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Determinants of Quality of Life among Pharmacy Students as Ascertained Using the World Health Organization Quality of Life Instrument, Short Form: A Vietnamese Perspective

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ABSTRACT

Recently, the number of pharmacy students in Vietnam has rapidly increased, negatively affecting the quality of life (QoL) of these students. This study evaluated the QoL of pharmacy students during the entire course of their undergraduate program and identified the factors influencing their QoL. This cross-sectional research was conducted using the Vietnamese version of the World Health Organization Quality of Life Instrument, Short Form (WHOQOL-BREF). The questionnaire was administered to 1,021 first-year to fifth-year pharmacy students studying at universities located in southern Vietnam. The internal consistency of the instrument (24 items) was 0.87. The Cronbach's α values for the domains of physical health, psychological health, social relations, and environment were 0.72, 0.82, 0.67, and 0.80 respectively, indicating acceptable reliability. The mean scores of the students regarding physical health, psychological health, social relations, and environment were 56.06 ± 15.01, 51.51 ± 20.43, 57.52 ± 16.02, and 54.53 ± 13.52, respectively. Third-year students exhibited the lowest QoL scores. Gender, marital status, and habituation to sleeping pill consumption were noticeably relevant to the QoL of the students ($p < 0.05$).This study identified the properties of the WHOQOL-BREF that are useful for researchers in Vietnam who want to adopt or further refine the instrument. To eliminate or reduce adverse effects on QoL, pharmacy schools should provide adequate support for pharmacy students, especially those in their third year. The results of this study can serve as reference for future research on student life in Asia.

Keywords: pharmacy, student, QoL, quality of life, Vietnam

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INTRODUCTION

In 2005, the Vietnamese government enacted a policy for the Comprehensive Reform of Higher Education in Vietnam, 2006–2020, which was intended mainly to universalize higher education. From this initiative, the country's regulators expected a 125% increase in the number of university enrollments, from 200 applicants for every 10,000 people in 2010 to 450 applicants for every 10,000 people by 2020 (Trines 2017). Universities were also encouraged to strive for financial autonomy by operating as typical businesses—a transition supported by the granting of rights to form their own boards of directors and operate independently of the government's general supervision (Hayden and Thiep 2007). The right to be financially autonomous is expected to benefit the entire educational system of Vietnam, including university directors' exercise of flexibility and creativity. This policy's disadvantage, however, is that it requires university regulators to considerably adjust their financial structures given the partial withdrawal of support by the government. Such adjustments usually translate to increased educational fees as a means of compensation. These changes have strongly affected pharmacy students, among other stakeholders. In addition to grappling with challenging syllabi, pharmacy students must contend with the length of their educational program, which further exacerbates their financial difficulties and negatively affects their quality of life (QoL) as a matter of course.

The World Health Organization (WHO) defines QoL as "an individual's 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" (WHOQOL Group 1994). To measure this perception, the organization developed the WHO Quality of Life Instrument-100 and its abbreviated version, the WHOQOL-BREF, the reliability and validity of which have been demonstrated in previous work (WHOWOL Group 1998).

This study aimed to investigate the QoL of pharmacy students to obtain insight into their health status, their study conditions, and other relevant factors. We selected pharmacy students as the target population for two primary reasons. First, major impairments in health-related aspects of QoL, including stress (Bhandari 2012; Chen et al. 2013) and depression symptoms (Dessie and Ebrahim 2013; Hamaideh 2011), have been observed among medical students, mostly because of the unique circumstances of their educational programs (Paro et al. 2010). Second, no study has focused on the QoL of Vietnamese pharmacy students. Based on our results, the Vietnamese government will be able to offer appropriate support to these future healthcare professionals and thereby benefit Vietnamese society as a whole. We also hope to provide valuable information that can be used to update the educational system in Vietnam, especially the pharmacy field. This initiative may also contribute to relevant future research.

MATERIAL AND METHODS

Study setting and population

This cross-sectional study was conducted from March to April 2019 upon approval by the Science Research Committee of the Faculty of Pharmacy at Pham Ngoc Thach University of Medicine. The sample was recruited from three core pharmacy universities around Ho Chi Minh City: The University of Medicine and Pharmacy, Pham Ngoc Thach University of Medicine, and Lac Hong University. To estimate the minimum allowable sample, we used the formula $\frac{z^2 \times P(1-P)}{d^3}$ (Pourhoseingholi et al. 2013) and adopted the following assumptions: a 95% confidence interval (Z = 1.96), good QoL for 50% of the pharmacy students, and a 5% margin of error. The calculated sample size was 385 participants, to which we added 20% to cover the possibility of missing data or invalid results in the survey.

