



Health-related quality of life among undergraduate dentistry students in Ho Chi Minh, Vietnam: A cross-sectional WHOQOL-BREF study

[Calidad de vida relacionada con la salud entre estudiantes de pregrado de odontología en Ho Chi Minh, Vietnam: Un estudio transversal de WHOQOL-BREF]

Trung Quang Vo^{1*}, Duy Duc Tran², Hien Thi Thuong Dinh²

¹Department of Economic and Administrative Pharmacy (EAP), Faculty of Pharmacy, Pham Ngoc Thach University of Medicine, Ho Chi Minh City 700000, Vietnam.

²Faculty of Pharmacy, Pham Ngoc Thach University of Medicine, Ho Chi Minh City 700000, Vietnam.

*E-mail: trungvq@pnt.edu.vn

Abstract

Context: Dentistry is one of the most stressful and difficult programs in Vietnam. The quality of life (QoL) of dentistry students strongly affects their learning ability and is an issue that causes anxiety among educators.

Aims: To assess the QoL of dentistry students using the World Health Organization Quality of Life Instrument - Short Form (WHOQOL-BREF) and to explore the relationship between questionnaire scores and participant characteristics.

Methods: A cross-sectional survey was administered directly in February to May 2019 with the participation of 201 dentistry students from three universities in southern Vietnam.

Results: The mean scores of the students in the four WHOQOL-BREF domains were 57.20 ± 11.93 (physical health), 53.75 ± 14.78 (psychological health), 59.70 ± 15.68 (social relationships), and 55.79 ± 13.25 (environment). Their QoL scores were lower than those of their counterparts in the US and Pakistan. The female students had lower psychological, environmental, and physical health domain scores than those acquired by the male students ($p < 0.01$). The frequency of physical exercise and average sleep duration was significantly associated with all the QoL domains ($p < 0.05$).

Conclusions: The WHOQOL-BREF is a suitable questionnaire for evaluating the QoL of Vietnamese dentistry students. To improve the health and well-being of this population, medical universities should innovate dentistry education programs and provide essential support, especially to female and fourth year students. Such institutions should also encourage students to participate in sport activities outside learning time and obtain enough sleep for a healthy body and satisfactory academic performance.

Keywords: dentistry students; environment; physical health; psychological health; social relationship; Vietnam.

Resumen

Contexto: La odontología es uno de los programas más estresantes y difíciles en Vietnam. La calidad de vida (QoL) de los estudiantes de odontología afecta fuertemente su capacidad de aprendizaje y es un problema que causa ansiedad entre los educadores.

Objetivos: Evaluar la calidad de vida de los estudiantes de odontología utilizando el instrumento de calidad de vida de la Organización Mundial de la Salud - Formulario abreviado (WHOQOL-BREF) y explorar la relación entre los puntajes del cuestionario y las características de los participantes.

Métodos: Una encuesta transversal se administró directamente de febrero a mayo de 2019 con la participación de 201 estudiantes de odontología de tres universidades del sur de Vietnam.

Resultados: Las puntuaciones medias de los estudiantes en los cuatro dominios WHOQOL-BREF fueron $57,20 \pm 11,93$ (salud física), $53,75 \pm 14,78$ (salud psicológica), $59,70 \pm 15,68$ (relaciones sociales) y $55,79 \pm 13,25$ (ambiente). Sus puntuaciones de calidad de vida fueron más bajas que las de sus homólogos en los Estados Unidos y Pakistán. Los estudiantes tenían puntuaciones más bajas en el dominio de la salud psicológica, ambiental y física que las adquiridas por los estudiantes varones ($p < 0,01$). La frecuencia del ejercicio físico y la duración promedio del sueño se asociaron significativamente con todos los dominios de la calidad de vida ($p < 0,05$).

Conclusiones: El WHOQOL-BREF es un cuestionario adecuado para evaluar la calidad de vida de los estudiantes de odontología vietnamitas. Para mejorar la salud y el bienestar de esta población, las universidades médicas deben innovar los programas de educación en odontología y proporcionar un apoyo esencial, especialmente a las estudiantes de cuarto año. Dichas instituciones también deberían alentar a los estudiantes a participar en actividades deportivas fuera del tiempo de aprendizaje y obtener suficiente sueño para un cuerpo sano y un rendimiento académico satisfactorio.

Palabras Clave: ambiente; estudiantes de odontología; relación social; salud física; salud psicológica; Vietnam.

