regular smoking ($p = .020$), it was determined that alcohol consumption significantly decreased the home-work interface score ($p = .034$). When sleep quality was evaluated categorically, it was determined that sleep quality had a significant effect on the scores of the WRQoL scale and all its subscales, except for the stress at work subscale. Job and career satisfaction, general well-being, control at work, working conditions, and home-work interface subscale scores and the overall WRQoL score were found to be significantly higher in students with good sleep quality ($p = .004$, $p < .001$, $p = .025$, $p = .021$, $p = .014$, and $p < .001$, respectively).

Table 4 provides a summary of the impact of independent exploratory variables on predicting overall WRQoL and its respective subscales. Upon scrutinizing the influence of diverse sociodemographic and health-related factors on WRQoL and its subscales in dental students, it was determined that neither sex nor age demonstrated a statistically significant effect on WRQoL ($p > .05$). Regular

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	Mean	Standard deviation	Minimum	Maximum
Age	20.73	1.42	18.00	24.00
Work-related quality of life				
Job and career satisfaction	18.01	4.08	6.00	30.00
General well-being	14.75	5.01	6.00	30.00
Control at work	7.35	2.89	3.00	15.00
Working conditions	7.81	2.44	3.00	15.00
Home-work interface	6.03	2.53	3.00	15.00
Stress at work	5.34	2.09	2.00	10.00
WRQoL total	59.28	13.60	23.00	109.00
Sleep quality	7.11	2.52	1.00	14.00

TABLE 2 Descriptive statistics of age, work-related quality of life scores, and sleep quality scores of participants.

smoking and a decrease in sleep quality have a negative effect on the job and career satisfaction subscale of the WRQoL scale ($p = .011$, $p = .002$, respectively), and the model was significant ($B = 20.631$, $p < .001$). Similarly, regular smoking and a decrease in sleep quality had negative effects on general well-being subscale of the WRQoL scale ($p = .045$, $p < .001$, respectively), and the model was significant ($B = 15.410$, $p = .011$). While the score of the control at work subscale was significantly negatively affected by the decrease in sleep quality ($p = .005$), being a clinical dental student had a significantly positive effect on the stress at work subscale score ($p = .006$). The model was significant for both subscales ($B = 8.174$, $p = .021$; $B = 5.980$, $p = .019$, respectively). While the decrease in sleep quality had a significant negative effect on the working conditions and home-work interface subscales ($p = .034$, $p = .010$, respectively), being a clinical student also had a significant negative effect on the home-work subscale score ($p < .001$). Models were also significant for both working conditions and home-work interface subscales ($B = 9.599$, $p = .001$; $B = 7.923$, $p = .006$, respectively). When the WRQoL overall score was examined, it was determined that the decrease in sleep quality had a significant negative effect on WRQoL ($p < .001$), and the model was significant ($B = 68.191$, $p < .001$).

4 | DISCUSSION

The primary objective of this study was to characterize WRQoL and assess the influence of sleep quality on WRQoL among a cross-section of both preclinical and clinical dental students. Additionally, the study aimed to explore the potential impact of various sociodemographic and health-related factors on WRQoL. In contrast to our initial hypothesis, the results revealed a significant effect of sleep quality on dental students' WRQoL. Considering the potential impact of dental students' WRQoL on health service delivery, as well as their satisfaction and achievement levels, the findings of this study are highly relevant. Importantly, our study provides new insights into the existing body of literature, as there is a lack of prior research specifically assessing the WRQoL of dental students. We anticipate that our findings will serve as a valuable foundation for future studies in this domain.

Although there is no study in the literature evaluating WRQoL in dental students, there are studies evaluating quality of life and related factors in this group. While WRQoL and quality of life are different concepts, the two concepts are linked for a dental student who spends approximately one-third of their day in their work environment. In their investigation of the quality of life among dental students at various academic levels, Andre et al.[26] reported generally high quality of life scores in the studied group. Interestingly, the study highlighted that fourth-year students exhibited a higher score in physical health-related quality of life compared to first-year students. In contrast, third-year students had a lower score in psychological state-related quality of life compared to first-year students. In another study conducted by Sezer et al.,[13] the impact of work-related musculoskeletal system symptoms on the quality of life of dental students was explored, utilizing the WHOQoL-BREF questionnaire. Similar to the findings of Andre et al.,[26] the study observed similar quality of life scores. However, it was noted that work-related musculoskeletal symptoms exerted a distinct yet negative influence on the overall quality of life for students. This suggests that while overall quality of life scores may be high among dental students, specific factors such as musculoskeletal symptoms can still contribute to a negative impact on their well-being. The physical health domain of the WHOQQoL-BREF questionnaire is affected not only by musculoskeletal symptoms but also by work capacity and sleep conditions. In this context, as the findings of the current study show, the decrease in sleep quality also has significant negative effects on WRQoL.

