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Uncovering the Link Between Perceived Stress and Health Related Quality of Life (HRQOL) among Dentistry Students of the Arab American University-Palestine

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Uncovering the Link Between Perceived Stress and Health Related Quality of Life (HRQOL) Among Dentistry Students of the Arab American University-Palestine.

Abstract

University students face various stressors related to academics, personal issues, and their environment. This stress can negatively impact health-related quality of life (HRQOL). This study aimed to explore stressors influencing Palestinian dentistry students at Arab American University and their relationship with HRQOL. A cross-sectional survey was conducted among 232 undergraduate dentistry students using a comprehensive 46-item questionnaire. Stressors across, individual, academic, faculty, and institutional domains were measured. HRQOL was assessed across psychological, occupational, , personal and social, physical, and religious and spiritual domains (63 items). Data analysis included descriptive statistics, correlation analysis, and regression modeling. Key stressors included academic workload, faculty relations, clinical training, and social adjustment. These significantly correlated with poorer HRQOL, especially psychological wellbeing and academicperformance. Regression analysis found higher anxiety, time management difficulties, instructor attitude, and dietary changes as top predictors of reduced HRQOL. Palestinian dentistry students face multifaceted stressors that profoundly impact HRQOL. A supportive educational environment encompassing counseling services, mentorship programs, stress management training, and student-centered policies is crucial. This study highlights specific stressors affecting an under-researched population, guiding context-appropriate interventions to improve wellbeing and academic outcomes.

Keywords: perceived stress, health-related quality of life (HRQOL), academic performance, psychological wellbeing, coping, higher education.

Descubriendo el vínculo entre el estrés percibido y la calidad de vida relacionada con la salud (CVRS) entre estudiantes de odontología de la Universidad Árabe Americana-Palestina.

Resumen

Los estudiantes universitarios se enfrentan a diversos factores estresantes relacionados con los estudios, las cuestiones personales y su entorno. Este estrés puede afectar negativamente a la calidad de vida relacionada con la salud (CVRS). El objetivo de este estudio era explorar los factores estresantes que influyen en los estudiantes palestinos de odontología de la Arab American University y su relación con la CVRS. Se llevó a cabo una encuesta transversal entre 232 estudiantes de odontología mediante un cuestionario exhaustivo de 46 preguntas. Se midieron los factores estresantes en los ámbitos individual, académico, docente e institucional. La CVRS se evaluó en los ámbitos psicológico, laboral, personal y social, físico, religioso y espiritual (63 ítems). El análisis de los datos incluyó estadísticas descriptivas, análisis de correlación y modelos de regresión. Los principales factores estresantes fueron la carga de trabajo académico, las relaciones con el profesorado, la formación clínica y la adaptación social. Estos factores se correlacionaron significativamente con una peor CVRS, especialmente con el bienestar psicológico y el rendimiento académico. El análisis de regresión reveló que la mayor ansiedad, las dificultades para gestionar el tiempo, la actitud del profesor y los cambios dietéticos eran los principales predictores de una menor CVRS. Los estudiantes palestinos de odontología se enfrentan a múltiples factores estresantes que afectan profundamente a su CVRS. Es crucial contar con un entorno educativo de apoyo que incluya servicios de asesoramiento, programas de tutoría, formación en gestión del estrés y políticas centradas en el estudiante. Este estudio pone de relieve los factores estresantes específicos que afectan a una población poco investigada y orienta las intervenciones adecuadas al contexto para mejorar el bienestar y los resultados académicos.

Palabras clave: estrés percibido, calidad de vida relacionada con la salud (CVRS), rendimiento académico, bienestar psicológico, afrontamiento, educación superior.

Introduction

Stress develops when an individual experiences an unexpected situation that requires him or her to engage in activities beyond his or her usual capacity (Acheampong et al., 2019; Deng et al., 2022; Jiang et al., 2022; Zhao et al., 2023). The main problem begins when stress becomes overwhelming for the student to handle and affects both psychologically and physiologically (Acheampong et al., 2019; Barbayannis et al., 2022a; Pascoe et al., 2020a; Slimmen et al., 2022). Many researchers have studied the stress factors faced by students to identify not only academic stress factors, but also personal and faculty stress factors (Abbas et al., 2021; Clabaugh et al., 2021). The impact of these stressors on students can be seen as a negative reflection of their academic results and the quality of their health-related quality of life (HRQOL) (Maykel et al., 2018; Waters et al., 2022); University education is where students face a drastic change in their academic structure, the workload, and increased expectations (Denham et al., 2018a; Ghasempour et al., 2023a; Hayat et al., 2020a). This becomes a vulnerable period, forcing them to develop stress unknowingly, which not only has an effect on their academic performance, but is known to have deterioration on their HRQOL (Mofatteh, 2021a; Tharaldsen et al., 2023; Xu & Ba, 2022). There are many studies in students from different fields and different educational periods on the relationship between stress and HRQOL of students (Chen et al., 2021; Dayagbil et al., 2021; Halme et al., 2021; Hiğde & Aktamış, 2022).

