ORIGINAL ARTICLE

Quality of life among undergraduate students in Ipoh, Perak: A cross-sectional study using WHOQOL-BREF

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ABSTRACT

Introduction:
Quality of life measures the wellbeing as it emerges to be one of the essential considerations in the healthcare of an individual. Despite the importance, much attention is needed to evaluate the quality of life (QoL) among undergraduate students in Malaysia effectively. Thus, this study aims to assess the quality of life and the factors contributing to poor quality of life among undergraduate students.

Methods:
A cross-sectional study conducted among university students in September 2019. The WHOQOL-BREF was used to assess the quality of life of the respondents. Descriptive statistics and univariate inferential statistics were performed to test the hypothesis of this study. The analysis was performed using IBM SPSS version 25.

Results:
Total of 325 students were selected to participate in this study. The median score of overall QoL score was within the range of 56–63 and there is a significant relationship between the domains studied. There is a significant difference in the median score of domains between the years of education. It was found that senior students were experiencing a better quality of life than the juniors. There is a momentous median difference in social relationship score observed between gender ($p = 0.041$). The proportion of female students experience psychological problems associated with QoL (63.2%) was significantly higher compared to male (51.5%).

Conclusion:
The year of education is the only socio-demographic characteristic found to be significantly associated with the QoL score for all domains. There were also, strong positive relationships observed between the scores of psychological and physical health, as well as between the environment and physical health-related QoL.

Keywords
Quality of life, questionnaire, score, undergraduate, university students.

Introduction

The World Health Organization defines the quality of life (QoL) as individuals' perceptions of their position in life and the value systems in which they live in relation to their goals, expectations, standards and concerns. [1] Young adolescents are motivated to discover and experience life, expand social networks and gain a vast amount of knowledge. The transition from childhood to adulthood brings significant challenges. It is one of the critical stages of an individual's developmental process where the risks of unhealthy behaviours such as substance abuse, premarital sex, anti-social attitudes or lifestyle can drastically affect life quality.

Today, university students are expected to be more competitive to meet the market need and this increases the pressure and leads to the development of psychological problems such as stress, anxiety and depression. [2] With the massive amount of stress that a student has to go through every day in their life, the risk of developing mental health problems is increased. [3-5] A report from WHO indicated that depression emerged as a common global health problem in the 21st century and it is more prevalent among young adults. [6] A systemic review and meta-analysis study demonstrated that the weighted mean prevalence of depression among university students is significantly higher compared to the general population. [7] It is evident that many university students across the world are being diagnosed with a mental health problem. [8-10] A similar Swedish study found that students appeared to have a lower quality of life than that of a young worker of the same age and is associated with academic failure, job difficulties, and diverse social outcomes. [11]

The vision of the Ministry of Health (MoH) of Malaysia is to be a nation with healthy individuals, families and communities, through a healthcare system that is equitable, affordable, efficient, technologically appropriate, environmentally adaptable and consumer-friendly, with emphasis on quality, innovation, health promotion and respect for human dignity and which promotes an individual responsibility and community participation towards an enhanced quality of life. [12] A study among Malaysian university students documented the poor practice of healthy lifestyle. [13] Unhealthy lifestyle behaviours particularly poor dietary intake, high-risk behaviour, physical inactivity and smoking lead to poor quality of life. Furthermore, some studies have recorded that college is a period of high-stress and that quality of life is affected in this social and learning setting. [3-5] Despite the importance of the quality of life issues, it has yet to be thoroughly assessed among students in Malaysia. [13] Thus, this study was conducted to identify student's quality of life and the factors contributing to poor quality of life among undergraduate students.

Methods

Study Period

This research is a cross-sectional survey done in September 2019.

Study design, participants and the collection of data

This research is a cross-sectional survey participated by 325 undergraduate students at Quest International University, Malaysia. Participants of this study were selected through a purposive sampling method. The WHOQOL–BREF self-administered questionnaire was used to measure the quality of life of students in this study.