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AUTHOR INFO

ORCID: <https://orcid.org/0000-0002-8658-4398>



INTRODUCTION

Student quality of life (QoL) is currently one of the most pressing issues for educators, especially those teaching dentistry students because these learners represent a population that contends with stringent academic standards and therefore experience considerable pressure from school and society. This situation is a problem not only in Vietnam but also in many countries in the world (Acharya and Sangam, 2008; Jurkat et al., 2011; Scarpelli et al., 2013; Andre et al., 2017). Numerous studies indicated that dentistry students suffer from stress (Humphris et al., 2002; Acharya, 2003; Polychronopoulou and Divaris, 2005; Laurence et al., 2009), depression (Laurence et al., 2009; Takayama et al., 2011; Galán et al., 2014), and burnout (Martínez et al., 2014; Galan et al., 2014), which cause them to grapple with difficulties in the learning process. Their QoL is also affected by various other factors, such as examinations, unhealthy lifestyles, perfectionism, financial problems, lack of leisure time, and high expectations regarding achievement (World Health Organization [WHO], 1997; Heath et al., 1999; Sugiura et al., 2005; Peker et al., 2009). If this matter is left unresolved, it can alter the behaviors and personalities of the aforementioned students, reduce their concentration on their academics, and negatively affect their mental health.

The WHO (1997) defined QoL is “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.” QoL is a very complicated issue given that a positive well-being does not depend only on the absence of infirmity or disease but also on optimal mental, social, and physical health. Accordingly, improved QoL is one of the most important aims of modern health services (Grad, 2002). These issues prompted various explorations into student QoL in Vietnam (Do and Tasanapradit, 2008; Chazan et al., 2015), but no research has presented a multidimensional and comprehensive view of factors that affect the overall QoL of dentistry students. To fill this void, the

current work assessed the health and happiness of dentistry undergraduates in Ho Chi Minh City to establish ideas for enhancing the quality of education that they receive and uncover important insights for further in-depth investigation.

MATERIAL AND METHODS

Study design

From February to May 2019, a cross-sectional survey featuring the WHO Quality of Life Instrument - Short Form (WHOQOL-BREF) was administered to dentistry students in medical universities in Ho Chi Minh City (HCMC) to determine the students’ QoL and evaluate potential influencing factors.

Sample size

All dentistry students enrolled in HCMC medical universities were invited to participate, after which the final sample of respondents was divided by academic year level. The exclusion criteria were missing data and the acquisition of excessively few statistically significant results. This left us with 201 first, second, and fourth year students from Ho Chi Minh City University of Medicine and Pharmacy (UMP), Pham Ngoc Thach University of Medicine (UPNT), and Hong Bang International University (HIU). Minimal data were derived from third year students, so this group was excluded from the investigation.

Data collection tools

This study used the WHOQOL-BREF, which is a cross-cultural, multi-dimensional instrument with acknowledged trustworthiness. This questionnaire is a shortened version of the WHOQOL-100 developed by the WHO in 1998 to estimate QoL across different cultures and societies (WHOQOL Group, 1998). The short form has 26 items, of which two are standalone questions measuring overall QoL and satisfaction with health, and the remaining 24 items are distributed across four domains: physical health (seven items: energy and fatigue; dependence on medicinal substances and medical aids; activities of daily living;

mobility; pain and discomfort; sleep and rest; work capacity); psychological health (six items: negative feelings; positive feelings; thinking, learning, memory, and concentration; self-esteem; spirituality, religion and personal beliefs; bodily image and appearance), social relationships (three items: sexual activity; social support; personal relationships); environment (eight items: home environment; freedom, physical safety, and security; health and social care [accessibility and quality]; participation in and opportunities for recreation/leisure activities; transport; opportunities for acquiring new information and skills; financial resources; physical environment [pollution/noise/traffic/climate]). The items are rated on a five-point Likert scale, wherein a high score indicates excellent QoL.

Additional 26 items were incorporated into the WHOQOL-BREF, and these were grouped into two sections. The first is intended to collect socio-demographic information, such as school attended, age, gender, academic year level, monthly personal expenditure, marital status, religion, form of study, and hometown, and the second section is designed to identify health-related behaviors, including having part-time jobs, using the Internet, sleep habits, and engaging physical exercise. The instrument was translated into a Vietnamese version, which was piloted among 30 students from different schools and years of study to assess completeness and comprehensibility before it was administered to the respondents.