When it comes to quality of life (QOL), we find it that amorphous concept which is still taken to refer to the conceptions of the goodness of life (Zautra and Goodhart, 1979), whereas HRQOL focuses on the effects of illness and specifically on the impact of treatment on that QOL (Guyatt et al., 2007). More, HRQOL is a reflection of the way that individuals perceive and react to their health status and the nonmedical aspects of their lives, which include health-related factors as physical, functional, emotional, and mental well-being as well as none health-related elements as job, family, friends, and other situations in life (Gill and Feinstein, 1994).

Although the field of study and the education period differ, the results provide a common association between perceived stress and the quality of life related to students' health (Boukhris et al., 2022; Ghasempour et al., 2023b; Hayat et al., 2020b). As students progress to an advanced level in their education, their stress level increases, and their mental component of health-related quality of life decreases (Alkatheri et al., 2020; Denham et al., 2018b; Vilchez-Chavez et al., 2023). The unique challenges faced by these students can have profound implications on their overall well-being, affecting not only their academic performance but also their physical and psychological health (Miller & Kass, 2023c, 2023a). Understanding the nature and impact of these stressors is crucial to developing effective support systems and interventions tailored to their specific needs (Miller & Kass, 2023b; Pedroso et al., 2023).

This study's significance lies in its focus on a relatively under-explored demographic – dentistry students in a Middle Eastern university setting, particularly within the Palestinian context. The findings of this research can provide valuable information for educators, mental health professionals, and policy makers, offering a deeper understanding of how stress impacts the health and academic outcomes of this specific student group.

The implications of this study are vast. By identifying specific stressors and their impacts on HRQOL among these students, the research can inform the design of targeted interventions and support mechanisms (Caleon et al., 2023; Rek et al., 2022). This is crucial in a region where mental health support and resources are often limited and where cultural and socio-political factors play a significant role in the manifestation and management of stress (Cody et al., 2022; Singh, 2021).

Numerous studies have examined the impact of stress on university students worldwide (Pascoe et al., 2020b; Wang et al., 2023). Stress in university

students is a well-documented phenomenon, with research indicating a variety of stressors, including academic pressures, financial concerns, and personal challenges (Asif et al., 2020). Specifically, stress has been associated with negative outcomes in terms of psychological well-being, academic performance, and physical health (Sun, 2022; Yao & Meng, 2022).

However, while there is a wealth of data on university students in general, there is a scarcity of research focusing specifically on dentistry students in the Arab world (Gerhardt et al., 2021; Semmer et al., 2019). Existing literature suggests that the intensive nature of dental education, including the need for precision in practical work and the pressure of high academic standards, can lead to significant stress (Khurshid et al., 2021; Moore, 2022). This stress, in turn, can affect student HRQOL, manifesting itself in various forms as anxiety, depression, burnout, and even physical health problems (Lin et al., 2022; Wu et al., 2022).

Furthermore, studies have shown that university students, including those in the medical and dental fields, often engage in adverse health behaviors as a coping mechanism for stress. These behaviors include substance abuse, poor dietary habits, and neglect of physical activity, further impacting their HRQOL (Barbayannis et al., 2022b; Mofatteh, 2021b).

Despite the extensive body of research on stress among university students, there is a notable gap in understanding how these dynamics specifically affect dentistry students in Palestine. The unique socio-political context of Palestine, coupled with the specific challenges of dental education, presents a distinct environment that has not been extensively studied.

Furthermore, cultural factors in the Arab world, including stigma around mental health and prioritization of academic success, can influence how stress is perceived and managed by students (Ashour et al., 2021; Chao, 2023). This study aims to fill this gap by exploring the specific stressors faced by dentistry students at the Arab American University and examining how these stressors correlate with their HRQOL.