Questionnaire design

The selection of the questionnaire as a study instrument was acknowledged by other studies which assessed the reliability and validity of the questionnaire in Malaysia. [14-16] This questionnaire consists of 26 items and is predominantly divided into four domains which are physical health, psychological, social relationships and environmental factors. The content in the questionnaire is a combination of both positive and negative questions and is scored using a 5-point Likert scale. The negatively framed items (Q3, Q4, and Q5) were reverse coded into '1=5', '2=4', '3=3', '4=2', and '5=1'. The individual score of the respective domain was calculated and the raw scores were ranged from 4 to 20. Then, the raw scores were converted to transformed scores according to the WHOQOL–BREF scoring guideline, which was varied from 0 to 100. A high domain score denotes a better quality of life. Meanwhile, other variables on the demographic profile of the respondent such as gender, age, race, education level and course, living conditions and marital status were included in the questionnaire.

Inclusion criteria

Students within the age group of 18 to 35 years participated in this study.

Exclusion criteria

Meanwhile, students with disability and suffering from chronic diseases were excluded from this study due to differences in the quality of life.

Ethical committee approval

Ethical approval was obtained from the Institutional Research Board through the Faculty Research and Ethical Committee. Data was kept confidential and recorded as anonymous for analysis purpose.

Data management and statistical analysis

The statistical analysis for this study was performed using the IBM Statistical package for social sciences (SPSS) version 25. [17] Descriptive statistics were performed to summarize the demographic profile of the respondents and demonstrate the distribution of the score for each domain.

Normality of the score was tested by comparing the central tendency, measuring the distribution and by using the Kolmogorov-Smirnov test. The hypothesis of this study was tested using the Pearson Chi-square test or Fisher exact test for the categorical outcome and Man-Whitney U test and Kruskal Walis test for the continuous outcome. Meanwhile, the relationship between the domains was tested using the Spearman correlation test. Participants voluntarily participated in the study and consented through a written informed consent form. The participants' confidentiality was maintained throughout the study.

Results

The demographic characteristics of the participants are shown in Table 1. The majority of undergraduate students were females (n=193, 59.4%) and above 20 years old (n=193, 59.4%). With regards to ethnicity, most of the participants were Indians (n=137, 42.2%) followed by Chinese (n=120, 36.9%), others ethnicity (n=45, 13.8%) and Malays (n=23, 7.1%) respectively. Most of the participants were degree students (n=274, 84%) and are currently pursuing their first year of education (n=114, 35.1%). The medical and non-medical students were almost equally proportionated.

Table 1: Demographic characteristics of undergraduate students (n= 325)

Characteristic	n	(%)
Gender		
Male	132	(40.6)
Female	193	(59.4)
Age (years)		
Less than and equal to 20 years old	117	(36.0)
More than 20 years old	200	(61.5)
Ethnicity		
Chinese	120	(36.9)
Malay	23	(7.1)
Indian	137	(42.2)
Others	45	(13.8)
Current education level		
Diploma	50	(15.4)
Degree	274	(84.3)
Year of education		
Year 1	114	(35.1)
Year 2	91	(28.0)
Year 3	43	(13.2)
Year 4	44	(13.5)
Year 5	32	(9.8)
Faculty of Medicine		
Yes	151	(46.5)
No	174	(53.5)
Living condition		
Living with family	177	(54.5)
Living in hostel	146	(44.9)
Marital status		
Single/Divorced/Widow	319	(98.2)
Married	6	(1.8)

The relationship between the domains of physical health, psychological, social relationships and environment were presented in Table 2. There was a significant relationship observed between the domains. The domain of psychological and physical health was positively correlated r(323)=0.581, p<0.001. As for the correlation between social relationships and physical health, there was a significantly weak relationship observed, r(323)=0.243, p <0.001. Nonetheless, the correlation between social relationships and the psychological domain were weakly correlated, r(323)=0.381, p<0.001. The correlation between environment with physical health and psychological domain were both correlated, they are r(323) = 0.561, p<0.001 and r(323)=0.674, p < 0.001 respectively. There were weak relationships observed between the environment and social relationships, r(323) = 0.292, p<0.001.