Dental education places significant stress on students, demanding prolonged hours of work and practice, ultimately contributing to compromised sleep quality.[27] A previous study[28] on dental students investigated the relationship between sleep habits, including duration and wakefulness, and academic performance. The findings indicated a correlation between the academic performance of dental students and their sleep habits, revealing that those with better academic performance tended to exhibit more regular sleep patterns, going to sleep earlier and waking up earlier. Additionally, a decrease in sleep latency was associated with improved academic performance. Another study[29] investigated the impact of sleep quality on sleep and awake bruxism, establishing that low sleep quality is

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TABLE 3 Comparing the work-related quality of life scores by the demographic and health-related characteristics of the participants.

	Work-related Quality of Life Scales [Median (Q1–Q3)]						
	Job and career satisfaction	**General well-being**	**Control at work**	**Stress at work**	**Working conditions**	**Home-work interface**	**WRQoL total**
Sex							
Male	18.00 (15.00–21.00)	15.00 (10.00–19.00)	7.00 (5.00–9.25)	5.00 (4.00–6.00)	8.00 (6.00–10.00)	6.00 (4.00–8.00)	59.00 (50.00–69.25)
Female	18.00 (16.00–21.00)	14.00 (11.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–7.00)	8.00 (6.00–9.00)	5.00 (4.00–7.00)	60.00 (49.00–67.25)
p-value	.894	.812	.711	.954	.432	.276	.635
Body mass index (BMI)							
Underweight	19.00 (15.50–21.00)	15.00 (13.00–18.00)	6.00 (5.00–9.00)	6.00 (4.50–9.50)	8.00 (6.00–9.50)	5.00 (3.00–7.50)	62.00 (52.00–69.00)
Normal	18.00 (15.00–21.00)	15.00 (11.00–18.00)	7.00 (5.00–10.00)	5.00 (4.00–6.00)	8.00 (6.00–10.00)	6.00 (4.00–8.00)	60.00 (50.00–69.00)
Overweight	17.00 (14.75–19.25)	11.00 (9.00–17.25)	6.00 (4.75–8.25)	5.00 (3.75–7.00)	8.00 (6.00–9.00)	6.00 (3.75–7.25)	54.50 (47.00–63.25)
Obese	18.50 (15.50–20.25)	15.50 (9.75–19.25)	6.50 (4.00–8.75)	6.00 (4.75–6.00)	8.00 (5.75–9.25)	5.50 (4.00–9.00)	55.00 (49.50–69.00)
p-value	.486	.132	.326	.052	.999	.421	.331
Clinical education status							
Preclinical	18.00 (15.00–21.00)	15.00 (11.00–19.00)	8.00 (6.00–10.00)	5.00 (4.00–6.00)	8.00 (6.00–10.00)	7.00 (5.00–8.00)	61.00 (51.75–70.00)
Clinical	18.00 (15.00–20.00)	14.00 (11.00–18.00)	7.00 (4.00–9.00)	6.00 (4.00–7.00)	8.00 (6.00–9.00)	5.00 (3.00–6.00)	56.50 (46.00–67.00)
p-value	.461	.128	**.006**	**.004**	**.014**	**<.001**	**.019**
Mother's educational status							
Primary school	18.00 (15.00–20.00)	14.00 (10.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–7.00)	7.00 (6.00–9.00)	6.00 (4.00–7.00)	59.00 (47.00–67.00)
High school	19.00 (15.50–22.00)	15.00 (12.00–18.00)	7.00 (5.00–10.00)	5.00 (4.00–6.50)	8.00 (6.50–10.00)	6.00 (4.00–8.00)	60.00 (50.00–69.50)
University or higher	18.00 (15.00–20.00)	15.00 (11.00–18.00)	7.00 (5.25–9.00)	5.00 (4.00–6.00)	8.00 (6.00–9.75)	6.00 (4.00–8.00)	58.00 (50.00–69.75)
p-value	.533	.388	.725	.693	.110	.949	.521
Father's educational status							
Primary school	18.00 (15.00–20.25)	14.00 (9.75–19.00)	7.00 (5.00–10.00)	5.00 (3.75–6.00)	8.00 (6.00–9.00)	6.00 (4.00–8.00)	59.00 (47.00–69.00)
High school	19.00 (16.00–20.50)	15.00 (11.00–18.00)	7.00 (5.00–9.50)	6.00 (4.00–7.00)	8.00 (6.00–9.00)	5.00 (4.00–7.00)	60.00 (49.50–67.00)
University or higher	18.00 (16.00–21.00)	15.00 (11.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–10.00)	6.00 (4.00–8.00)	60.00 (51.00–69.50)
p-value	.640	.618	.808	.261	.269	.700	.679
Regular smoking							
No	18.00 (15.00–20.00)	15.00 (11.00–18.50)	7.00 (5.00–9.00)	5.00 (4.00–6.50)	8.00 (6.00–9.00)	6.00 (4.00–8.00)	60.00 (50.00–69.00)
Yes	19.00 (16.00–22.00)	13.00 (11.00–17.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–10.00)	5.00 (4.00–7.00)	58.00 (48.00–68.00)
p-value	.055	**.020**	.382	.620	.539	.370	.527
Alcohol consumption							
No	18.00 (16.00–21.00)	15.00 (11.00–19.00)	7.00 (5.00–10.00)	5.00 (4.00–7.00)	8.00 (6.00–10.00)	6.00 (4.00–8.00)	61.00 (53.00–70.00)
Yes	18.00 (15.00–21.00)	14.00 (11.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–9.00)	5.00 (4.00–7.00)	59.00 (47.00–67.00)
p-value	.481	.195	.158	.297	.992	**.034**	.119