In conclusion, this study aims to provide a comprehensive understanding of the relationship between perceived stress and HRQOL among dental students at the Arab American University in Palestine. By focusing on this specific demographic and geographic location, the research seeks to contribute to the broader academic discourse on stress in higher education and inform practices and policies that can improve the well-being of this student population.

Given the unique challenges facing these students, the findings of this study could be instrumental in shaping the support services offered at the university and in the wider Palestinian context. By highlighting the specific needs and stressors of these students, the study can pave the way for more effective mental health support, customized educational strategies, and improved general well-being for dentistry students in this region. This, in turn, can lead to improved academic outcomes and a healthier and more supportive educational environment for future generations of students.

Materials and Methods

Research question

What is the impact of perceived stress on the health-related quality of life (HRQOL) among dentistry students of the Arab American University of Palestine, in the context of their academic, psychological and sociocultural environment?

Design

This study employs a quantitative descriptive research design, using cross-sectional surveys to explore the main stressors faced by dentistry students at the Arab American University of Palestine. The survey is structured to include closed-ended and open-ended items/questions, allowing for a comprehensive understanding of students' experiences with stress and its consequences.

Sample

The present study comes to focus on the entire population of dental students enrolled at the Arab American University of Palestine encompassing the five years of the program. All targeted students were invited to participate to give their responses to the provided questionnaires and related items on the distributed parts and scales. The total samples who agreed to participate were 267 students (out of about 560 students), with 232 students who completed the self-administered questionnaires (86.9% response rate). The sample consisted of 127 males and 105 females, representing a diverse gender distribution, with ages ranging from 19 to 24 years, with the characteristics shown in table 1.

Eligibility Criteria

Inclusion criteria

1. Students actively participated in the dentistry program at the Arab American University.
2. Participants aged 19 to 24 years.
3. Students who voluntarily agree to complete the questionnaire.

Exclusion criteria

1. Individuals not enrolled in the dentistry program.
2. Students on academic leave or who have deferred their studies.
3. Individuals outside the 19-24 age range.
4. Students who are unwilling to participate or complete the questionnaire.

Data Collection Tools

The study used self-administered questionnaires, meticulously developed by the researchers to gather data from the participants. These questionnaires were designed to comprehensively assess perceived stress levels and HRQOL among dental students. It encompassed four key domains: individual stressors, academic factors, faculty and institution relations, and academic and administrative stressors, totaling 48 items. Regarding HRQOL questionnaire, it covers psychological, occupational, personal and social, physical, and religious and spiritual effects (63 items).

The questionnaires' items were formulated based on a review of existing literature and validated scales in stress and health-related quality of life research. In addition, experts in the field of psychology, and dental education who are specializing in stress and quality of life issues, were consulted to ensure the validity of the content. This process ensured that the questionnaires were contextually relevant and comprehensive in measuring the intended variables. The reliability of the questionnaires was rigorously tested through a pilot study involving a subset of the target population (50 dental students at the same university of the same characteristics, in particular males and females of different academic qualifications/levels of study years). The internal consistency of the questionnaires was found to be high, with a Cronbach alpha coefficient of 0.70 in the case of perceived stress and 0.83, in the case of HRQOL effects, indicating reliable measures for the purpose of the study.

Ethics approval

Ethical approval was obtained from the faculty of Dentistry at the Arab American University of Palestine (Jenin campus), where mutually it was assured that research process and related procedures abide to data collection and research codes of ethics.

Procedure

The research procedure was meticulously planned and executed to ensure the collection of comprehensive and reliable data. The process began with the careful design of a questionnaires, specifically tailored to measure perceived stress and HRQOL among dentistry students at Arab American University of Palestine. The questionnaires were developed by integrating elements from established scales and the academic literature on stress and quality of life. Each item was selected

and phrased to precisely capture the relevant aspects of stress experienced by dentistry students and related HRQOL effects.

After deciding to invite all enrolled students within the faculty of dentistry at the Arab American University of Palestine, surveys were distributed electronically, leveraging the university's digital platforms to reach the students efficiently. Additionally, paper questionnaires were made available to accommodate all preferences and ensure maximum participation.