Table 2: Relationship between the domains score (n=325)

Domains	Median	IQR	Physical health	Psychological	Social relationship	Environment
Physical health	63	(19)	1	0.581*	0.243*	0.561*
Psychological	63	(19)		1	0.381*	0.674*
Social relationship	56	(25)			1	0.292*
Environment	63	(19)				1

*p<0.001

The graphical demonstrations of the relationship between the domains are as shown in Figure 1.
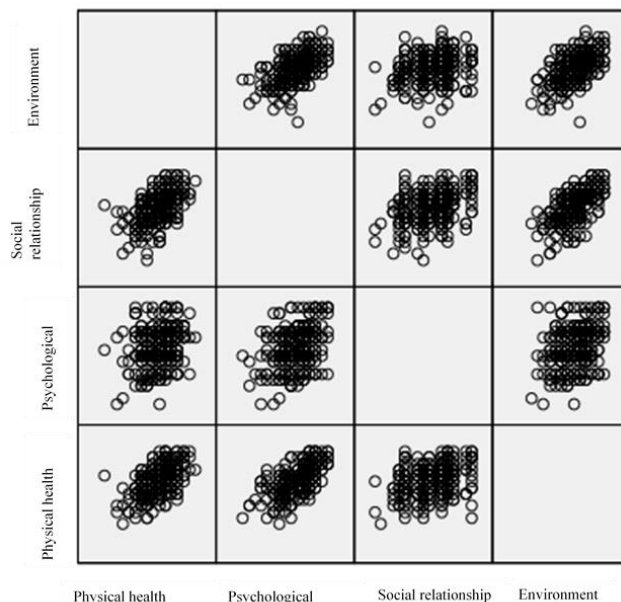

Figure 1: Scatter-plot of correlated domains

Table 3 demonstrates the median differences in physical health score between the socio-demographic characteristics. There was a significant median difference in physical health scores between the year of education, $Z_{(4, n=325)}$ = 15.67, p=0.004. Variables such as gender, age, ethnicity, education

status, faculty, living conditions and marital status were found to be not statistically significant to the median differences of physical health score as their p>0.05.

Table 3: Median difference of physical health score between the socio-demographic characteristics (n=325)

Characteristic	Median	(IQR)	z	(df)	p value
Gender					
Male	63	(24)	-0.221	(323)	0.825[a]
Female	63	(19)			
Age (years)					
20 and below	63	(13)	-0.428	(323)	0.669[a]
Above 20	63	(19)			
Ethnicity					
Chinese	63	(21)	6.805	(3)	0.078[b]
Malay	63	(25)			
Indian	63	(19)			
Others	66	(11)			
Current education level					
Diploma	63	(19)	-0.526	(323)	0.599[a]
Degree	63	(19)			
Year of education					
Year 1	63	(13)	15.666	(4)	0.004[b]
Year 2	63	(25)			
Year 3	60	(25)			
Year 4	69	(25)			
Year 5	69	(12)			
Faculty of Medicine					
Yes	69	(25)	-1.598	(323)	0.110[a]
No	63	(13)			
Living condition					
Living with family	63	(19)	-1.250	(323)	0.211[a]
Living in hostel	63	(19)			

[a] Mann Whitney U test
[b] Kruskal-Wallis H test

There was a significant median of psychological score between socio-demographic characteristics demonstrated in Table 4. There was a momentous median difference observed in the age of the respondents Z (324, n=325) = -2.062 p=0.039, ethnicity Z (3, n=325) = 6.805 p=0.001, and year of education Z (4, n=325) = 21.561 p<0.001).