We conducted the survey in two forms: physical copies and online questionnaires. After eliminating invalid or unreliable data, a total of 1,201 questionnaires were accepted in the following analysis phase.

Instruments

Prior to data collection, a pilot study was conducted involving 40 pharmacy students to obtain recommendations to improve the accessibility and usability of the questionnaire. The pilot study instrument consisted of two sections: one intended to collect sociodemographic data on the students and another containing the Vietnamese version of the WHOQOL-BREF to derive necessary information on the students' QoL. The Vietnamese WHOQOL-BREF comprises 26 items, each rated on a scale of 1 (very dissatisfied/very poor) to 5 (very satisfied/very good) (Skevington, Lotfy and O'Connell 2004).

In using the WHOQOL-BREF, we closely adhered to WHO's recommendations (WHOQOL-BREF, 2003). We included two additional questions, apart from the 26 items: one about students' overall perception of their QoL and the other about their students' health. The 26 items, which also center on students' perceptions of their QoL, are about the domains of physical health, psychological health, social relations, and environment. Each item is scored positively except Q3, Q4, and Q26, which are rated inversely. The next steps were to determine the mean raw scores of respondents in each domain and to multiply the values by four to convert them into new score dimensions ranging from 4 to 20. These new values were then converted to a scale of 0 to 100, corresponding to the WHOQOL-100, to derive the QoL scores of the target population. The entire process allows a simplified assessment: the higher the QoL score, the better the QoL of a student.

Data analysis

The responses were tabulated using Microsoft Excel 2013 for Windows® (One Microsoft Way, Redmond, Washington, United States) to double check the progress of input, and the Statistical Package for the Social Sciences® version 20.0 (IBM Corporation, Armonk, New York, United States) was used in three rounds of analysis. In the first round, we examined the sociodemographic features of the sample. In the second, we identified the Cronbach's α coefficient and internal consistency of the WHOQOL-BREF. The Cronbach's α coefficient of the entire instrument was 0.87, and those of the physical health, psychological health, social relations, and environmental domains were 0.72, 0.82, 0.67, and 0.80, respectively. Finally, we evaluated the QoL of the sample via a T-test and one-way analysis of variance, in which year level, gender, marital status, and all other relevant determinants were considered.

Ethical considerations

The study's aim was sufficiently explained to the respondents, and the questionnaire was designed not to require identifying information about the participants. All the respondents voluntarily participated in the research.

RESULTS

Sociodemographic characteristics

The average age of the sample was 24.39 ± 6.1 years. Out of the 1,021 individuals, 32.2% were male and 67.8% were female. The sociodemographic characteristics of the pharmacy students are shown in Table 1.

Table 1: Sociodemographic characteristics of the pharmacy students

Variables	N (%) n=1021	Physical Health (x ± s)	Psychological Health (x ± s)	Social relations (x ± s)	Environment (x± s)
Gender					
Male	329 (32.2)	58.13±14.83	52.61±20.88	57.41±17.32	55.13±14.12
Female	692 (67.8)	55.08±15.01	50.98±20.21	57.57±15.37	54.24±13.22
Hometown					
City	186 (18.2)	56.04±15.53	52.15±21.38	58.91±16.08	53.70±15.41
Country	835 (81.8)	56.06±14.91	51.36±20.22	57.21±16.00	54.71±13.06
Ethnicity					
The Kinh Ethnicity	956 (93.6)	56.15±14.97	51.39±20.68	57.57±16.03	54.70±13.42
Other ethnicities	65 (6.5)	54.77±15.71	53.18±16.40	56.69±15.94	51.94±14.70
Religion					
Yes	247 (24.2)	55.80±17.22	50.13±21.97	57.88±16.66	54.92±13.51