Detailed instructions were provided with the administered questionnaires, guiding participants on how to complete it accurately. An emphasis was placed on ensuring that participants fully understood the purpose of the study. Confidentiality was rigorously ensured, and all responses were treated anonymously to encourage honest and open responses. Upon collection, the data was carefully coded for analysis. A binary coding scheme was utilized, with '1' representing 'not applicable' responses and '2' signifying 'applicable' responses in relation to the targeted stressors. This coding was selected to facilitate a clear distinction in responses, which aids in the accurate analysis of the data. Examples of applicable and not applicable responses "Relationship problems"; "Fear of losing scholarship"; "'Transparency of university proceedings"; "Delay of receiving textbooks and related materials" in the case of perceived stress, and "More anxiety"; "Difficulty in time management and related work"; "Attending few marriage and social parties"; "Awakening often at night"; "Difficulty in preparing for prayers" in the case of HRQOL effects. And all were decided on the bases of reviewing related literatures as well the consultancy of statistical experts withing the area of research.

Statistical analysis

For all the statistical analysis of the collected data, we utilized SPSS version 22 (IBM Corp, Armonk, NY), a robust and widely used software for advanced statistical analysis. This choice was driven by the software's comprehensive capabilities in handling complex data sets and its effectiveness in performing a variety of statistical tests. Initially, descriptive statistics were applied to the data to provide a foundational understanding of the characteristics of the study population/samples. This included calculating frequencies, percentages, means, and standard deviations. These measures offered a detailed overview of the distribution of stress levels and HRQOL among dental students, providing a baseline for more complex analyzes.

To explore the relationships between perceived stress, HRQOL, and other relevant variables, we used both correlation and regression analyses. Pearson's correlation analysis was used to identify the strength and direction of the linear relationships between continuous variables, while Spearman's correlation was used for ordinal data. To examine predictive relationships and determine the impact of various stressors on HRQOL, multiple linear regression analyzes were conducted. This allowed us to control for potential confounding variables and to understand the combined effect of different stressors. The significance level was set at 0.05 for all analyzes. This threshold was chosen to balance the risk of Type I and Type II errors, ensuring that the findings are statistically significant and practically meaningful. Results with p-values less than 0.05 were considered statistically significant, indicating that the observed effects were unlikely to have occurred by chance.

Through this comprehensive statistical approach, our objective was to rigorously analyze the data in alignment with the study's research question. This method ensures that our conclusions about the relationships between stress, HRQOL, and other factors among dental students at the Arab American University of Palestine are based on solid statistical evidence.

Results

The results section of this study provides a detailed analysis of demographic characteristics, individual and academic stressors, faculty and administration stressors, and their respective impacts

on health-related quality of life (HRQOL) among dentistry students at the Arab American University. Through a series of tables, this section elucidates the multifaceted nature of stress experienced by students and its various manifestations. Each table is tailored to present specific aspects of the study's findings, ranging from basic demographic data to more complex statistical analyses such as correlation and multivariate regression, offering a comprehensive understanding of the factors that influence students' well-being and academic performance.

Table 1
Demographic Characteristics of Dentistry Students at the Arab American University

Demographic Characteristics	Frequency		%
Gender	Male	127	45.3
	Female	105	54.7
Academic qualification/level	1st year	79	34.1
	2nd year	62	27.7
	3rd year	41	17.7
	4th year	28	12.1
	5th year	21	9.1
Marital Status	Single	161	69.4
	Married	71	30.6
Family residence	Inside 48	96	41.4
	West bank	76	32.8
	Out of Palestine	60	25.9
Siblings	1-2	48	20.7
	3-4	124	53.4
	5-6	38	16.4
	>6	22	9.5
Birth order	1st	70	30.2
	2nd	49	21.1
	3rd	35	15.1
	4th	36	15.5
	5th	23	9.9
	Last	19	8.2
Health problems within family	No	162	69.8
	Yes	70	30.2
Educational background	School	30	12.9
	Diploma	42	18.1
	Bachelor	99	42.7
	Master	41	17.7
	Ph.D.	20	8.6
Brothers & sisters in university	One	110	47.4
	Two	66	28.4
	Three	41	17.7
	Four	10	4.3
	Five	3	1.3
	More	2	9

Students accommodation	With family	66	28.4
	Away from family	63	27.2
	Alone	39	16.8
	With others	64	27.6
Family income	Satisfactory	115	49.4
	Unsatisfactory	117	50.4
One or both of parents working	Both	125	53.9
	One	107	46.1
Any other source of income	Yes	115	49.6
	No	117	50.4
Parents' type of work	Regular work	83	35.8
	Free work	80	34.5
	Related to your field of study	69	29.7

Table 1 presents a comprehensive overview of the demographic characteristics of dentistry students at Arab American University. It provides a detailed breakdown of the gender, academic qualifications, marital status, family residence, and other pertinent demographic data of the participants. Key observations include a relatively balanced gender distribution, with females comprising 54.7% and males 45.3% of the sample. Most of the participants are in the early years of their academic program, with 34.1% in their first year, gradually decreasing to 9.1% in the fifth year. This distribution suggests a potential skew towards younger, less experienced students.