Table 5 shows the median difference of the social relationship score between the socio-demographic characteristics. There was a significant median difference in the social relationship score observed between genders (p = 0.041). The median score of the females was significantly higher than the males. The year one students had compellingly lower median scores compared to students from the other years. The social relationship score between Faculties was marginally significant (p=0.049). The median social relationship score of students from the Faculty of Medicine was significantly higher compared to the students from other faculties. The result also indicated that there was a significant difference between living conditions and social relationships (p=0.041). Students who were staying in the hostel had a good social relationship compared to those who stay with their family. The variables such as age, ethnicity, current education level, marital status, chronic medical

condition and physical disability had no significant difference in their quality of life in the social relationship aspect.

Table 4: Median difference of psychological score between the socio-demographic characteristics (n=325)

Characteristic	Median	(IQR)	z	(df)	p value
Gender					
Male	59.5	(21)	-1.044	(323)	0.297[a]
Female	69	(13)			
Age (years)					
20 and below	63	(24)	-2.062	(323)	0.039[a]
Above 20	69	(18)			
Ethnicity					
Chinese	56	(25)	15.748	(3)	0.001[b]
Malay	66	(21)			
Indian	69	(19)			
Others	69	(19)			
Current education level					
Diploma	56	(31)	-0.907	(323)	0.364[a]
Degree	63	(16)			
Year of education					
Year 1	63	(19)	21.561	(4)	<0.001[b]
Year 2	56	(19)			
Year 3	63	(19)			
Year 4	69	(16)			
Year 5	69	(18)			
Faculty of Medicine					
Yes	69	(13)	-0.186	(323)	0.852[a]
No	63	(19)			
Living condition					
Living with family	63	(19)	-0.21	(323)	0.834[a]
Living in hostel	63	(15)			

[a] Mann Whitney U test
[b] Kruskal-Wallis H test

Table 6 denotes the median difference of environment score between the socio-demographic characteristics. There was a marginal significant difference between ethnicity and the environment score, Z (3, n=325) = 7.89, p=0.048. The median environmental score of the Malays and Indian was higher compared to other ethnicities indicating a better environmental quality of life. There is also a significant difference between the year of education with their median environmental score, Z (4, n=325) = 28.87, p<0.001. The median (IQR) of Year 5 students was significantly higher compared to the junior years, showing better quality of life in the aspect of the environmental QoL score. On the other hand, the median score of students from the Faculty of Medicine had a significantly higher environmental score compared to other faculty students (p<0.001).

Discussion

The study aimed to evaluate the quality of life among undergraduate students. Results show that the overall quality of life improved as the years of education increased. The result of this study was similar to studies conducted in Malaysia and China. [13, 18]

Table 5: Median difference of social relationship score between the socio-demographic characteristics (n= 325)

Characteristic	Median	(IQR)	z	(df)	p value
Gender					
Male	56	(31)	-2.039	(323)	0.041[a]
Female	69	(25)			
Age (years)					
20 and below	56	(25)	-1.629	(323)	0.103[a]
Above 20	69	(25)			
Ethnicity					
Chinese	56	(25)	6.988	(3)	0.072[b]
Malay	69	(19)			
Indian	69	(25)			
Others	69	(31)			
Current education level					
Diploma	56	(38)	-1.213	(323)	0.225[a]
Degree	69	(25)			
Year of education					
Year 1	56	(38)	18.496	(4)	0.001[b]
Year 2	69	(25)			
Year 3	69	(25)			
Year 4	69	(13)			
Year 5	69	(22)			
Faculty of Medicine					
Yes	69	(25)	-1.965	(323)	0.049[a]
No	56	(25)			
Living condition					
Living with family	56	(25)	-2.046	(323)	0.041[a]
Living in hostel	69	(25)			

aMann-Whitney U test
bKruskal-Wallis H test

Table 6: Median difference of environment score between the socio-demographic characteristics (n= 325)

