HEALTH-RELATED QUALITY OF LIFE AMONG DENTAL STUDENTS OF A PRIVATE INSTITUTE

Khaula Gul[1], Ahsan Sethi[2], Zainab Akbar[3], Madiha Riasat[4], Maryam Mastoor[5], Shaista Noor Qureshi[6]

[1]Department of Periodontology,Rehman college of Dentistry, Peshawar, Pakistan

[2]Institute of Health Professions Education and Research, Khyber Medical University, Peshawar, Pakistan

[3]Department of Oral Medicine,Rehman college of Dentistry, Peshawar, Pakistan

[4]Department of Periodontology,KMU-Institute of Dental Sciences, Kohat, Pakistan

[5]Biochemistry deoartment,University of Lahore, Lahore, Pakistan

[6]Department of Biochemistry, Quetta Institute of Medical Sciences, Quetta, Pakistan

ABSTRACT

Objective: *To assess health-related Quality of Life and its relation to mental health problems and socio-demographics of undergraduate students studying in a private dental college.*

Materials and Methods: *Data was obtained using a cross sectional study (prevalence survey) involving 170 students studying in a private dental college. Study used the Short-Form Health Survey (SF-36) and the Beck Depression Inventory (BDI) to determine the self-perceived health aspects and depressive symptoms. Analysis was performed correlating the health scores with the age, gender, year of study, household income, type of accommodation and depression symptoms using SPSS 22. For statistical analysis, interpretation of variance (ANOVA), Pearson correlation and Chi-squared Tests were used.*

Results: *Age of students ranged between 18 and 24 years. Out of the 170 students, 41.8% were males and 58.2% were females. 50.6% of the subjects had depression (BDI score>9). Mean HRQoL was higher in males(63.04) as compared to females(53.42). Second year students showed significantly lower scores in role limitations caused by emotional problems(RE)(p=0.015), vitality(VT) (p=0.045), general mental health(MH)(p=0.004), Social Functioning(SF)(p=0.008) as well as in the mean Mental Health Summary(MHS)(p=0.001) and total mean HRQoL(0.014).*

Conclusion: *The Health-related Quality of Life(HRQoL) survey results indicate that the presence of depressive symptoms have negative effect on the overall HRQoL scores. Moreover, females and the second-year students have poorer HRQoL scores as compared to their counterparts.*

Keywords: *Dental Students, Quality Of Life, Short-Form Health Survey (SF-36), Depression, Stress*

INTRODUCTION

Dental students face enormous amount of stress and depression during their educational journey. Dental curriculum and assessments, tough schedule and prolonged chair-side timings in wards and classes, parent, peer and teachers' pressure are all incriminated as causes of stress.[1] Quality of life of students is affected to an extent that it results in constant failures or even suicidal tendency in others.[2] Quality of life is defined by the World Health Organization (WHO) as, "the individual's perception of his position in life, within the context of culture and system of values wherein the individual lives and in relation to his objectives, expectations, standards and concerns".[3] Various studies were carried out in the past too on quality of life, but the center of focus were only medical students. Globally as well as in

Correspondence:
Dr. Madiha Riasat
Assistant Professor, Department of Periodontology,
KMU-Institute of Dental Sciences, Kohat, Pakistan
Email: drmadiha.riasat@gmail.com
Contact: +923469202398

Pakistan, quality of life studies were conducted. Results of these studies showed that medical and dental students undergo major depressive episodes and psychological and emotional collapse as compared to people of their age, thus causing difficulty in performing optimally in studies due to learning problems.[4–6] This mental stress is implicated as a major inhibitor in achieving academic excellence and provide benchmark quality of care to patients as well. Worldwide, medical universities and educational councils have unanimously agreed that students' health has direct correlation with quality improvement of medical and dental education as well as healthcare services[6,7] We conducted this study to assess the health related quality of life of Pakistani dental students of private institution and whether the variables recorded were influencing their health quality or not. Our aim was to unveil students' perception about their health related quality of life, so that it may be improved which may further enable students to achieve their full potential and provide quality care to patients.[1,3,8]

