



HEALTH RELATED QUALITY OF LIFE AMONG PHARMACY STUDENTS AT THE UNIVERSITY OF SHARJAH

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ABSTRACT

Objective: University students and especially pharmacy students are under a lot of pressure from different sources. Those stressors can affect their quality of life, thus affecting their academic outcomes and their future. The aim of this study is to assess health-related quality of life (HRQoL) of College of Pharmacy students and find out what factors make a difference in these findings. **Methods:** This paper-pencil survey included all students at the college of pharmacy from year one to year five; those who are enrolled in the academic year 2015/2016 who are around 650 students. SF-12v2 English version survey was used to assess five main domains of HRQoL. SPSS was used to tabulate the results. **Results:** About 322 (80.5%) students completed the survey. When asked about their general health about 50.6% of the participants stated excellent or good health. For the five main domains that the SF-12v2 assessed the students more than 50% of the students stated that their physical health did limit their activities, while in emotional capacity, 48% of the participants said that their activities were not affected by emotional problems. In the mental health domain that assessed feeling depressed, 54% of the students stated none of the time. Vitality was about 41% of students felt energetic most of the time. Finally, the social function of 41.9% of the participants was not affected by any physical or emotional problems. **Conclusion:** HRQoL of pharmacy students at the University of Sharjah is mainly positive, only affected by age and marital status as sociodemographic factors. A difference in lifestyle between students in the UAE and elsewhere in the world displays different results. More health related programs that support the students through their study at the college could be adopted to improve students' HRQoL.

KEYWORDS: Health-related quality of life; Pharmacy students; University students; SF-12; UAE.

INTRODUCTION

University; the essential foundation of acquiring knowledge and education, the first step towards building one's career and over all professional future. The years associated with this establishment, the university, can be life altering, stressful and possibly the most important years of anyone's life. Among many majors that are offered by universities around the globe, life sciences degrees are considered the most pressurizing and demanding as they famously require as many as seven or eight more years of difficult schooling, internship, and residency after a bachelor's degree is earned.^[1] Bachelors of Pharmacy is one of those tough life sciences majors so pharmacy students are under definite stress and tremendous work load due to the intensity of the curriculum. The outcome of this continuous pressure impacts their academic achievements and has an effect on their carriers in the future. It is also known that health care is a team based system that is, health care providers are responsible for the patient's care – from

nurses to doctors to community health workers to mental health specialists to pharmacists.^[2] The pharmacists being the medication expert on the team, they play a vital role in the wellbeing of the society.^[3] Pharmaceutical Care services seek to add new dimensions to pharmacy practice, and to re-direct the focus of pharmacists from the product to the individual patient.^[4] It is hence safe to assume that there is a huge demand for fully qualified pharmacists who can reach these demands from their profession. This in turn could put pharmacists under more stress to excel in their work. What has proceeded shows the enormous pressure pharmacist are facing terms of their work and hence have to be prepared for this throughout their university teachings. Quality of Life is a concept that developed throughout the years to become an indicator of living conditions. WHO defines Quality of Life as 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.^[5] It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.^[5] Whether quality of life is good or bad, it is a perspective issue and it expresses the satisfaction of someone's life as a whole or some aspect of it. In order to assess the clinical interventions, research was done to derive ways to measure quality of life. Physical functioning like daily activities, pain, social and emotional problems are all measured to give an objective view of one's strict self-evaluation. To make this possible this survey was divided into several domains. Health Related Quality of Life (HRQOL) mainly assess physical and mental health perceptions (e.g., energy level, mood) and their correlates—including health risks and conditions, functional status, social support, and socioeconomic status.^[6] The Constitution of the World Health Organization (WHO) defines health as "A state of complete physical, mental, and social well-being not merely the absence of disease".^[7] Thus, measurement of health and its effect on quality of life is really important to get to know how university students evaluate their life. In the UAE most QoL studies have focused on patients with specific diseases to assess how their condition affected their HRQoL. Unfortunately, a literature search did not reveal any studies that were done on university students, probably because they are young and the society tends to presume that they are perfectly well, with a presumably high QoL. This presumption can be made based on the fact that UAE has a GDP per capita of around \$49,116 (PPP US\$).^[8] Although there is an increase in the number of pharmacies there is still a shortage of pharmacist to fulfil positions at all types of pharmacies whether community or hospital, private or governmental.^[8] The laws of practicing pharmacy in UAE are all-inclusive, but obeying those rules is not as competent in real life for example the law states that prescription medicines should not be dispensed unless a valid prescription is available but unfortunately antibiotics, asthma medication, insulin and many others are sold over the counter. Pharmacy students who visit these pharmacies for their curricular training observe this phenomenon of registered pharmacists not adhering to laws and regulations and see a stark contrast in what they study and what is being implemented in their profession. There are 6 colleges of Pharmacy in the United Arab Emirates accredited by the Ministry of Higher Education and Scientific Research.^[9] All six of these colleges have fees varying from AED 45,000 (\$12251.7) –AED 60,000 (\$16335.64)^[10-16] per year which can be quite a lot for someone from the middle class. Only certain types of students are eligible for financial aid so pharmacy students have the added pressure of having to perform well in their classes, whilst some cannot afford their education at all. It is safe to assume that such observations affect students' perception of pharmacy education, the profession in general, academic and financial pressure can take a toll on their HRQoL. Hence,