Characteristic	Median	(IQR)	z	(df)	p value
Gender					
Male	63	(25)	-1.147	(323)	0.284[a]
Female	63	(19)			
Age (years)					
20 and below	63	(25)	1.765	(323)	0.078[a]
Above 20	69	(19)			
Ethnicity					
Chinese	63	(21)	7.890	(3)	0.048[b]
Malay	69	(25)			
Indian	69	(19)			
Others	63	(30)			
Current education level					
Diploma	63	(25)	-1.391	(323)	0.164[a]
Degree	63	(19)			
Year of education					
Year 1	63	(19)	28.870	(4)	<0.001[b]
Year 2	63	(19)			
Year 3	63	(25)			
Year 4	69	(12)			
Year 5	75	(17)			
Faculty of Medicine					
Yes	69	(19)	-3.642	(323)	<0.001[a]
No	63	(25)			
Living condition					
Living with family	63	(19)	-0.311	(323)	0.755[a]
Living in hostel	63	(19)			

aMann-Whitney U test
bKruskal-Wallis H test

Such a scenario could be due to better exposure and familiarity in senior years of students. Students in different years tend to experience different academic workloads and environmental changes which contribute to the difference in the environmental well-being of senior and junior years. [18] Students in the senior years have adapted to their study environment and are familiar with the curriculum of their course and hence have better environmental well-being.

University students understand the importance of maintaining a healthy lifestyle: sleep cycle, activities of daily living and physical workload despite their gender. There is no difference in the overall QoL score between the genders except the quality of life score associated with social relationships, in which QoL among female students is significantly better than male students in this study. This finding is consistent with studies done in Malaysia and China. [13, 18]
It may be attributable to the fact that there is a higher tendency for females to form more profound social connections with others, which gives them satisfaction in their social life and relationships. [19]

Undergraduate students from the Faculty of Medicine were shown to have better environment-related QoL compared to those from other faculties. A study done in New Zealand indicated similar results. Although the Medical course fees are significantly higher than other courses, a job guarantee after graduation potentially contributes as a moderating factor. [20] Similarly, medical graduates in Malaysia are guaranteed a job after completing their medical course which could be a factor that supports this result.

The overall QoL was not associated with the students' living conditions because Malaysia is demographically a small country compared to countries like India, China and America, where students can head back to their hometowns during weekends with various modes of transportation. A study showed that students who live with their family are less likely to experience social anxiety. [21] However, the result of this study indicates that the social related QoL of students living with their parents are poorer than students living in the university hostel.

Conclusion

The collected data in the study had indicated the differences of specific QoL between the socio-demographic characteristics. The study results showed that the year of education was the only socio-demographic characteristic found to be significantly associated with the QoL of all domains. The results also demonstrated that the relationships between psychological and physical health, as well as between environments with physical health were strongly correlated. Further research is required as the cross-sectional study is inadequate to establish a causal relationship affecting the QoL of the undergraduate students. These can be due to incidence bias especially the socio-demographic characteristics. Thus, a study design such as a cohort study is recommended for a continuous assessment. Cohort studies also produce better clarity of temporal sequence, allow calculation of incidence and also allow examination of multiple effects of a single exposure to be carried out. Better analysis can be performed by using multiple ordinal regressions to predict factors affecting QoL.

Limitation and future scope

This research was performed using a non-probability sampling technique. Therefore, generalizing the results to the reference population is questionable. However, to reduce the biases caused by the sampling technique, the sample size was increased by 20%. [22] Another limitation would be the difficulty in interpreting the contributing factors affecting the quality of life.

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Authors' contribution

The design of this study involved all authors. Data curation was done by Shantha Kumar Chandrasekaran. Analysis of data and manuscript drafting involved all authors. The final article was accepted by all authors.

Abbreviations

Quality of life (QoL), sample size (n), interquartile range (IQR), and correlation coefficient (r).

Competing interests

There is no financial, institutional or consultant conflict of interest for any author of this manuscript.

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