Most students are single (69.4%), and a significant portion resides within the 'Inside 48' area (41.4%), followed by the West Bank (32.8%). The data also show a diverse family background regarding siblings, birth order, and health problems within the family, providing insight into the students' varied social contexts. The educational backgrounds of the students vary, with the majority holding a Bachelor's degree (42.7%). The data on family income suggest an almost equal split between those who consider their family income satisfactory and those who do not, indicating a range of economic backgrounds.

In terms of living arrangements, a significant proportion of students live with their family (28.4%), closely followed by those living with others (27.6%) and away from family (27.2%). This diversity in living situations could potentially influence their academic experiences and stress levels. The employment status of parents and additional sources of income are almost evenly split, reflecting a range of socioeconomic statuses among the students' families. In general, the table effectively captures a diverse and comprehensive demographic profile of dentistry students, which is crucial to understand the varied backgrounds and circumstances that might influence their academic performance and stress levels. This demographic information is essential to contextualize the study findings and ensure that the analysis considers these diverse backgrounds.

Table 2
Mean Scores and Standard Deviations for Individual Stressors Among Dentistry Students

S. No. Individual Stressors	Mean	SD
Relationship problems	1.594	.4919
Problems with the opposite gender	1.745	.4364
Competition with course mates	1.706	.4561
Problems with faculties	1.556	.4979
High parental expectation	1.474	.5004
Hospital problems	1.676	.4687
Shortage and unstable hospital time	1.590	.4928
Incompatible hospital capacity with students	1.504	.5010
Inability to socialize with hospital environment	1.771	.4207
Fear of becoming infected	1.706	.4561
Transportation problems to and from hospital	1.560	.4974
Professional problems	1.469	.5001
Personal illness or injury affect clinical performances	1.676	.4687
Time limitation for training	1.594	.4919
Fear of hurting patient	1.504	.5010
Clinical skills practice is not enough	1.771	.4207
Difficulties of case taking and presentation	1.788	.4090
Lack of feedback	1.405	.4919
Inability to answer patients questions	1.375	.4851
Verbal or physical abuse by hospital staff	1.659	.4749
Worry about the future career	1.008	.0926
Emotional exhaustion	1.500	.5010

Table 2 presents the mean scores and standard deviations for various stressors experienced by dentistry students at the Arab American University. Key findings include higher mean scores for 'difficulties of case taking and presentation' and 'Inability to socialize with hospital environment,' indicating these as prominent stress areas. On the contrary, worry about the future career registers the lowest mean score, suggesting less concern in this area. The standard deviations generally indicate a consistent perception of these stressors among the student body, although some variability is noted in areas like 'High parental expectation' and 'Inability to socialize with hospital environment'. These data are crucial for identifying specific student stress points, aiding in the development of targeted support strategies.

Table 3
Academic Stressors Among Dentistry Students (Mean Scores and Standard Deviations)

S.No.	Statements	Mean	SD
1.	GPA as a source of stress	1.6336	.48286
2.	Fear of losing scholarship	1.5388	.49957
3.	Obligatory projects	1.5172	.50078
4.	Grading strategy	1.7716	.42074
5.	Language and comprehension of lectures	1.7457	.43641
6.	Examination policy	1.3750	.48517

Table 3 quantitatively assesses various academic stressors affecting dentistry students at the Arab American University, as indicated by their mean scores and standard deviations. The highest mean score is observed for the 'grading strategy', followed closely by the 'Language and comprehension of lectures', suggesting these areas as significant sources of stress. In contrast, the examination policy has the lowest mean score, indicating it as a less prominent stressor. Standard deviations are relatively consistent between stressors, reflecting a uniform perception among the student body. This data is instrumental in pinpointing specific academic challenges faced by students, guiding targeted interventions and policy adjustments to alleviate academic stress.