Data collection

A paper-based survey was conducted in the chosen universities, usually during breaks between classes or at the end of classes. The researchers explained the aim of the study to the participants and instructed them to complete the survey in exact accordance with the instructions. The participants were informed that during data collection, they are allowed to ask the researchers to explain unclear questions. Each student took 8 to 12 minutes to finish the survey.

Statistical analysis

The data from the paper-based survey were entered into a Microsoft Excel (2013) file, and all statistical analyses were performed using the aforementioned program and the Statistical Package for the Social Sciences (version 20). The responses under the four domains were considered continuous data. The score on each domain was converted from raw form to a 4 to 20 scale and then further transformed to a 0 to 100 scale in accordance with WHOQOL-BREF scoring guidelines. Responses to the two questions on overall QoL and satisfaction with health were analyzed separately. The height and weight of the participants were converted into body mass index (BMI) values and classified into four groups, with guidance taken from standards of the International Diabetes Institute and the WHO Western Pacific Region (WHO, 2000).

The summary statistics of respondent characteristics and WHOQOL-BREF domains were determined through descriptive statistical analysis. The association among the four domains were calculated using Pearson's correlation coefficient, and Cronbach's alpha values were adopted to estimate the reliability of the WHOQOL-BREF. Finally, one-way analysis of variance (ANOVA) was carried out to examine differences among the mean domain scores on the basis of participant characteristics.

Ethical considerations

The aim of the work was explained to all the participants, who were also informed of their independence and anonymity as respondents. The collected information was kept confidential throughout the study, with access granted only to the study's statisticians and the data monitoring committee. The data were used solely for research purposes.

RESULTS AND DISCUSSION

Table 1 presents the characteristics of the participating dentistry students. Out of the 201 respondents, 82 were in their first year (40.80%), 78 were in

their second year (38.80%), and 41 students were in their fourth year (20.40%). Over two-thirds were female (68.16%), and all the respondents were single. Those with religious affiliations amounted to 156 (77.61%), and most had Kinh ethnicity (95.52%). The mean age of the students was 20.28 ± 1.45 years (range: 19–28 years) and a little over one-third had not engaged in exercise (33.83%).

Table 2 shows the mean scores of the students in the four domains of the WHOQOL-BREF and in the questions on QoL and satisfaction with health. All the domains were found reliable, as evidenced by their Cronbach's alpha values exceeding 0.6. All the 26 items generated a coefficient of 0.88, indicating reliability. The mean score of the students was highest in the social relationship domain (59.70 ± 15.68) and lowest in the psychological health dimension (53.75 ± 14.78). The correlations between the four domains and the two independents question ranged from 0.42 to 0.67, with statistically significant differences ($p < 0.01$). Thus, the students who had low overall QoL and satisfaction with health exhibited equally low mean scores in the four domains. The correlations between the psychological health and environmental domains (0.67) was higher than those between the physical and psychological health dimensions (0.65) and between the physical health and environmental domains (0.61). The social relationship domain and overall satisfaction with health had the weakest association (0.42), and the correlation among the four domains ranged from 0.51 to 0.65. Among these correlations, that between the social relationship domain and the three others was the lowest.

Table 3 presents the differences in mean scores among US, Pakistani, and Vietnamese dentistry students. The mean scores of the US students in all the four WHOQOL-BREF domains were higher than those obtained by the Vietnamese students, whose scores ranged from 5.76 to 12.40 (for scales in the range 0–100). Similarly, the Pakistani students scored higher in all the four dimensions than did the Vietnamese students, whose scores ranged from 0.70 to 1.23 (for scales in the range 4–20).

Table 4 shows the ANOVA results on the four domains in relation to the sociodemographic vari-

ables. First, a significant difference in physical health scores was found among the students from the three universities ($p = 0.02$). Second, the physical health, psychological health, and environment scores of the female students were significantly lower than those of the male students (all $p < 0.01$). Finally, significant differences ($p = 0.02$; $p = 0.03$) in physical health and environment scores were found among the first, second, and fourth year students.

Fig. 1 illustrates the mean scores of the students in relation to behaviors that affect health. Significant differences among the students were found in terms of average sleep duration and frequency of physical exercise (all domains) ($p < 0.05$). The students also significantly differed as regards the use of the Internet (environment domain) ($p = 0.01$).