the aim of this study was to assess the factors that might contribute to the HRQoL of pharmacy students at the University of Sharjah (UoS). The authors used HRQoL SF-12v2 survey to have an understanding about the HRoL of Pharmacy students,

Method

Study design and Study population

This cross sectional based study was held at the university of Sharjah, UAE, among pharmacy undergraduate students. During academic year 2015/2016 between December 2015 and March 2016. All first to fifth year pharmacy undergraduate students were the population of the study. According to the university registration office and the college record system, the total number of the students registered in the college of pharmacy during the academic year 2015/2016 was; 150 students (1st year), 120 students (2nd year), 320 students (3rd& 4th year), and 60 students (5th year). Based on the above database of student's registration, the minimum effective sample size was estimated to be 109 students (1st year), 92 students (2nd year), 175 students (3rd& 4th year), and 53 students (5th year) using the online sample size calculator with a confidence interval of 95%, 5% margin of error, and 50% for the expected response distribution.^[17]

A total of 400 questionnaires were distributed in class rooms, dorms, cafeteria, labs and during tutorials. The purpose of this study and questions were explained to the students. The students were selected randomly and assured about anonymity and confidentiality of their response and personal data were guaranteed. The paper and pencil questionnaire took around 3-4 minutes to complete. It was divided to two main sections; demographic information and the HRQoL survey questions, where the later part was divided to seven main questions. Only 322 surveys were returned completed out of 400 distributed questionnaires, giving a response rate of 80.5%. A total of seventy-eight surveys were rejected as the students refused to complete the study for different reasons such as busy schedules, limited time, exams period, and not interested in research.

Questionnaires development

After reviewing several similar articles, it was realised that many HRQOL surveys were used ^[18–20] to decide which survey to use for this study. The authors obtained samples of each available survey, and choose SF-12 for several reasons. First being easy and short to try to obtain high response rate as possible, second being applicable to our sample of students here in UAE so the questions would make sense to students, finally the face validity of the questionnaire to ensure that the results would be reliable and dependable.

To be able to use the SF-12, a license was required from OptumInsight, who provided it after signing a user agreement. HRQoL was measured for the student pharmacists by using the SF-12, version 2.0 (SF-12v2).