MATERIALS AND METHODS

A Cross sectional study was conducted at Rehman College of Dentistry. Data collection and analysis was done after an approval from the ethical committee of the institution. All the undergraduate students studying in the four years of Bachelors of Dental Surgery (BDS) program were asked to fill health related questionnaires online. Purposive sampling was done. Consent was taken from all participants. Students who did not respond in time were reinforced through class teachers to record their responses. Students not responding again were excluded from the study. Already validated Short Form Health survey (SF-36)(9,10) along with Beck Depression Inventory (BDI)(11,12) were used as a tool to evaluate health related quality of life (HRQoL) and depression respectively. The SF-36 is used for measuring HRQoL which cover eight domains of Qol, i.e. "physical functioning(PF), role limitations caused by physical problems(RF), role limitations caused by emotional problems(RE), bodily pain(BP), general mental health(MH), vitality(VT), social functioning(SF), and general health perceptions(GH). Scores were coded and transformed into values ranging from 0 (worst QoL) to 100 (best QoL), as described in the RAND Health 36-Item Short Form Survey (SF-36) (13). Four physical health composites were aggregated to calculate a mean of Physical Composite Summary(PCS), and mental dimensions were combined for an average Mental Health Summary(MHS) score. A total mean of all components was used to calculate a generalized Health Quality score. The existence of depressive symptoms was evaluated through BDI, which is a tool commonly utilized in research to study depression amongst medical students. Twenty-one items in the questionnaire are each scored on a scale of minimum of zero and maximum of three. Several cut-off scores have been anticipated for recognizing the depressive symptoms, amongst which many studies with university students use a threshold of scores > 9 to mark students suffering from depression. This value has acceptable rates of sensitivity (73.0–100%) and specificity (84.4–86.0%). By detecting these individuals, we could also assess the HRQoL of medical students independently of depression scales. Comparisons were performed according to class of study, presence of depressive symptoms, gender, living accommodation during course of study and association with family income. All data analyses were carried out by the SPSS Program v 22.0 using descriptive summary statistics for the socio-demographic and academic characteristics and SF-36 scores; parametric (t-test) and non-parametric statistic tests (Chi squared test) to determine socio-demographic were not normally distributed. Better perception of HRQoL is defined as a higher score of the Physical Component Summary, Mental Component Summary and total SF-36 score. A p value of ≤ 0.05 was taken as statistically significant.

RESULTS

Cronbach's Alpha for all 36 items for HRQoL came out to be 0.874 which makes them reliable. Mean age of the students was 20.76 21.07±1.57 years, out of which 41.8% were males and 58.2% were females. 10(5.9%) students belonged to low socioeconomic group, 60(35.3%) to middle group, whereas 100(58.8%) belonged to a high socioeconomic group. 24.1% studied in 1st year, 22.9% in 2nd year, 30.0% in 3rd year and 22.9% were in 4th year of dental college. Moreover, 68.8% of the students were day scholars and 31.2% resided in hostel during their study. Beck Depression Inventory questionnaire calculated an average of 12.24±8.87 as mean BDI score, with 72.4% of the students having none to mild mood disturbances, i.e. no signs of clinical depression. The

SF-36 scores showed generalized better mean health scores individually in the Physical Components (PF= 68.97±26.75, RL=45.29±39.22, BP=66.38±23.26 and GH=59.29±17.75) as compared to Mental Health Components (RL=41.57±41.47 VT=52.88±19.04 , MH=56.07±17.81, SF=63.46±22.56). Similarly, the composite mean scores of PCS(61.38±18.22) were better than mean MHS(53.49±19.28).

The gender-wise scores and means of different variables is presented in Table 1, and show an lesser mean score($p<0.05$) for females compared to males in all components of SF-36,except Physical Functioning($p>0.05$-hence non-significant).

An year-wise data was analysed using ANOVA(-multiple groups) and results are shown in Table 2 below:

When the means were compared, it showed that the PCS(57.53) and MHS(44.06) in 2nd year students was lower as compared to the first, third and fourth year students(Fig,1).

Analysis of variance test(ANOVA) F-statistics showed that there was significant difference between the groups yearwise on the mean of variables(RE-p=0.015, VT p=0.045, MH-p=0.004 , SF-p=0.008), mean Mental Health Summary(MHS) scores(p=0.001) and Aggregated HRQoL(0.014).

Socioeconomic status was also observed to have an effect on presence of depression, as results indicate that 90% of students amongst the low socioeconomic status showed presence of depression (BDI score>9), as compared to 31.7% in middle socioeconomic group and 58% in high socioeconomic group.

When the two component summaries of HRQoL were analyzed, the Pearson's correlation showed a positive moderate correlation between mean score of MHS and PCS ($r=0.423$, $p<0.001$), showing that increase of mental health dimension is associated with an increase of physical health dimension and vice versa.