No	774 (75.8)	56.14±14.25	51.95±19.91	57.40±15.82	54.40±13.53
Married status					
Single	843 (82.6)	55.51±15.51	51.02±19.75	56.98±16.13	54.40±13.70
Married	178 (17.4)	58.67±12.10	53.80±23.33	60.04±15.26	55.12±12.64
Education level					
Year 1	171 (16.7)	54.06±15.72	52.56±16.93	58.30±16.40	53.42±13.09
Year 2	114 (11.2)	55.68±15.72	48.25±21.92	54.32±17.00	55.57±13.65
Year 3	172(16.8)	54.05±14.32	47.69±21.07	55.70±15.59	50.55±13.25
Year 4	434 (42.5)	57.00±14.56	52.83±21.87	59.28±15.95	55.50±13.62
Year 5	130 (12.7)	58.54±15.39	53.60±16.36	55.78±14.72	57.08±12.92
Relatives' careers					
Healthcare	508 (49.8)	56.31±15.06	50.11±21.71	57.44±16.52	55.30±13.51
Others	513 (50.2)	55.81±14.98	52.89±19.00	57.59±15.52	53.77±13.50
Sleep amount (hour(s) per day)					
<3	25 (2.4)	15.43±3.09	15.83±3.17	16.96±3.39	14.85±2.97
3-5	127 (12.4)	15.10±1.34	21.12±1.87	15.85±1.41	14.40±1.28
5-8	701 (68.7)	14.39±0.54	20.32±0.77	15.62±0.59	12.71±0.48
>8	168 (16.5)	16.44±1.27	20.80±1.61	17.60±1.36	15.26±1.18
Physical exercise frequency (time(s) per week)					
None	378 (37)	14.86±0.76	18.71±0.96	15.45±0.80	13.27±0.68
1-2	366 (35.8)	14.57±0.76	20.98±1.10	15.51±0.81	11.92±0.62
3-4	184 (18)	14.79±1.09	22.28±1.64	15.43±1.14	14.78±1.09
>4	93 (9.1)	17.04±1.77	20.76±2.15	20.75±2.15	16.76±1.74
Internet usage (hour(s) per day)					
≤4	630	15.20±0.61	21.18±0.84	15.76±0.63	12.84±0.51
>4	391	14.72±0.74	19.17±0.97	16.45±0.83	14.56±0.74

QoL based on year level

On the basis of year level, the students exhibited statistically significant differences in domain scores, with F values of 2.883, 3.160, 3.528, and 6.025 for the physical health, psychological health, social relations, and environmental domains, respectively (all $p < 0.05$) (Table 2). Figure 1 illustrates the QoL scores of the students in the four domains according to year level. The third-year students scored the lowest.

Table 2: Scores of pharmacy students by year level

	Grade (Mean ± SD)					F	P
Domain	Year 1	Year 2	Year 3	Year 4	Year 5		
Physical Health	54.06±15.72	55.68±15.72	54.05±14.32	57.00±14.56	58.54±15.39	2.883	0.022
Psychological Health	52.56±16.93	48.25±21.92	47.69±21.07	52.83±21.87	53.60±16.36	3.160	0.014
Social relations	58.30±16.40	54.32±17.00	55.70±15.59	59.28±15.95	55.78±14.72	3.528	0.007
Environment	53.42±13.09	55.57±13.65	50.55±13.25	55.50±13.62	57.08±12.92	6.025	0.000