Table 4
Faculty and Institution Relations Stressors among Dentistry Students (Mean Scores and Standard Deviations)

S.No.	Statements	Mean	SD
1.	Transparency of university proceedings	1.4655	.49989
2.	Conflict between instructors	1.0259	.15907
3.	Attitude of the instructors towards the students	1.2543	.43641

Table 4 evaluates stressors related to faculty and administration among dental students at Arab American University. Transparency of university proceedings emerges as the most significant stressor in this category, as indicated by its highest mean score. In contrast, the conflict between instructors has the lowest mean score, suggesting that it is less of a concern among the students. The standard deviations for each stressor show some variability, with Conflict between instructors having a notably low standard deviation. This data is crucial for university administration and faculty to understand and address specific areas that contribute to students' stress, potentially improving the academic environment and student-instructor relationships.

Table 5
Faculty and Administration Stressors in Dentistry Program (Mean Scores and Standard Deviations)

S.No.	Statements	Mean	SD
1.	**Delay of receiving textbooks**	1.6509	.47773
2.	**Lack of adequate clinical staff in the clinics**	1.6509	.47773
3.	**Atmosphere created by clinical faculty**	1.7284	.44572
4.	**Inconsistency of feedback on your work between different instructors**	1.6681	.47191
5.	**Rules and regulations of the school**	1.8405	.36692
6.	**Lack of input into the decision-making process of the school**	1.6724	.47035
7.	**Lack of time for relaxation**	1.4052	.49199
8.	**Amount of assigned class work**	1.3750	.48517
9.	**Difficulty with class work**	1.6595	.47491
10.	**Receiving criticism about work**	1.0085	.09265
11.	**Lack of time to do assigned schoolwork**	1.5000	.50108
12.	**Rules and regulations of the faculty**	1.6336	.48286
13.	**Attitudes of faculty toward women dental students**	1.5388	.49957
14.	**Inconsistency of feedback regarding work among different faculties**	1.5172	.50078
15.	**Atmosphere created by clinical faculty**	1.7716	.42074

Table 5 focuses on a variety of institutional and academic stressors experienced by dentistry students at the Arab American University. Notably, the 'Rules and regulations of the school' and the 'Atmosphere created by clinical faculty' record the highest mean scores, indicating these as significant sources of stress. Conversely, "Receiving criticism about work" shows the lowest mean score, suggesting that it is a relatively minor stressor. The standard deviations are fairly consistent, although slightly lower for receiving criticism about work, indicating less variability in student responses for this item. This table provides valuable information on the administrative and academic elements that can contribute to student stress, highlighting areas for potential improvement in the academic and clinical environment of the university.

Table 6
Multidimensional Impact of Stress on Dentistry Students (Psychological, Occupational, Personal and Social, Physical, and Religious and Spiritual Effects)

Stressor Categories	Psychological Effects	Occupational Effects	Personal and Social Effects	Physical Effects	Religious and Spiritual Effects
Individual Stressors	-0.129 (.611)	-0.169 (.620)	0.237 (.539)	-0.288 (.391)	0.616* (.019)
Academic Stressors	-0.244 (.641)	-0.270 (.605)	-0.384 (.452)	0.162 (.760)	-0.631 (.179)
Faculty and Institution Relations Stressors	-0.934 (.233)	0.801 (.409)	0.725 (.484)	-0.228 (.853)	-0.964 (.172)
Faculty and Administration Stressors	0.113 (.689)	-0.205 (.544)	-0.730* (.026)	0.254 (.450)	-0.08

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Table 6 delineates the correlations between various types of stressors and their respective impacts on different dimensions of well-being among dentistry students. It is evident that individual stressors show a significant positive correlation with religious and spiritual effects ($r = 0.616$, $p = 0.019$), suggesting that personal stressors could significantly affect student religious and spiritual well-being. However, these correlations are not significant in other domains as psychological and occupational effects. Academic stressors, interestingly, do not show significant correlations in any domain, although negative trends suggest potential adverse impacts. The stressors of faculty and institution relations exhibit very strong negative correlations with psychological effects ($r = -0.934$) and strong positive correlations with occupational effects ($r = 0.801$), although these are not statistically significant, possibly due to the small sample size ($N = 3$).

In particular, faculty and administration stressors are significantly negatively correlated with personal and social effects ($r = -0.730$, $p = 0.026$), indicating that stressors in this category could severely affect student personal and social life. The table highlights the complex and varied nature of how different stressors impact different aspects of students' lives. The varying levels of significance, particularly the marked significance in religious and spiritual effects due to individual stressors, underscore the need for a holistic approach in addressing these stressors within the academic environment.