(Continues)

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TABLE 3 (Continued)

	Work-related Quality of Life Scales [Median (Q1–Q3)]						
	Job and career satisfaction	General well-being	Control at work	Stress at work	Working conditions	Home-work interface	WRQoL total
Regular medicine usage							
No	18.00 (15.00–21.00)	15.00 (11.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–9.00)	6.00 (4.00–7.25)	59.50 (49.75–69.00)
Yes	18.00 (16.00–20.00)	13.00 (10.00–18.00)	7.00 (5.00–9.00)	5.00 (3.00–7.00)	9.00 (7.00–10.00)	6.00 (4.00–8.00)	58.50 (49.75–68.50)
p-value	.772	.288	.987	.753	.169	.461	.834
Presence of diagnosed disorders							
No	18.00 (15.00–21.00)	14.00 (11.00–18.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–9.00)	6.00 (4.00–8.00)	59.00 (49.00–68.00)
Yes	18.00 (16.00–20.00)	15.00 (11.00–18.00)	7.00 (5.00–10.00)	6.00 (3.00–8.00)	8.00 (7.00–10.00)	6.00 (4.00–8.00)	60.00 (50.00–70.00)
p-value	.687	.593	.929	.656	.226	.624	.674
Sleep quality							
Good sleep quality	19.50 (16.75–22.00)	17.00 (14.00–20.25)	8.50 (6.00–11.00)	6.00 (4.00–7.00)	8.00 (7.00–10.00)	7.00 (5.00–8.25)	65.00 (57.75–75.00)
Poor sleep quality	18.00 (15.00–20.00)	14.00 (10.75–18.00)	7.00 (5.00–9.00)	5.00 (4.00–6.00)	8.00 (6.00–9.00)	5.00 (4.00–7.00)	57.00 (48.00–67.00)
p-value	**.004**	**<.001**	**.025**	.214	**.021**	**.014**	**<.001**

Note: Bold values mean statistically significant ($p < .05$).