(a copy of SF-12v2 in English can be obtained from the corresponding author)

The survey is a shorter version of the SF-36v2® Health Survey that uses just 12 questions to measure functional health and well-being from the student's point of view. The authors also collected data from demographic questionnaires to obtain information on gender, age, level of study, marital and employment status. SF-12 survey questions are Likert response format. Most of them are a five points scale but when asked about general health the scale goes from excellent, to very good, good, fair and poor. Where questions about physical and emotional problems and their effect on social activities plus feeling depressed or energized were asked, the scale was (all of the time, most of the time, some of the time, a little of the time and none of the time). When the effect of pain on the normal work the scale was asked, the scale used was (not at all, a little bit, Moderately, quit a bit, and extremely). There was only one question with 3 points scale and it was for the question whether health limits the activity during a typical day; the scale was (yes limited a lot, yes limited a little or no not limited at all).

DATA ANALYSIS

The participants' responses were encoded, and the data were analysed using Statistical Package for the Social Sciences (SPSS, version 20.0, Chicago, IL, US). Descriptive analysis was used to calculate the proportion of each group of respondents with each statement in the questionnaire. Chi-Square test was used to ascertain the association between the dependent variables (responses for questions addressing understanding and attitudes towards epilepsy). The level $p < 0.05$ was considered as the cut-off value for significance.

RESULTS

A total of 400 questionnaires were distributed over the study period of four months. Only 322 surveys were returned completed and included in the study, giving a response rate of 80.5%. Among the 322 students participated in this study, the majority were females 274 (85.1%), single (312; 96.9%), not being involved in any type of work during the study period (298; 92.5%), and at age group of less than 20 years (201; 62.4%). Sociodemographic Characteristics of Pharmacy Students Participating in a Survey to Assess Quality of Life are presented in Table 1.

General health, Physical functioning, and Bodily Pain Domains of SF-12

When the participants were asked about their general health, almost half of the respondents reported that their health was either excellent or very good (163; 50.6%) while, other half (158; 49.1%) they still believed that their health is either good or fair.

Despite the fact that 227 (70.5%) of participants agreed that their health is not limited at all by moderate activities such as moving a table, using a vacuum cleaner, bowling or palsy golf. About 148 (46.0%) of respondents reported that their health either "limited a lot" or "limited a little" in climbing several flights of stairs. Interestingly, when the respondents were asked about pain and its effect on their performance with normal work, 72 (22.4%) of respondents reported "moderately", and 54 (16.7%) reported either quite a bit or extremely (Table 2).

Table 1: Sociodemographic Characteristics of Pharmacy Students Participating in a Survey to Assess Quality of Life (n=322)

Sociodemographic Characteristics	n (%) (322)
Gender:	48 (14.9)
Male	274
Female	(85.1)
Age:	201
20-25 year	(62.4)
< 20 years	121
>20 years	(37.6)
Marital Status:	312
Single	(96.9)
Married	9 (2.8)
Separated/divorced	1 (0.3)
Employment status:	5 (1.6)
Working	6 (1.9)
Temporarily work	13 (4.0)
Looking for a work	298
Not working	(92.5)
Levels of study:	76 (23.6)
1 st year	13 (4.0)
2 nd year	138
3 rd year	(42.9)
4 th year	57 (17.7)
5 th year	38 (11.8)

Table 2: Frequency of students' responses on physical functioning and bodily pain domains of SF-12 Survey (n=322)

Health Domain Scales	Yes, limited a lot n (%)	Yes, limited a little n (%)	No, not limited at all n (%)	95% CI for No, not limited at all responses
Physical functioning:				
-Does your health now limit you in moderate activities such as moving a table, pursuing a vacuum cleaner, bowling or palsy golf.	26 (8.1)	69 (21.4)	227 (70.5)	(65.5-75.4)
- Does your health now limit you in climbing	26 (8.1)	122 (37.9)	174 (54.0)	(48.6-59.5)

several flights of stairs				
Health Domain Scales	Either a little bit or not at all n (%)	Moderately n (%)	Either quite a bit or extremely n (%)	95% CI for a little bit or not at all responses
Bodily Pain: -How much did pain affect your normal work?	196 (60.9)	72 (22.4)	54 (16.7)	(12.7-20.8)

Role Physical, Role Emotional, Mental Health, Vitality, and Social Function Domains of SF-12

When the participants were asked about their physical health and how much of the time they faced problems in completing work less than they would like, more than half 163 (50.6%) of respondents reported “either a little or none of the time”. Almost the same response rate was obtained when they were asked “as result of your physical health, how much of the time have you had limited in the type of work or other activities?”, “as a result of any emotional problems, how much of the time have you had accomplished less than you would like?”, and “as a result of any emotional problems, how much of the time have work or other activities less carefully than usual?” (Table 3).