In general, the WHOQOL-BREF was found suitable and reliable for this study, as evidenced by the Cronbach's alpha of the four domains and the 26 items (0.64 to 0.80). The mean scores of the students in the four dimensions was in significant direct proportion to their scores with respect to overall QoL and the satisfaction with health ($r = 0.42$ – 0.65 ; $p < 0.01$). The mean scores of the students in the social relationship and physical health dimensions were higher than those earned under the environment and psychological health domains (59.70, 57.20 and 55.79, 53.75, respectively). These findings suggest that physical health and social relationships may exert a stronger effect on QoL than that posed by the other two dimensions. Similar results were reported in a study on the QoL of dentistry students in the US, with the researchers finding the physical health and social relationship domains to be the most important components of the students' well-being (physical health: 69.60, psychological health: 62.77, social relationships: 65.46, environment: 64.29) (Andre et al., 2017). However, the mean scores of the dentistry students in the current study were considerably lower (5.76 to 12.40 for scales in the range 0–100) than those of the dentistry students in the US. This discrepancy points to the need to improve the QoL of Vietnamese dentistry students.

Table 1. Participant characteristics (N = 201).

Characteristic	Number(N)	Percentage (%)	Characteristic	Number(N)	Percentage(%)
Gender			School		
Male	64	31.84	UMP	74	36.81
Female	137	68.16	UPNT	73	36.32
			HIU	54	26.87
Hometown			Religion		
City*	82	40.80	No	156	77.61
Province	119	59.20	Yes	45	22.39
Ethnicity			Have relatives work in health sector		
The Kinh ethnicity	192	95.52	Yes	111	55.22
Other ethnicities	9	4.48	No	90	44.78
Academic year			Have part-time jobs		
First	82	40.80			
Second	78	38.80	Yes	60	29.85
Fourth	41	20.40	No	141	70.15
BMI			Use sleeping pill		
UW (<18.5)	52	25.87	Never	188	93.53
NR (18.5-<23)	123	61.19	Rarely	6	2.98
OW (23-<25)	20	9.95	Sometimes	4	2.00
OB (≥25)	6	2.99	Usually	3	1.49
Accommodation			Have health problem		
Family/Relative	95	47.26	Yes	60	29.85
Bedsit	87	43.28	No	141	70.15
Dormitory	19	9.46			
Average time of using internet (hour(s) per day)			Monthly expenditure (million VND)		
			<3	92	45.77
			3-5	75	37.31
<2	23	11.44	5-7	24	11.94
2-4	82	40.80	7-10	3	1.49
4-8	66	32.84	10-15	4	2.00
>8	30	14.92	>15	3	1.49
Physical exercise frequency (time(s) per week)			Participate in social activities		
Not do physical exercise	70	33.83	Never	11	5.47
1-2	70	33.83	Rarely	57	28.36
3-4	38	19.90	Sometimes	117	58.21
>4	23	12.44	Usually	16	7.96
Age (years)			Time of studying (hour(s))		
Mean (SD)	20.28 (1.45)		Mean (SD)	8.28 (2.212)	
Median (Q1-Q3)	20 (19-21)		Median (Q1-Q3)	8 (7-10)	
Min-Max	19-28		Min-Max	5-15	

*City: Five municipalities of Vietnam (Hanoi, Hai Phong, Da Nang, Ho Chi Minh City, Can Tho). HIU: Hong Bang International University; UMP: Ho Chi Minh City University of Medicine and Pharmacy; UPNT: Pham Ngoc Thach University of Medicine; BMI: Body Mass Index; NR: Normal range; OB: Obese; OW: Overweight; SD: Standard deviation; UW: Underweight.

1 USD = 22,993 VND (Source: https://sbv.gov.vn/webcenter/portal/vi/menu/trangchu?_afLoop=22321058740400577 at April 09, 2019)

Table 2. Scores in the four domains and questions regarding overall QoL and satisfaction with health as well as correlations among them.

Domains/Items	Mean (SD)	Min-Max	Cronbach's Alpha	Phy	Psy	Soci	Envi	Overall QOL	Overall SWH
Physical health	57.20 (11.93)	19-94	0.74	-	-	-	-	-	-
Psychological	53.75 (14.78)	19-100	0.71	0.65	-	-	-	-	-
Social relationship	59.70 (15.68)	19-100	0.64	0.51	0.56	-	-	-	-
Environment	55.79 (13.25)	25-100	0.80	0.61	0.67	0.57	-	-	-
Overall QOL	3.31 (0.74)	1-5	-	0.55	0.56	0.47	0.56	-	-
Overall SWH	3.08 (0.85)	2-5	-	0.52	0.55	0.42	0.55	0.55	-

All correlation had been statistically significant (p<0.01). Overall QOL: Overall quality of life; Overall SWH: Overall satisfaction with health.