Abbreviations: Q, quartile; WRQoL, work-related quality of life.

a noteworthy factor in bruxism. This is consistent with the results of Yıldırım et al.'s study,[30] which indicated that psychological factors and sleep quality exert an influence on sleep bruxism. While our study did not find a significant impact of sleep quality on work-related stress, it was noteworthy that sleep quality demonstrated a significant effect on all other parameters of WRQoL, emphasizing its importance in the context of daily stress levels and psychological factors.

While studies specifically investigating the relationship between sleep quality and WRQoL are limited, numerous studies have explored the impact of sleep quality on various work-related factors. In a study involving a diverse group of occupations, it was revealed that poor sleep quality was associated with increased chronic and acute work-related fatigue.[31] It is undeniable that both acute and chronic fatigue can contribute to a decline in WRQoL. Our study's findings align with the outcomes of this related study. Another investigation focused on the direct and indirect effects of work-related modifiable factors on sleep quality among Chinese nurses.[32] The study identified shift work, job demands, exposure to workplace hazards, chronic fatigue, and inter-shift recovery as direct predictors of sleep quality. These findings resonate with a separate study[33] demonstrating that low sleep quality among nurses adversely affects all domains of quality of life, establishing a negative and significant relationship between them. These collective findings further substantiate and reinforce the outcomes of our study, emphasizing the intricate interplay between sleep quality and various facets of work-related well-being.

WRQoL can be affected by sociodemographic and/or health-related factors among employees. Studies have been conducted to evaluate the WRQoL and the factors affecting it in different occupational groups. In one of these studies, it was shown that WRQoL in nurses was significantly associated with participants' age, marital status, education level, work experience, position, department, shifts, and employment status.[4] In another study conducted with health and social care workers, it was stated that positive coping strategies were risk factors for better WRQoL and negative coping strategies were risk factors for worse WRQoL.[34] In a study involving hospital employees, the investigation revealed that WRQoL did not exhibit a significant difference based on marital status, family size, or sex. However, the "stress at work" score was found to be correlated with the age of the employees. Additionally, individuals with greater work experience, occupying higher positions, and working in clinical and diagnostic departments demonstrated higher WRQoL scores. This underscores the impact of professional experience and specific job roles on WRQoL.[35] In a separate study focusing on medical residents, it was highlighted that working hours and the number of shifts emerged as significant and pivotal factors influencing WRQoL.[36] WRQoL is affected by many different factors, as can be seen in studies conducted with different study populations. In our study, in line with the GLM analysis, it was observed that poor sleep quality affected all domains of WRQoL significantly and negatively, except for stress at work. Furthermore, the study identified that regular smoking has a negative and significant impact on both job and

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TABLE 4 Summary of generalized linear models predicting the work-related quality of life and subscales.

	Work-related Quality of Life Scales																			
	Job and career satisfaction					General well-being					Control at work					Stress at work				
			95% Wald Confidence Interval					95% Wald Confidence Interval					95% Wald Confidence Interval					95% Wald Confidence Interval		
	B	Std. error	Lower	Upper	*p*-value	*B*	Std. error	Lower	Upper	*p*-value	*B*	Std. error	Lower	Upper	*p*-value	*B*	Std. error	Lower	Upper	*p*-value
Constant	20.631	4.999	10.832	30.430	**<.001**	15.410	6.067	3.519	27.301	**.011**	8.174	3.544	1.229	15.120	**.021**	5.980	2.540	1.001	10.959	**.019**
Age	−.032	0.245	−0.514	0.449	.895	.176	0.298	−0.407	0.760	.554	.045	0.174	−0.296	0.385	.797	−.053	0.127	−0.301	0.195	.675
Sex (reference: male)	.075	0.518	−0.941	1.090	.886	−.171	0.629	−1.403	1.062	.786	.183	0.364	−0.531	0.897	.616	.029	0.265	−0.491	0.548	.913
Clinical education status (reference: preclinical)	−.353	0.703	−1.730	1.024	.616	−1.163	0.853	−2.834	0.508	.172	−.987	0.498	−1.964	−0.010	.048	.998	0.361	0.290	1.705	**.006**
Regular smoking	−1.381	0.546	−0.312	−2.451	**.011**	−1.328	0.662	−2.626	−0.031	**.045**										
Sleep quality	−.320	0.101	−0.518	−0.122	**.002**	−.460	0.123	−0.700	−0.220	**<.001**	−.200	0.071	−0.340	−0.060	**.005**					