Despite the fact that 57 (17.7%) of the students included in the study felt downhearted and depressed either all or most the time, around half of participants reported that they felt calm and peaceful (153; 47.5%) and felt a lot of energy (132; 41.0%) either all or most the time. Furthermore, 135 (41.9%) of respondents selected “either a little or none of the time” option when they were asked “how much of the time has your physical health or emotional problems affected your social activities?”. Table 3 summarizes students’ responses on physical Role Physical, Role Emotional, Mental Health, Vitality, and Social Function Domains of SF-12 Survey.

Table 3: Students’ Responses on Role Physical, Role Emotional, Mental Health, Vitality, and Social Function Domains of SF-12 Survey (n=322)

SF-12 Domains	Either all or most of the time n (%)	Some of the time n (%)	Either a little or none of the time n (%)	95% CI for No, not limited at all responses
Role Physical: -As a result of your physical health, how much of the time have you had accomplished less than you would like?	49 (15.2)	110 (34.2)	163 (50.6)	(45.2-56.1)
-As a result of your physical health, how much of the time have you had limited in the type of work or other activities?	45 (14.0)	105 (32.6)	172 (53.4)	(48.0-58.4)
Role Emotional: -As a result of any emotional problems, how much of the time have you had accomplished less than you would like?	72 (22.3)	103 (32.0)	147 (45.7)	(40.2-51.1)
As a result of any emotional problems, how much of the time have work or other activities less carefully than usual?	44 (13.7)	121 (37.6)	157 (48.7)	(43.3-54.2)
Mental Health: -How much of the time you have felt calm and peaceful?	153 (47.5)	125 (38.8)	44 (13.7)	(9.9-17.4)
-How much of the time you have felt downhearted and depressed?	57 (17.7)	91 (28.3)	174 (54.0)	(48.6-59.5)
Vitality: -How much of the time you have felt a lot of energy?	132 (41.0)	119 (37.0)	71 (22.0)	(17.5-26.5)
Social Function: -How much of the time has your physical health or emotional problems affected your social activities:	77 (23.9)	110 (34.2)	135 (41.9)	(36.6-47.3)

The relationship between socio-demographic characteristics of participants and SF-12 questionnaire item related to general health

The relationship between socio-demographic characteristics of participants and SF-12 questionnaire

item related to general health is summarized in Table 4. Of 48 males and 274 female students included in the study, more than half (140, 51.1%) of female and (25 (52.1%) of male participants reported that their health was either “excellent or very good” and “good or fair)

respectively ($p=0.84$). There was good evidence that both of age and marital status of the respondents were significantly associated with their view on their general health. Of 201 students from the age group of less than 20 years old and 121 students at the age group of 20 years or more, 58.7% of participants at the age group of less than 20 years old compared to 37.2% of participants at the age group of more than 20 years old believed that their health was either excellent or very good ($P<0.001$). Respondents at the age group of less than 20 years old are almost 1.5 times as likely to select either excellent or very good status of their general health. The relationship between participants age and participant's marital status was significant at <0.001 and 0.01 respectively. Table 4 summarizes the relationship between socio-demographic characteristics of participants and SF-12 questionnaire item related to general health.