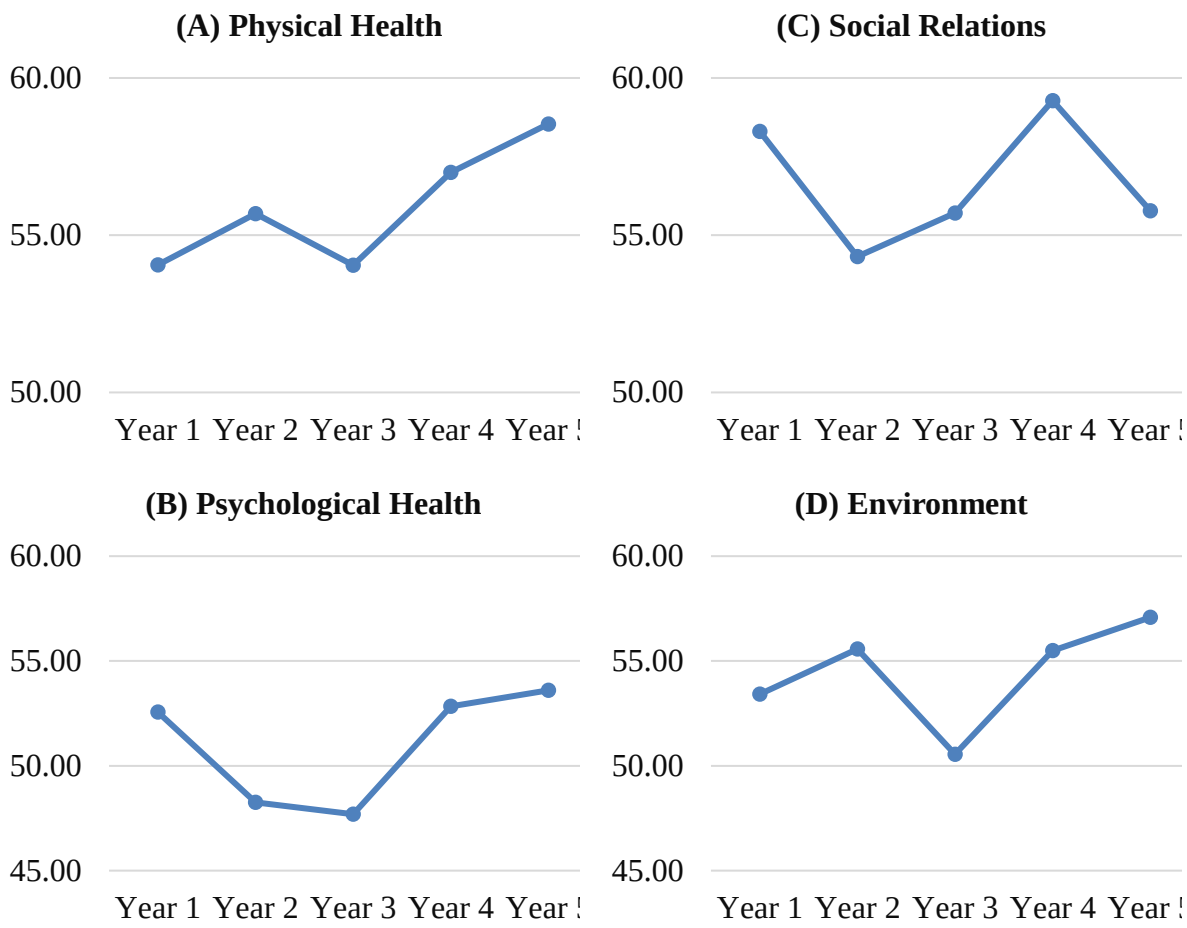

Figure 1: Scores of pharmacy students in (A) physical health, (B) psychological health, (C) social relations, and (D) environment.

Negative factors affecting QoL

As could be seen in Table 3, the male students had higher QoL scores for physical health than their female counterparts ($p < 0.05$). Married students' scores for physical health and social relations were significantly higher than those of unmarried individuals ($p < 0.05$). The respondents who never or rarely used sleeping pills had better QoL than those who often used these substances ($p < 0.05$), as shown by their scores for physical health, psychological health, and environment.

Table 3: Scores of pharmacy students in different year levels

Variables	N (%)	Physical Health (Mean ± SD)	Psychological Health (Mean ± SD)	Social relations (Mean ± SD)	Environment (Mean ± SD)
Gender					
Male	329 (32.2)	58.13±14.83	52.61±20.88	57.41±17.32	55.13±14.12
Female	692 (67.8)	55.08±15.01	50.98±20.21	57.57±15.37	54.24±13.22
Marital status					
Single	843 (82.6)	55.51±15.51	51.02±19.75	56.98±16.13	54.40±13.70
Married	178 (17.4)	58.67±12.10	53.80±23.33	60.04±15.26	55.12±12.64
Relatives' careers					
Healthcare	508 (49.8)	56.31±15.06	50.11±21.71	57.44±16.52	55.30±13.51
Others	513 (50.2)	55.81±14.98	52.89±19.00	57.59±15.52	53.77±13.50
Level of using sleeping pill					
Never/hardly	982 (96.2)	56.83±15.00	52.11±20.46	57.83±15.71	55.04±13.32

Often	39 (3.8)	50.30±13.88	47.00±19.70	55.14±18.02	50.72±14.45
Social activities participation					
Never/hardly	315 (30.9)	53.72±5.67	48.96±19.67	56.07±16.14	52.68±14.31
Often	706 (69.1)	57.10±14.60	52.64±20.67	58.16±15.93	55.35±13.07

Table 4 presents the computed correlation coefficients of the four domains and those of the two separate questions. The values ranged from 0.34 to 0.49, and the differences were statistically significant ($p < 0.01$). The correlation between the two separate questions also indicated a significant difference ($p < 0.01$); that is, the overall QoL as reflected by psychological status and environment was better than that manifested by the other domains ($r = 0.42$).

Table 4: Scores for the four WHQOL-BREF domains, as well as for QoL, satisfaction with health, and the correlation between these two items

Domain	Physical Health	Psychological Health	Social relations	Environment	General QOL	General Health
Physical Health	-					
Psychological Health	0.40	-				
Social relations	0.34	0.43	-			
Environment	0.44	0.42	0.49	-		
General QOL	0.41	0.42	0.38	0.42	-	
General Health	0.41	0.35	0.35	0.36	0.40	-