Table 3. Differences among the mean scores of US, Pakistani, and Vietnamese dentistry students.

Domain	Mean scores (SD) of dental students			
	Vietnam (N = 201) ^a	US (N = 384) ^a	Vietnam (N = 201) ^b	Pakistan (N = 270) ^b
Physical health	57.20 (11.93)	69.60 (15.18)	13.13 (1.90)	13.83 (2.43)
Psychological	53.75 (14.78)	62.77 (16.99)	12.58 (2.34)	13.81 (2.70)
Social relationship	59.70 (15.68)	65.46 (21.49)	13.55 (2.51)	14.36 (2.68)
Environment	55.79 (13.25)	64.29 (13.99)	12.90 (2.12)	14.11 (2.55)

^aFor scales in the range 0-100; ^bFor scales in the range 4-20; US data: Andre et al. (2017); Pakistan data: Ali et al. (2018).

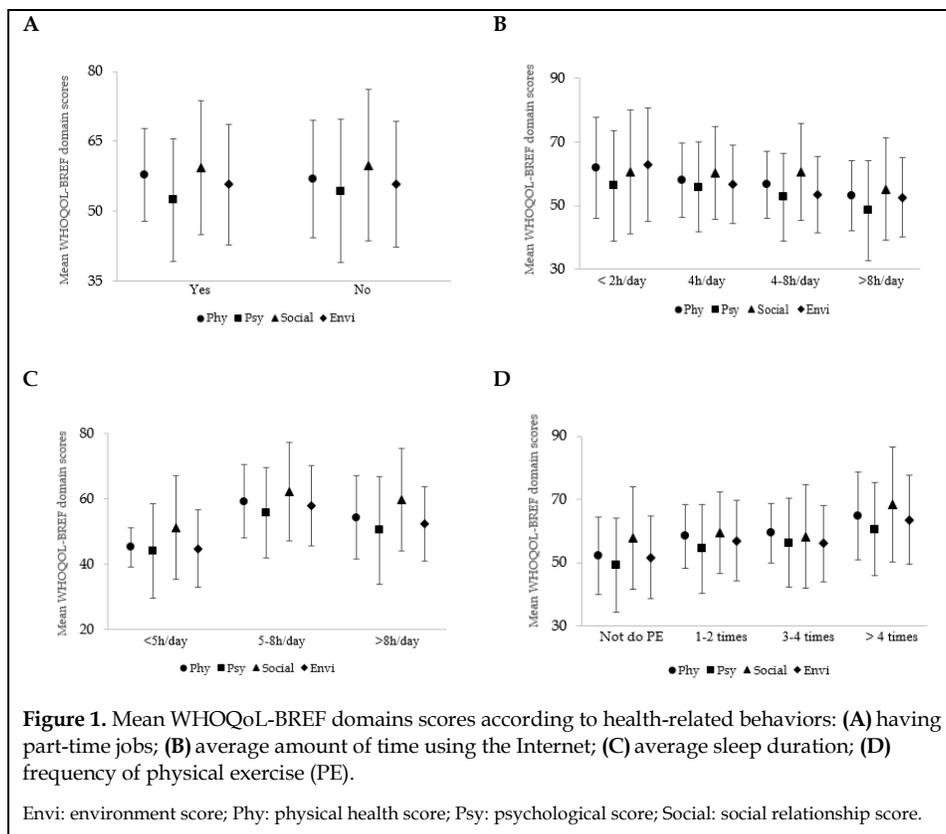


Table 4. Mean QoL scores according to sociodemographic variables

Characteristic	WHOQOL-BREF domains							
	Physical health	p-value	Psychological	p-value	Social relationship	p-value	Environment	p-value
School^b								
UMP	59.31 (12.88)		56.01 (16.64)		61.15 (17.79)		57.04 (15.15)	
UPNT	54.08 (10.92)	0.02*	51.27 (13.60)	0.15	58.82 (13.95)	0.61	54.03 (12.87)	0.36
HIU	58.54 (11.17)		54.00 (13.27)		58.91 (14.95)		56.44 (10.70)	
Gender^a								
Male	61.55 (12.00)	<0.01*	58.45 (14.30)	<0.01*	61.91 (16.58)	0.17	60.55 (14.44)	<0.01*
Female	55.18 (11.38)		51.55 (14.53)		58.67 (15.20)		53.56 (12.08)	
Hometown^a								
City	58.15 (10.81)	0.35	53.68 (13.27)	0.96	60.90 (15.31)	0.37	56.44 (12.36)	0.56
Province	56.55 (12.64)		53.80 (15.79)		58.87 (15.95)		55.34 (13.86)	
Ethnicity^a								
Kinh ethnicity	57.24 (12.10)	0.85	53.86 (14.71)	0.62	59.96 (15.94)	0.04	55.92 (13.23)	0.50
Other ethnicities	56.44 (7.76)		51.33 (17.02)		54.11 (6.97)		52.89 (14.17)	
Religion^a								
No	57.37 (12.19)	0.72	53.76 (14.43)	0.99	60.17 (15.56)	0.43	55.75 (13.52)	0.94
Yes	56.64 (11.10)		53.73 (16.11)		58.07 (16.17)		55.91 (12.41)	
BMI^b								
UW (<18.5)	55.35 (12.09)		53.02 (15.47)		60.58 (15.02)		55.98 (11.74)	
HW (18.5-22.9)	57.64 (11.90)	0.44	53.37 (14.52)	0.48	59.55 (15.91)	0.61	55.28 (13.30)	0.51
OW (23-24.9)	57.70 (9.23)		55.45 (12.97)		56.55 (14.98)		56.05 (12.02)	
OB (≥25)	62.67 (18.61)		62.33(20.16)		65.67 (20.42)		63.67 (25.90)	
Academic year^b								
First	57.83 (11.49)		53.10 (13.86)		57.46 (15.31)		56.01 (12.17)	
Second	59.37 (11.53)	0.03*	55.31 (15.89)	0.47	61.31 (16.17)	0.25	58.05 (14.98)	0.02*
Fourth	51.83 (12.18)		52.10 (14.47)		61.12 (15.31)		51.02 (10.63)	
Have relatives work in health sector^a								
Yes	56.96 (12.39)	0.75	53.57 (14.20)	0.85	60.46 (15.40)	0.45	56.41 (13.45)	0.47