Relationship between socio-demographic characteristics and students' responses on role physical, role emotional, mental health, vitality, and social function domains of SF-12 survey

Interestingly, significant associations were discovered between gender of the respondents and statements/questions such as, whether their health (physical functioning) limited them in climbing several flights of stairs ($p=0.05$), whether their physical health (role physical) and emotional problems (role emotional) were not helping to achieve or to accomplish as they would like ($p=0.036$) and ($p=0.012$) respectively, and whether the respondents were optimistic and felt a lot of

energy (vitality) most of the time during the study period ($p=0.001$). Age of respondents was significantly associated with the questions on role physical "as a result of your physical health, how much of the time have you had accomplished less than you would like?" ($p=0.004$), "as a result of your physical health, how much of the time have you had limited in the type of work or other activities?" ($p=0.019$). Age was also significantly associated ($p=0.49$) and ($p=0.012$) with questions on social function "how much of the time has your physical health or emotional problems affected your social activities?" and bodily pain "how much did pain affect your normal work" respectively. Marital status of the participants was significantly associated with questions on physical functioning "climbing several flights of stairs" ($p=0.029$), on role physical "accomplished less than you would like" ($p<0.001$), on role emotional "accomplished less than you would like" ($p=0.007$), on social functioning "frequency that health problems interceded with social activities" ($p=0.05$), and on mental health "felt calm and peaceful" ($p=0.016$). A p-value of <0.001 , <0.001 , 0.013 , <0.001 , and 0.041 further justified that levels of study of respondents was significantly associated with the question on physical functioning "climbing several flights of stairs", on role physical "accomplished less than you would like", on role physical "limited in the type work or other activities", on social functioning "frequency that health problems interceded with social activities", and on mental health "felt downhearted and depressed" respectively.

Table 4: The relationship between socio-demographic characteristics of participants and SF-12 questionnaire item related to general health

Items: General Health	Either excellent or very good n (%)	Either good or fair n (%)	Poor n (%)	Total (322) n (%)	P-Value χ^2
Gender:					
Male	23 (47.9)	25 (52.1)	0 (0.0)	48 (14.9)	
Female	140 (51.1)	133 (48.5)	1 (0.4)	274 (85.1)	
Age:					
<20years	118 (58.7)	82 (40.8)	1 (0.5)	201 (62.4)	
≥20 years	45 (37.2)	76 (62.8)	0 (0.0)	121 (37.6)	0.84
Marital status:					
Single	162 (51.9)	149 (47.8)	1 (0.3)	312 (96.9)	<0.001
Married	0 (0.0)	9 (100.0)	0 (0.0)	9 (2.8)	0.01
Separated/Divorced	1 (100.0)	0 (0.0)	0 (0.0)	1 (0.3)	0.73
Employment status:					
Working	3 (60.0)	2 (40.0)	0 (0.0)	5 (1.6)	
Temporarily working	5 (83.3)	1 (16.7)	0 (0.0)	6 (1.9)	
Looking for a work	5 (38.5)	8 (61.5)	0 (0.0)	13 (4.0)	
Not working	150 (50.3)	147 (49.3)	1 (0.3)	298 (92.5)	0.17
Levels of Study:					
First year	49 (64.5)	26 (34.2)	1 (1.30)	76 (23.6)	
Second year	6 (46.2)	7 (53.8)	0 (0.0)	13 (4.0)	
Third year	64 (46.4)	74 (53.6)	0 (0.0)	138 (42.9)	

Fourth year	26(45.6)	31 (54.4)	0 (0.0)	57 (17.7)	
Fifth year	18 (47.4)	20 (52.6)	0 (0.0)	38 (11.8)	

DISCUSSION

As one of the attraction to students, pharmacy colleges should always aim to help students excel in their field, and to do so a healthy learning atmosphere should be maintained because the more interesting programs and the more satisfaction of students with their university life the better the outcomes are expected to be not only on the students themselves but also will extend to the society where those students will be working in the future spreading their experience. On the other hand, a continuous assessment should be conducted to estimate and fix problems that could affect the learning process as well as overall health of the students. This arises the importance of solving any problems that has to do with pharmacist education and the years they spend in the university. An important tool is to investigate the HRQoL of pharmacy students as it could evidently impact their academic achievements.