	Work-related Quality of Life Scales														
	Working conditions					Home-work interface					WRQoL total				
			95% Wald Confidence Interval					95% Wald Confidence Interval					95% Wald Confidence Interval		
	B	Std. error	Lower	Upper	*p*-value	*B*	Std. error	Lower	Upper	*p*-value	*B*	Std. error	Lower	Upper	*p*-value
Constant	9.599	3.008	3.703	15.495	**.001**	7.923	2.900	2.239	13.607	**.006**	68.191	16.436	35.978	100.405	**<.001**
Age	−.020	0.147	−0.309	0.269	.893	.008	0.142	−0.270	0.287	.953	.119	0.806	−1.460	1.698	.883
Sex (reference: male)	−.236	0.309	−0.842	0.371	.446	−.233	0.298	−0.818	0.352	.435	−.341	1.690	−3.653	2.972	.840
Clinical education status (reference: preclinical)	−.734	0.423	−1.564	0.095	.083	−1.926	0.408	−2.726	−1.727	**<.001**	−4.120	2.312	−8.651	0.411	.075
Sleep quality	−.129	0.061	−0.248	−0.010	**.034**	−.152	0.059	−0.266	−0.037	**.010**	−1.314	0.332	−1.964	−0.664	**<.001**

Note: Bold values mean statistically significant ($p < .05$).

In the generalized linear model, sleep quality data inputs are selected as scale. An increase in sleep quality score indicates worsening sleep quality.

Abbreviations: *B*, unstandardized regression coefficient; WRQoL, work-related quality of life.

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career satisfaction, as well as general well-being. Additionally, the distinction between being a clinical dental student versus a preclinical dental student was found to have a significant effect on scores related to stress at work and the home-work interface.

The challenging process of dental education is due to the fact that the practical education process is at the forefront while the theoretical education continues. In addition, it is known that dental students experience various physical and emotional difficulties during their undergraduate education since the process of treating patients becomes more practical as they gain experience. At this juncture, the curriculum adjustments made by faculty administrations play a crucial role in influencing both the quality of life and WRQoL of students.[13] Thus, in line with the study results, being a clinical student is associated with a decrease in WRQoL domain scores compared to being a preclinical student. This is also applicable to the decline in sleep quality. Given this context, we believe that implementing strategies to enhance clinical education and improving students' sleep quality will be crucial for enhancing the WRQoL of dental students.

This study has certain limitations. Despite the inclusion of a substantial sample size, the singular center setting in which the study was conducted restricts the generalizability of its findings. On the other hand, the use of questionnaires with validity and reliability, the sample group consisting of students from different sociological backgrounds, and the fact that it was conducted with a relatively large sample group constitute the strengths of the study. Indeed, the WRQoL of an individual is subject to a multitude of intrinsic and extrinsic factors. Although it is impossible to question all of these factors due to the nature of the study, the effect of some sociodemographic and health-related data on WRQoL was investigated in our study. Certainly, exploring the effects of various factors on the WRQoL of dental students through longitudinal studies in the future could provide valuable insights. Given this perspective, we anticipate that the outcomes of our study will offer valuable insights for guiding future research endeavours.

5 | CONCLUSION

In this cross-sectional study, the effects of some sociodemographic and health-related factors, clinical education status, and sleep quality on the WRQoL of dental students were investigated. Notably, a majority of participants (78.2%) were found to have poor sleep quality. The analysis revealed that being a clinical dental student positively influenced the stress at work domain of WRQoL but had a negative impact on the home-work interface domain in comparison to preclinical dental students. Additionally, a decrease in sleep quality significantly and negatively affected all WRQoL domains, except for the stress at work domain. While sociodemographic factors examined did not exhibit a noteworthy impact on WRQoL, it was identified that regular smoking significantly diminished scores in the job and career satisfaction and general well-being domains.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest related to this study.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author (BS) upon reasonable request.

ETHICAL APPROVAL

Ethical approval of the study with application number 2022-0250 was obtained from Ethical Committe of School of Graduate Studies, Çanakkale Onsekiz Mart University. The study was conducted in accordance with all ethical principles and requirements of the Helsinki Declaration and its later amendments or comparable ethical standards.

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