No	57.49 (11.41)		53.97 (15.53)		58.78 (16.06)		55.03 (13.05)	
Accommodation^b								
Family/relative	57.85 (11.46)		54.48 (14.19)		60.97 (15.53)		57.67 (13.33)	
Bedsit	55.25 (11.87)	0.12	52.78 (15.21)	0.72	58.13 (15.86)	0.46	53.61 (13.22)	0.11
Dormitory	59.56 (13.78)		54.61 (16.23)		60.72 (15.81)		56.44 (11.99)	

^aIndependent T-test, ^bANOVA test, *p<0.05. HIU: Hong Bang International University; UMP: Ho Chi Minh City University of Medicine and Pharmacy; UPNT: Pham Ngoc Thach University of Medicine; BMI: Body Mass Index; NR: Normal range; OB: Obese; OW: Overweight; UW: Underweight.

Significant differences in physical health and environment scores were found among the first, second, and fourth year students (physical health: 57.83, 59.37, 51.83; environment: 56.01, 58.05, 51.02, respectively). The seniors had the lowest mean scores – an occurrence also observed by Chazan et

al. (2015). This phenomenon may be attributed to the involvement of fourth year students in hospital internship, which is a very stressful and essential stage of schooling for them.

Over two-thirds of the participants were female students (68.16%). This predominance of female students was also observed in various other explorations involving dentistry students, with compositions amounting to 55.2% (Andre et al., 2017) and 70.6% (Gonzales-Sullcahuamán et al., 2013). This similarity may derive from the fact that females are suitable for health careers. However, training to be a good dentist in the future confronts female students with difficult problems specific to their gender. First, in the present research, the female students had physical health scores that were lower than those achieved by the male students by 6.37 points ($p < 0.01$). This result was expected seeing as many studies found men to have better physical health than women (Verbrugge, 1983; Sallis et al., 1996). Second, some studies discovered that the psychological health scores of female medical students were significantly lower than those of male students (Backović et al., 2012; Zhang et al., 2012), which aligns with the gender-related findings presented in Table 4 (males: 58.45, females: 51.55, $p < 0.01$). Finally, the environment scores of the male students were also higher than those of the female students by 6.99 points ($p < 0.01$), suggesting that the latter dealt with more issues in their study process and lives than did the male students.