DISCUSSION

This study suggests that the WHOQOL-BREF is a reliable and valid instrument for assessing the QoL of Vietnamese pharmacy students. This research uncovered that current year level plays an important role in the QoL of these students. As shown in Figure 1, the third-year respondents had the lowest QoL scores for all four questionnaire domains. Similar results were reported by Marshall (2008). This similarity can be explained by the varying syllabi and workloads of students in different academic year levels. Third-year Vietnamese pharmacy students are subject to the greatest workload because they are about to transition from studying general science subjects to more specialized courses, especially pharmacology, pharmaceutical chemistry, and analytical chemistry, and because they are required not only to attend lectures but also to engage in apprenticeship in hospitals, drug factories, and research institutes. To be able to face these challenges and qualify for the most important stage of their five-year program requires extreme concentration and discipline as well as good health. These circumstances may be exacerbated by many students' financial problems and the competitive nature of the pharmacy field; every student aspires to secure scholarships to minimize tuition and increase future opportunities, benefits that are especially critical to students with poor financial backgrounds. As a result, third-year Vietnamese pharmacy students feel overloaded, apprehensive, and stressed, all of which negatively influence their QoL.

The results also indicated that QoL scores can be affected by other factors, including gender, marital status, and history of drug use. Regardless of academic year level, males always obtained higher scores than females for physical health. This finding is consistent with those of previous studies involving medical students (Backović et al. 2012; Shareef et al. 2015). We also found that married individuals had a significantly higher QoL than did single ones with respect to physical health and social relations. A comparable outcome was reported by Rakizadeh and Hafezi (2015). In a similar vein, Henning et al. (1998) found that married medical, dental, and pharmacy students are less stressed than their single counterparts, which probably stems from the mental support and other types of support provided by spouses.

The final aspect worth discussing is sleeping pill consumption among the participants. We found that the students who never or rarely consumed sedative agents had higher QoL scores than those who abused these substances. This finding was consistent for all domains except the social relationship dimension. With tremendous amounts of stress, it is no surprise that pharmacy students are vulnerable to mental disorders, including those associated with resting habits (Kyle, Morgan and Espie 2010). Many studies have reported that insomnia negatively affects the QoL of students (Lee et al. 2009; Stein et al. 2008). These students therefore use sleeping pills (Walsh et al. 2007) as acute relievers to compensate for sleep debt. However, these drugs do not have a positive effect on students' QoL in the long term (Zammit 1999). This argument agrees with the findings derived from a survey involving 2,822 individuals (Sasai et al. 2010). The authors concluded that individuals who abuse sleeping pills exhibit a decrease in QoL, especially physical health. A limitation of this study was that it did not consider the possibility that students experiencing sleeping difficulties avoid the use of sleeping pills. Further, this study might not be sufficiently objective to conclude whether the decline in QoL was primarily due to impair sleep or drug usage. We suggest further analysis of this population in future studies. For instance, researchers could compare two groups: the controlled group consisting of students with sleeping problems, but who do not use sleeping pills, and the group of students with sleeping problems who do use sleeping pills.

University executors, educational researchers, and the government are expected to jointly evaluate the outcomes of

the Comprehensive Reform of Higher Education in Vietnam, 2006–2020 as the implementation of this is initiative reached. The results of this study suggest the need to adjust the syllabi of pharmacy students in Vietnam to relieve them of mental distress. This adjustment could be made by spreading the workload borne by students equally across year levels-a measure that would be expected to produce similar QoL scores for students of every year level. Furthermore, pharmacy students should be provided with the necessary knowledge and tools to cope with pressure and stress during university life. These tools could include psychological therapy or stress-reducing exercises.

LIMITATIONS

Because raw data were collected from universities located only in southern Vietnam, the study population might not be demographically diverse enough to represent the entire population of Vietnamese pharmacy students. Future studies should be conducted in the northern and central regions of Vietnam, both of which have core pharmacy universities in cities such as Ha Noi, Da Nang, and Hue. Further study would benefit Vietnamese society whether the results confirmed this study's findings or not. If the results from a larger population were similar, they would provide a valuable basis for the government to create long-term strategies for education reform. If the results were dissimilar in different regions, they would help to identify other factors influencing students' QoL that were not addressed in this study. This study's sample was also unevenly distributed across year levels, with seniors constituting up to 42.5% of the population. The juniors were the participants of the highest concern, given their low QoL, but the results may have been biased by the uneven sample. Future studies could be conducted on a larger total population size so that students could be sufficiently randomized into groups that would not affect the reliability of the results.

CONCLUSION

The results highlight the target of future strategies. Differences were found among the subgroups of Vietnamese pharmacy students, with juniors exhibiting lower QoL than other students. Educators and pharmacy schools must find appropriate methods to support students in their third year of pharmacy study to strengthen their QoL.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest in this work.

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