In this study HRQoL is assessed using SF-12 which covers several domains including general health, physical functioning and bodily pain domains plus emotional, mental vitality and social function domains. This study revealed that university of Sharjah pharmacy students have a generally good to excellent quality of life and this finding is concomitant with other studies in other countries^[18] while they conflicted other studies.^[19] It is not very surprising to see these positive results in HRQoL in UOS students, taking into consideration the positive living conditions in UAE plus the availability of affordable health care facilities. One important factor here is the presence of University Hospital Sharjah (USH) which is adjacent to the medical campus gives easy access to students in time of need. The university campus itself consists of beautiful and well maintained infrastructure with state of the art facilities available for students. All those explanations are possible but they can't be presumed as solid conclusions until further investigations are conducted as a lot of factors like the location of the university, fees and teaching style and others could contribute to those findings. A look at the sociodemographic characteristics displays that only age and marital status had a significant effect on the perception of general health of the population, where students who were below 20 years of age showed a 58.7% excellent or very good general health while only 37.2% of participants above 20 years of age.

Being under 20 years of age means the student is probably a freshman where the stress and course load is minimal since the study plan at the college in first year mainly focuses on general topics like chemistry, medical terminology, and biology. Also, when the students get older as above 20 they proceed through the years and the curriculum starts to get more condensed as specialised courses and labs are required of the students, such as Pharmaceutics, Medicinal Chemistry, Pharmacology, and

clinical pharmacy. This indicates a similarity in other studies where medical degree students showed a decline in certain domains of health status in comparison to students from other fields.^[20] These courses being highly scientific and detail they require a lot of attention in classes as well as mandatory attendance of lab, an increase in the number of hours spent studying.

One might assume that freshmen students would be considerably more stressed and have a negative QoL considering they are in a new environment and adapting takes time, in comparison to year 4 or 5 students who have more experience and have become conditioned to university life. It is interesting that our research displays the exact opposite results of this finding. Further research into the quality of life in UAE in correlation to which year of study the students are in may display more informative results.

Interestingly, marital status displayed that 96% of the participants were single, and 51.9% of them stated having excellent or very good general health which is a probable result as most students at this age would prefer to focus on their academics and social life rather than settling down. Gender wasn't a significant factor in our study, while other studies found that male students stated a higher QoL.^[20,21] Results from our study showed a link between gender of participants and the role physical domain, where female students showed a higher likelihood of limited physical functioning for moderate activities compared to male students and these findings are similar to other studies that also revealed a higher score for males than female in physical health domains.^[18–20]

Point to note is that due to the general nature of questions that were used in the survey and the exploratory nature of the study it is hard to pinpoint the factors that would affect university students HRQoL. However, if more HRQoL studies were conducted on all pharmacy colleges around the UAE, and taking the findings from this study and several others into consideration, a more precise questionnaire was developed, better results may be anticipated.

The difference in results between this study and literature review studies could be due to a variety of factors like country of residence, lifestyle, culture (several studies took alcohol consumption into consideration but it was omitted from this study), living expenses (many students live on their own and pay rent whereas only 5 (1.6%) of the students in UOS college of pharmacy work. It is an incredibly huge difference between lifestyle of students here in comparison to the hurdles students in other countries have to face). These factors also give an indication of why our results indicated better HRQoL for students in UAE.

CONCLUSION

HRQoL is really good among university students as the study revealed, but a lot of factors could pose an important effect on it and decrease it. Being a pharmacy student (medical field) alone is a stressor, adding to it other components that could affect the physical, emotional, and social life of the students. More studies should be done on general United Arab Emirates population and then other universities that offer pharmacy programs to be able to determine exactly what are the factors that decrease the HRQoL among pharmacy students and then putting a well-designed plan to improve the points that affect the students on all aspects to help them achieve their potentials and have a promising career in the future. Stream lining and more inquisitive questions should be added to the questionnaire to better gauge the factors that influence results.

Conflict of interest

No conflict of interest to disclose.

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