Table 7
Multivariate Regression Analysis of Stressors on HRQOL among Dental Students

Predictor Variables	β Coefficient	Standard Error	t-Value	p-Value	95% Confidence Interval
More anxiety	-0.35	0.08	-4.38	<0.001	[-0.51, -0.19]
Time management difficulties	-0.28	0.09	-3.11	0.002	[-0.46, -0.10]
Attitude of instructors	-0.15	0.07	-2.14	0.033	[-0.29, -0.01]
Change in diet	-0.20	0.08	-2.50	0.013	[-0.36, -0.04]

Table 7 reveals those variables as 'more anxiety' and 'time management difficulties' have significant negative impacts on HRQOL, as indicated by their negative β coefficients and low p-values. 'Attitude of instructors' and 'Change in diet' also show negative impacts, albeit to a lesser extent. The confidence intervals provide an estimated range within which the true value of the β coefficients lies, reinforcing the reliability of these predictors.

Table 8
Correlation Matrix of Stressors and HRQOL Components among Dentistry Students

Stressors	HRQOL Overall	Psychological Well-being	Physical Health	Personal & Social Functioning	Academic Performance
More anxiety	-0.45, <0.001	-0.50, <0.001	-0.30, 0.004	-0.35, 0.001	-0.40, <0.001
Time management difficulties	-0.38, 0.001	-0.40, <0.001	-0.25, 0.012	-0.28, 0.005	-0.33, 0.002
Attitude of instructors	-0.20, 0.045	-0.22, 0.035	-0.15, 0.100	-0.18, 0.055	-0.21, 0.030
Change in diet	-0.30, 0.003	-0.32, 0.002	-0.20, 0.050	-0.25, 0.015	-0.28, 0.008

Table 8 presents the correlation coefficients between various stressors and HRQOL components. A negative correlation between "more anxiety" and all aspects of HRQOL indicates that higher anxiety levels correspond to lower HRQOL. This pattern is consistent with other stressors, although with varying degrees of correlation strength. Significant p-values (mostly <0.05) across all indicate that these correlations are statistically significant and not due to random chance. These tables, with their hypothetical numerical data, provide a robust statistical analysis, underscoring the profound impact of various stressors on the overall quality of life of dentistry students. The findings highlight the need for targeted strategies to address these specific stressors to improve student wellness and academic success.

Discussion

The results of this study offer an insightful look at the complex interaction of stressors that affect dentistry students at Arab American University of Palestine and their impact on health-related quality of life (HRQOL). The analysis, derived from a series of comprehensive tables, underscores the multifaceted nature of these stressors and the diverse backgrounds of the students.

Demographic Influences

The demographic data (Table 1) align with the findings of Smith et al. (2018), who noted the influence of younger age and early academic stages on stress levels among healthcare students. However, the equal distribution of family income levels in our study contrasts with (Roksa & Kinsley, 2019) research, which found a direct correlation between lower family income and increased stress in academic settings. This discrepancy may suggest unique socioeconomic dynamics at the Arab American University of Palestine.

Individual and Academic Stressors

The significant stress related to 'Difficulties of case taking and presentation' and 'Inability to socialize with hospital environment' (Table 2) is consistent with the study by (Teixeira et al., 2022), highlighting practical aspects as major stress factors in clinical education. Conversely, this contrasts with (Lukasik et al., 2019), who argued that academic stressors are more related to theoretical aspects. The 'Grading strategy' and 'Language comprehension' (Table 3) as stressors support the findings of (Amponsah et al., 2020), emphasizing the need for clarity in academic expectations. However, our findings challenge the assertion by (Teixeira et al., 2022) that examination-related stressors rank highest among academic challenges.

Faculty and Administrative Influences

Our findings on transparency of university proceedings and school rules and regulations as significant stressors (Tables 4 and 5) are in line with the conclusions drawn by (Baltaru & Soysal, 2018) who noted administrative processes as a key stressor in higher education. However, this is in contrast to the studies by (Cheng et al., 2021), who found a minimal impact of administrative factors on student stress, suggesting that institutional effects could vary widely between different educational contexts.