DISCUSSION

The response rate in this study was eighty five percent(85%) which was more than previous studies conducted on the same topic.[12] The mean age was 20.5 years which is almost the same as previous studies.[14] Males and females were 41.8 % and 58.2 % respectively. Regarding participation of students yearwise, there was almost equal representation of all the years and the results of one particular year students can therefore be generalized to the students of their respective year.[15]

Majority of the students were of high socioeconomic status (58.8%) as compared to 35.3 % and 5.9% belonging to middle and low socioeconomic groups but no significant correlation was observed between socio-economic status and HRQoL. Likewise, residence and smoking status did not have any marked effect on depression and HRQoL, in

Table 1: The means and significance of all domains,Physical Components Summary, Mental Health Summary and total aggregated score of SF-36 in male and female subjects

Components of HRQol	Mean Scores		
	Male	Female	p
Physical functioning(PF)	67.25	70.20	0.480
Role Limitations due to Physical Problems(RL)	54.23	38.89	0.012
Role Limitations due to Emotional Problems(RE)	53.52	33.00	0.001
Energy/Fatigue(VT)	57.54	49.55	0.007
Emotional Health(MH)	59.27	53.78	0.047
Social Functioning(SF)	68.13	60.10	0.022
Bodily Pain(BP)	72.92	61.69	0.002
General Health Perception(GH)	65.63	54.75	<0.001
Physical Component Summary(PCS)	66.46	57.74	0.002
Mental Health Summary (MHS)	59.61	49.11	<0.001
Aggregated Health-related Quality of Life(HRQoL)	63.04	53.42	<0.001

Table 2: ANOVA (Multiple groups) according to Year of Study

ANOVA					
		df	**Mean Square**	**F**	**P Value**
Physical Function Mean Score	Between Groups	3	689.166	0.963	0.412
	Within Groups	166	715.827		
	Total	169			
Mean Score of Role Limitations due to physical problems	Between Groups	3	1598.658	1.040	0.376
	Within Groups	166	1537.285		
	Total	169			
Mean of Role Limitations of Emotional Problems	Between Groups	3	5928.057	3.606	0.015
	Within Groups	166	1644.028		
	Total	169			
Mean VT Score Vitality and Energy	Between Groups	3	964.542	2.742	0.045
	Within Groups	166	351.771		
	Total	169			
Mean MH Score General Mental Health	Between Groups	3	1364.949	4.578	0.004
	Within Groups	166	298.122		
	Total	169			
Mean Social Functioning scores	Between Groups	3	1958.711	4.061	0.008
	Within Groups	166	482.303		
	Total	169			
Mean Score of Bodily Pain	Between Groups	3	496.183	.915	0.435
	Within Groups	166	542.013		
	Total	169			
Mean of General physical health	Between Groups	3	419.427	1.339	0.264
	Within Groups	166	313.295		
	Total	169			
Mean Physical Health Aggregate Scores	Between Groups	3	251.495	.754	0.521
	Within Groups	166	333.511		
	Total	169			
Mean Mental Health Aggregate Score	Between Groups	3	2000.633	5.844	0.001
	Within Groups	166	342.341		
	Total	169			
Aggregated Mean HRQoL scores	Between Groups	3	873.570	3.654	0.014
	Within Groups	166	239.062		
		169			

*One way ANOVA

comparison to previous studies, which showed that day scholars appear more stressed than the hostilities.

According to BDI scores, depression was present in 50.8%(BDI>9) students whereas 49.4% showed complete absence of depression. Only 3.5 percent students had severe depression. This finding is not in agreement to findings in other studies, i.e. in USA 21.2% students were reported with severe depression.[16]

Regarding health related Qol, we further divided it into two general subtypes, Physical component Summary (PCS) and Mental component summary (MCS), each further distributed into four components. Overall males showed higher health scores as compared to females. Whereas in terms of mental health again 11.1 versus 21.1 % of the