In this study, physical exercise and average sleep duration were two of the most important behaviors affecting health. As expected, physical exercise positively affected the WHOQOL-BREF scores, as depicted in Fig. 1D. In line with this result, Buchman et al. (1991) uncovered that exercise frequency had a significant positive correlation with the fitness index ($\beta = 0.38$, $p < 0.01$) and a negative correlation with anger ($\beta = -0.17$, $p < 0.02$) and daily stress ($\beta = -0.21$, $p < 0.01$). In a similar vein, several well-designed studies confirmed the benefits of physical exercise (Hughes, 1984) and certain research identified sleep as a major factor that influences many aspects of a person's life, such as judgement, mood, and stress (Gilbert and Weaver,

<http://jppres.com/jppres>

2010; Killgore, 2010; Choueiry et al., 2016). Elagra et al. (2016) found that poor sleep quality exhibits a significant negative correlation with academic performance ($r = -0.19$, $p < 0.01$) and that only one-fifth of students (21.2%) sleep for an average of eight hours or more. Likewise, the current work found that 21.4% of the students slept for an average of eight hours or more. Average sleep duration significantly affected the four domains (all with $p < 0.05$). Fig. 1C shows that the students who slept less than five hours per day had lower score than those attained by the students who slept for 8 hours or more per day. Those who slept for five to eight hours daily earned higher scores than did the students who slept for eight hours or more each day. This result may be correlated with the massive amount of knowledge and the dense schedules that dentistry students have to cope with. These challenges prompt them to reduce sleep hours so that they can achieve what is expected of them.

Limitations

Similar to any other work, the present study is encumbered by some limitations. Firstly, the sample was chosen from three universities in HCMC, which is the most developed and modern city in Vietnam. Thus, the QoL of dentistry students here may be higher than that of other dentistry students in Vietnam. Additionally, the sample is not demographically diverse enough to be representative of all dentistry students in the country. The generalizability of the study must therefore be considered carefully. Secondly, third year students were excluded from the sample as excessively little data were obtained from them. Researchers are advised to assemble a larger sample to enable further analysis. Lastly, the difference in QoL between pre-clinical and clinical dentistry students was disregarded in this research. Additional studies, with a more carefully designed questionnaire, should help better elucidate this issue.

CONCLUSIONS

The WHOQOL-BREF is a suitable questionnaire for evaluating the QoL of Vietnamese dentistry students. To improve the health and well-being of

this population, medical universities should innovate dentistry education programs and provide essential support, especially to female and fourth year students. Such institutions should also encourage students to participate in sport activities outside learning time and obtain enough sleep for a healthy body and satisfactory academic performance.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