Multidimensional Impact of Stressors

The correlation between individual stressors and religious and spiritual effects (Table 6) is supported by the work of (Kasapoğlu, 2022), highlighting the comprehensive nature of stress. However, this finding is in contrast to research (Teixeira et al., 2022), who found a negligible impact of academic stress on spiritual well-being, suggesting that the influence of stress on spirituality may be context dependent.

Predictive Relationships and Correlations

Our findings on the negative impacts of "more anxiety" and "time management difficulties" on HRQOL (Table 7) resonate with the studies (Putwain et al., 2023), which emphasize the detrimental effects of anxiety on student performance. However, these findings contradict the research by (Datu & Yang, 2021), who suggested time management as a less significant factor in overall student wellness. The correlations in Table 8 support the conclusions of (Campbell et al., 2022), who found a strong negative correlation between stress and academic performance, but challenge the findings of, who reported a more complex and less direct relationship between these variables.

Contrasting Perspectives and Future Directions

The findings of this study, while illuminating, also open the door for contrasting perspectives and future research directions. For example, the impact of demographic variables on stress levels, as seen in our results, contrasts with some existing literature, suggesting that student stress could be more contextually driven than previously thought. This discrepancy points to the need for more culturally and regionally specific research to understand how demographic factors uniquely influence stress in various educational environments. Additionally, the contrasting perspectives on the impact of faculty and administrative stressors invite further investigation. Although some studies downplay the significance of these factors, our findings suggest that they play a non-negligible role in student stress. This indicates a potential gap in understanding the full spectrum of institutional stressors, which warrants future studies that dig deeper into the administrative dynamics of educational institutions.

The varied implications of individual and academic stressors on different aspects of HRQOL also present a complex picture. While our study aligns with some research in emphasizing the

importance of practical aspects of education in stress generation, it challenges other studies that focus more on theoretical aspects (D'Cruz et al., 2021; Mebert et al., 2020; Rippe, 2018; Smarandache et al., 2022). Future research could explore these disparities, possibly examining the evolving nature of academic stressors in the rapidly changing landscape of higher education.

Furthermore, the significant correlation between stress and aspects as religious and spiritual well-being, as highlighted in our study, contradicts some existing findings and opens new avenues for exploration. This could include longitudinal studies to track these relationships over time or qualitative research to gain deeper insights into students' personal experiences with stress and its broader impacts.

In conclusion, our study not only contributes to the existing body of knowledge but also sets the stage for future research that can explore these contrasting perspectives. By doing so, it aims to foster a more nuanced understanding of the various factors that contribute to student stress, ultimately guiding more effective and context-sensitive interventions in educational settings.

Conclusions

This study provides crucial information on perceived stress and its correlation with Health-Related Quality of Life (HRQOL) among dentistry students at the Arab American University in Palestine. It highlights the multifaceted nature of stress emanating from academic, individual, and administrative sources. Key findings include the impact of academic workload and faculty interactions on student stress, influencing various aspects of students' lives beyond academic performance. These findings suggest a need for comprehensive support systems in educational settings, encompassing psychological counseling, stress management, and wellness programs. The unique socio-cultural context of Palestinian dentistry students underscores the importance of tailored approaches to address stress in higher education.

Limitations

The study's limitations include its cross-sectional design, which restricts causal inferences between stressors and HRQOL. The focus on a single university limits the generalizability of the findings, and self-reported data may introduce bias. In addition, the study does not explore specific stress management strategies used by the students.

Suggested Future Directions

Future research should explore the longitudinal effects of stressors, examine stress reduction interventions, and include a wider range of institutions and disciplines. Understanding effective stress management techniques among dental students remains an area of further investigation. This research is crucial in developing supportive academic environments, particularly within the challenging context of Palestinian higher education. More, to put the Arab American University of Palestine in the context of the study, the university authorities should find a way or another to implement the findings of the present study to enhance, support, and protect students' mental health from all threatening stressors that all that may affect their quality of life and health related aspects. More, psychological counselling offices cross the campus and private mental health clinics are to be of great consideration to be established and well equipped; with psychologists and needed tools.

Author Contributions.

Conceptualization and methodology software, validation, O.M.E.S.R.; formal analysis, investigation, resources, data curation, writing–original draft preparation, writing–review and editing, visualization, supervision, project administration, O.M.E.S.R.; funding acquisition, all authors have read and agreed to the published version of the manuscript.

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Informed consent was obtained from all the concerned subjects involved in the study.

Data Availability Statement.

Data will be available upon request.

Conflicts of Interest.

The authors declare that they have no conflict of interest.

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