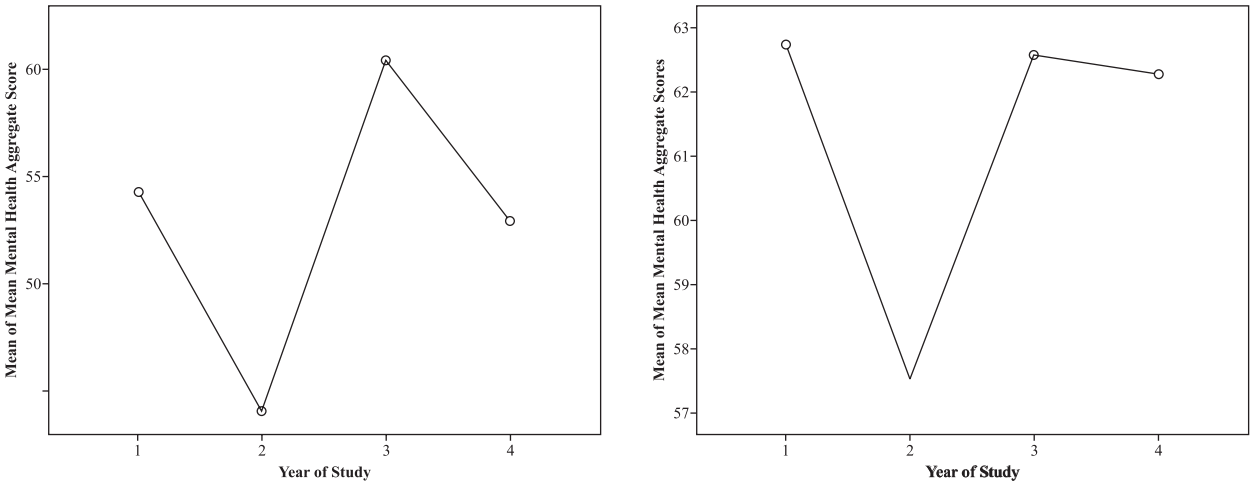

Fig 1: Mean of Mental and Physical Health Aggregate Scores according to year of study

males showed >75% health scores. This is in accordance with the study conducted in Brazil and also at Shifa Tamer e Millat university in Pakistan that females lag behind in physical and mental health.[3,14] This may be due to females being more emotional and sensitive to pressure suffer more from stress. Regarding physical functioning(PF); social functioning(SF); mental Health(MH) categories, there was no significant difference between the two. This finding is not constituent with other studies in which social relationships domain results were higher as researchers have accredited it to the better ability of women in dealing with different relationships while physical functioning is impaired in females in other researches as well.[14] Regarding role limitations caused by physical problems(RP); bodily pain(BP); general health perceptions(GH); vitality(VT); role limitations caused by emotional problems(RE) categories, females have poor scores as compared to males without significant difference in BDI. There is multidimensional impairment in HRQoL of female students which is a matter of concern for authorities. It may be attributed to stress taking nature of females and consequent effect on their performance in all the fields of life .All the available literature supports this finding that females get trapped into the vicious cycle of stress and depression more as compared to males.[17,18]

This study demonstrates higher level of stress in first and second year students as compared to others like some of the previous studies. Dahlin M et al. demonstrated higher levels of stress in first year students too.[19] Difficulty in acclimatization of the students in the new environment ,transition from college to medical college, increase load of studies and competitive environment of the college, all contribute to the increased stress in beginners .Previous studies have reported greatest stress in either final year students due to increase in clinical load ,studies becoming more difficult and fear to prove oneself amongst peers.[12]

Significant differences were found in eight SF-36 domains according to study year. Most deranged readings and poor scores of physical component summary, bodily pain, role limitation caused by emotional problems, mental health, social functioning were observed for second year as compared to senior classes. Physical functioning, role limitation caused by physical problems, vitality, general health perception, physical components summary and mean HRQoL cores are not significant regarding the year of training. This finding supports previous literature in which students of beginning years of medical school are highly affected heath wise[3,12] but surprisingly the first year in this study shows normal values for almost all the domains but second year is adversely affected(PCS mean=17.9). Lack of confidence to be a successful dental student and dentist, appearing in first year supplement exams during the ongoing second year study session can be a contributing factor in second year students.[20]

PCS versus mean HRQoL shows that 59.1 % of the students having excellent physical ability scores have excellent HRQoL aggregate score as well. Similarly, MCS versus Mean HRQoL also suggests that

students (53.8 %) having excellent MCS also have excellent aggregated HRQoL as well. MHS versus PCS scores. 72.8 % of the students with greater than fifty MHS score have greater PCS score of >50 as well. It means that mental health is directly proportional to physical health. Whereas a study done by Taft et all suggested that the relationship is reciprocal and good physical health stipulates poor mental health and vice versa.[21]

Greatest strength of this study is that it provides a comprehensive overview of depression and health related quality of life of dental students and its relationship with training year, age, gender, monthly income of guardians and accommodation of student. Limitation of the study includes not taking into account the difference in curriculum-related variables like curricular variations between the years of study and implementation strategies and techniques, which have a profound effect on health of dental students. This research can pave way for future researches in dental education to serve as foundation for identifying more variables that may impairing health of dental students within the educational environment.