- Acharya S (2003) Factors affecting stress among Indian dental students. *J Dent Educ* 67: 1140-1148.
- Acharya S, Sangam D (2008) Oral health-related quality of life and its relationship with health locus of control among Indian dental university students. *Eur J Dent Educ* 12: 208-212.
- Ali O, Salam Z, Saeed T, Sethi MR, Irfan M (2018) Quality of life of medical and dental students of Peshawar. *J Postgrad Med Inst* 32: 188-193.
- Andre A, Pierre GC, McAndrew M (2017) Quality of life among dental students: a survey study. *J Dent Educ* 81: 1164-1170.
- Backović DV, Zivojinović JI, Maksimović J, Maksimović M (2012) Gender differences in academic stress and burnout among medical students in final years of education. *Psychiatr Danub* 24: 175-181.
- Buchman BP, Sallis JF, Criqui MH, Dimsdale JE, Kaplan RM (1991) Physical activity, physical fitness, and psychological characteristics of medical students. *J Psychosom Res* 35: 197-208.
- Chazan ACS, Campos MR, Portugal FB (2015) Quality of life of medical students at the State University of Rio de Janeiro (UERJ), measured using WHOQOL-BREF: a multivariate analysis. *Cien Saude Colet* 20: 547-556.
- Choueiry N, Salamoun T, Jabbour H, El Osta N, Hajj A, Khabbaz LR (2016) Insomnia and relationship with anxiety in university students: a cross-sectional designed study. *PloS One* 11: e0149643.
- Do QD, Tasanapradit P (2008) Depression and stress among the first year medical students in University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam. *J Health Res* 22: 1-4.
- Elagra MI, Rayyan MR, Alnemer OA, Alshehri MS, Alsaffar NS, Al-Habib RS, Almosajen ZA (2016) Sleep quality among dental students and its association with academic performance. *J Int Soc Prev Community Dent* 6: 296.
- Galán F, Ríos-Santos JV, Polo J, Rios-Carrasco B, Bullón P (2014) Burnout, depression and suicidal ideation in dental students. *Med Oral Patol Oral Cir Bucal* 19: e206.
- Gilbert SP, Weaver CC (2010) Sleep quality and academic performance in university students: a wake-up call for college psychologists. *J College Stud Psychother* 24: 295-306.
- Gonzales-Sullcahuamán JA, Ferreira FM, de Menezes JV, Paiva SM, Fraiz FC (2013) Oral health-related quality of life among Brazilian dental students. *Acta Odontol Latinoam* 26: 76-83.
- Grad FP (2002) The preamble of the constitution of the World Health Organization. *Bull World Health Organ* 80: 981-981.
- Heath J, Macfarlane T, Umar M (1999) Perceived sources of stress in dental students. *Dent Update* 26: 94-100.
- Hughes JR (1984) Psychological effects of habitual aerobic exercise: A critical review. *Prev Med* 13: 66-78.
- Humphris G, Blinkhorn A, Freeman R, Gorter R, Hoad-Reddick G, Murtomaa H, O'Sullivan R, Splieth C (2002) Psychological stress in undergraduate dental students: baseline results from seven European dental schools. *Eur J Dent Educ* 6: 22-29.
- Jurkat H, Höfer S, Richter L, Cramer M, Vetter A (2011) Quality of life, stress management and health promotion in medical and dental students - A comparative study. *DMW-Deutsche Medizinische Wochenschrift* 136: 1245-1250.
- Killgore WD (2010) Effects of sleep deprivation on cognition. *Prog Brain Res* 185: 105-129.
- Laurence B, Williams C, Eiland D (2009) Depressive symptoms, stress, and social support among dental students at a historically black college and university. *J Am Coll Health* 58: 56-63.
- Martínez AA, Aytés LB, Escoda CG (2008) The burnout syndrome and associated personality disturbances. The study in three graduate programs in Dentistry at the University of Barcelona. *Med Oral Patol Oral Cir Bucal* 13: 444-450.
- Peker I, Alkurt MT, Usta MG, Turkbay T (2009) The evaluation of perceived sources of stress and stress levels among Turkish dental students. *Int Dent J* 59: 103-111.
- Polychronopoulou A, Divaris K (2005) Perceived sources of stress among Greek dental students. *J Dent Educ* 69: 687-692.
- Sallis JF, Zakarian JM, Hovell MF, Hofstetter CR (1996) Ethnic, socioeconomic, and sex differences in physical activity among adolescents. *J Clin Epidemiol* 49: 125-134.
- Scarpelli AC, Paiva SM, Viegas CM, Carvalho AC, Ferreira

- FM, Pordeus IA (2013) Oral health-related quality of life among Brazilian preschool children. *Community Dent Oral Epidemiol* 41: 336-344.
- Sugiura G, Shinada K, Kawaguchi Y (2005) Psychological well-being and perceptions of stress amongst Japanese dental students. *Eur J Dent Educ* 9: 17-25.
- Takayama Y, Miura E, Miura K, Ono S, Ohkubo C (2011) Condition of depressive symptoms among Japanese dental students. *Odontology* 99: 179-187.
- Verbrugge LM (1983) Multiple roles and physical health of women and men. *J Health Soc Behav* 24: 16-30.
- WHO (1997) Division of Mental Health and Prevention of Substance Abuse. WHOQOL: Measuring Quality of Life. Geneva: World Health Organization.
- WHO (2000) The Asia-Pacific Perspective: Redefining Obesity and its Treatment. Sydney: Health Communications Australia.
- WHOQOL Group (1998) Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychol Med* 28: 551-558.
- Zhang Y, Qu B, Lun S, Wang D, Guo Y, Liu J (2012) Quality of life of medical students in China: a study using the WHOQOL-BREF. *PLoS One* 7: e49714.

AUTHOR CONTRIBUTION:

Contribution	Vo TQ	Tran DD	Dinh HTT
Concepts or ideas	x		
Design	x	x	x
Definition of intellectual content	x	x	x
Literature search	x	x	x
Experimental studies	x	x	x
Data acquisition	x	x	x
Data analysis	x	x	x
Statistical analysis	x	x	x
Manuscript preparation	x	x	x
Manuscript editing	x	x	x
Manuscript review	x	x	x

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