CONCLUSIONS

The presence of depressive symptoms has an adverse effect on the overall HRQoL scores. It is thus suggested that the institution's learning environment should not only focus on academics alone. They should strategically introduce and promote various healthy physical activities along with mentorship/ counselling programs and clinical psychological support to decrease stress and burn out.

REFERENCES

1. Sarwar S, Aleem A, Nadeem MA. Health related quality of life (Hrqol) and its correlation with academic performance of medical students. Pakistan J Med Sci. 2019;35(1):266–70.
2. Tempski P, Bellodi PL, Paro HB, Enns SC, Martins MA, Schraiber LB. What do medical students think about their quality of life? A qualitative study. BMC Med Educ. 2012 Dec;12(1):106.
3. Lins L, Carvalho FM, Menezes MS, Porto-Silva L, Damasceno H. Health-related quality of life of medical students in a Brazilian student loan programme. Perspect Med Educ. 2016 Aug;5(4):197–204.
4. Angkurawaranon C, Jiraporncharoen W, Sachdev A, Wisetborisut A, Jangiam W, Uaphanthasath R. Predictors of quality of life of medical students and a comparison with quality of life of adult health care workers in Thailand. Springerplus. 2016;5(1).
5. Jurkat H, Höfer S, Richter L, Cramer M, Vetter A. Lebensqualität, Stressbewältigung und Gesundheitsförderung bei Studierenden der Human- und Zahnmedizin: Eine Vergleichsuntersuchung. Dtsch Medizinische Wochenschrift. 2011;136(23):1245–50.
6. Vo TQ, Tran DD, Dinh HTT. Health-related quality of life among undergraduate dentistry students in Ho Chi Minh, Vietnam: A cross-sectional WHOQOL-BREF study. J Pharm Pharmacogn Res. 2020;8(3):201–10.
7. Jabeen Khan M, Altaf S, Kausar H. Effect of Perceived Academic Stress on Students' Performance. Vol. 7, FWU Journal of Social Sciences. 2013.
8. Raj SR, Simpson CS, Hopman WM, Singer MA. Health-related quality of life among final-year medical students. Cmaj. 2000;162(4):509–10.
9. Hays RD, Morales LS, Hays RD, Morales LS. The RAND-36 measure of health-related quality of life The RAND-36 measure of health-related quality of life. Ann Med. 2016;3890(June):350–7.
10. Lam CLK, Tse EYY, Gandek B, Fong DYT. The SF-36 summary scales were valid, reliable, and equivalent in a Chinese population. J Clin Epidemiol. 2005;58(8):815–22.
11. Roh MS, Jeon HJ, Kim H, Cho HJ, Han SK, Hahm BJ. Factors influencing treatment for depression among medical students: A nationwide sample in South Korea. Med Educ. 2009;43(2):133–9.
12. Paro HBMS, Morales NMO, Silva CHM, Rezende CHA, Pinto RMC, Morales RR, et al. Health-related quality of life of medical students. Med Educ. 2010;44(3):227–35.
13. Hays RD, Morales LS. The RAND-36 measure of health-related quality of life. Ann Med. 2001;33(5):350–7.
14. JPMA - Journal Of Pakistan Medical Association.
15. Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. Int J Med Educ. 2017 May;8:179–86.
16. Ediz B, Ozcakir A, Bilgel N. Depression and anxiety among medical students: Examining scores of the beck depression and anxiety inventory and the depression anxiety and stress scale with student characteristics. Walla P, editor. Cogent Psychol. 2017 Feb;4(1).
17. Habeeb KA. Prevalence of stressors among female medical students, Taibah University. J Taibah Univ Med Sci. 2010 Jan;5(2):110–9.
18. Al Shawi AF, Abdullateef AN, Khedher MA, Rejab MS, Khaleel RN. Assessing stress among medical students in Anbar governorate, Iraq: A cross-sectional study. Pan Afr Med J. 2018;31.
19. Dahlin M, Joneborg N, Runeson B. Stress and depres-

sion among medical students: A cross-sectional study. Med Educ. 2005 Jun;39(6):594–604.

20. Hill MR, Goicochea S, Merlo LJ. In their own words: stressors facing medical students in the millennial generation. Med Educ Online. 2018 Jan;23(1).

21. Taft C, Karlsson J, Sullivan M. Do SF-36 summary component scores accurately summarize subscale scores? Qual Life Res. 2001;10(5):395–404.

22. Aziz Y, Khan AY, Shahid I, Khan MA, Aisha. Quality of life of students of a private medical college. Pakistan J Med Sci. 2020 Jan;36(2):255–9.