

EFFECTS OF PHYSICAL QUALITY OF LIFE ON ACADEMIC PERFORMANCE OF UNDERGRADUATES IN A MEDICAL COLLEGE OF WESTERN RAJASTHAN

Ankit Awasthi¹, Madhurima Maheshwari², Khemlata Tilwani³, Latika Nath Sinha⁴, Siddhi Hathiwala⁵

Received : 13/11/2024
Received in revised form : 03/12/2024
Accepted : 01/01/2025

Keywords:
Quality of life, Academic performance,
Medical Students, Western Rajasthan.

Corresponding Author:
Dr. Latika Nath Sinha,
Email: drlatika@gmail.com

DOI: 10.47009/jamp.2025.7.1.81

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (1); 423-428



¹Associate Professor and Head, Department of Psychiatry, Government Medical College, Pali, Rajasthan, India.

²Associate Professor, Department of Physiology, Government Medical College, Pali, Rajasthan, India.

³Professor and Head, Department of Physiology, Government Medical College, Pali, Rajasthan, India.

⁴Associate Professor, Department of PSM, Government Medical College, Pali, Rajasthan, India.

⁵Research Analyst & Consultant, Public Health Dentistry.

Abstract

Background: The World Health Organization (WHO) defined Quality of Life (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”. The quality of life among medical students is a topic of growing concern, given the intense academic demands and the high levels of stress. Quality of life (QoL) includes physical, psychological, social and environmental factors. This article aimed to explore and compare the quality of life and academic performance among medical students, examining how these two aspects interact and influence each other. The objectives are to assess the status of Quality of Life among the students of GMC Pali and to estimate the effect of Quality of Life factors on academic performance

Materials and Methods: An analytical cross-sectional study was done among 384 students using a semi structured questionnaire incorporating the WHO QoL-BREF questionnaire. Four domains of QoL (physical health, psychological health, social relationships, and environment) and general health satisfaction were surveyed. For Academic performance we used the main university examination result of each respective batch. **Result:** The mean age of the participants was 22 (± 1.615) years. Majority of the students belonged to nuclear family (64.58%) and to urban background (62.76%). Sociodemographic variables did not differ significantly among various domains of quality of life. Students from the senior batch had higher scores on different domains of quality of life. Among these, physical health domain and environmental domains had statistically significant differences. The students with better academic performance, had significantly higher scores of domains of QoL. Positive correlation between most domains of quality of life and academic performance of students was seen and Correlation with social relations domain was significant at 0.05 level, while correlation with environmental domain was highly significant. **Conclusion:** While gender, family type, and urban-rural background did not show significant differences, batch and academic performance emerged as important determinants of QoL. Senior students had significantly better scores in the physical health and environmental domains, while high academic performers showed better QoL outcomes across multiple domains. The positive correlation between academic performance and QoL highlights the need for academic support systems and mental health interventions, for students with lower academic achievements.

INTRODUCTION

The World Health Organization (WHO) defined Quality of Life (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”.^[1]

The quality of life among medical students is a topic of growing concern, given the intense academic demands and the high levels of stress associated with medical education. Quality of life (QoL) is a multidimensional concept that includes physical, psychological, and social well-being, as well as environmental factors. For medical students, maintaining a good QoL is particularly challenging due to the rigorous nature of their studies, long hours, and the emotional toll of clinical training. Research has shown that medical students often experience higher levels of stress, anxiety, and depression compared to their peers in other academic fields, which can negatively impact their overall quality of life.^[2]

The relationship between QoL and academic performance in medical students is complex and bidirectional. On one hand, poor QoL, characterized by chronic stress, sleep deprivation, and physical health issues, can impair cognitive functions, reduce concentration, and hinder academic performance.^[3] On the other hand, academic difficulties and the pressure to excel can further deteriorate a student's QoL, creating a vicious cycle of declining well-being and academic achievement.^[4]

Previous research has suggested a strong correlation between physical health and cognitive function, highlighting the importance of maintaining good physical health for optimal academic outcomes.^[5] Promoting strategies that enhance QoL, such as stress management programs, physical exercise, and social support systems, could potentially improve academic outcomes and reduce the risk of burnout and other mental health issues.^[6]

This article aimed to explore and compare the physical quality of life and academic performance among medical students, examining how these two aspects interact and influence each other. With the help of the responses of medical students and analysis of the existing literature and data, we seek to provide a comprehensive understanding of the ways in which physical well-being can effect academic success in the demanding field of medical education.

Objectives

- To assess the status of Quality of Life among the students of GMC Pali
- To estimate the effect of Quality of Life on academic performance

MATERIALS AND METHODS

Study Design: Analytical cross-sectional study.

Study Setting: The survey was conducted among undergraduate medical students more than 18 years old pursuing the MBBS degree in Government Medical College Pali, Rajasthan.

Study period: 6months

Sample Size: Considering the prevalence rate of adequate Quality of Life to be 50% among medical students, the sample size was determined using

allowable error of 5% of prevalence after the substitution of values, $n = 4pq/d^2$, $p = 50$ (participants with Adequate EI), $q = (100-p) = 50$, $d = \text{relative permissible error} = 5\%$ of p , $n = \text{sample size}$, ($n = 384$). Three hundred and eighty-four undergraduates were interviewed

Sampling Procedure: Purposive sampling

Data Collection and Analysis: For socio-demographic data we used self-administered questionnaire. To assess the quality of life (QoL) of the participants, the short version of the World Health Organization QoL Assessment (WHOQoL BREF) instrument was used (7). WHOQOL BREF consists of 26 items and is grouped into four domains of QoL (physical health, psychological health, social relationships, and environment) and two items which measure the overall QoL and general health satisfaction. For Academic performance we used the main university examination result of each respective batch.

Inclusion Criteria

Students who appeared in main University examination of MBBS Phase I, Phase II and Phase III in 2023 and gave their consent.

Exclusion Criteria

- Students who did not appear in main University examination of the three phases
- Students who did not give their consent to participate
- Any student diagnosed to have psychiatric disorders.

Data Analysis: Data entered in Microsoft Excel was analyzed using SPSS version 20.0 (Armonk, NY: IBM Corp). Qualitative variables were expressed by frequency and proportion and Quantitative variables were expressed using Mean and Standard deviation. Chi square test was used to find the significant association between groups. p value less than 0.05 considered to be statistically significant.

Ethical Considerations: The study was approved by the Institutional Ethical committee approval of Government Medical College, Pali. Written Informed Consent was obtained after explaining the objectives of the study to the participants where they were assured about confidentiality of their information.

RESULTS

Present study was an online (google form based) survey, wherein 400 students from different academic years 2018-2023 batches participated. After removal of incomplete data, responses from 384 participants were included as final data, which had 203 (52.86%) female and 181 (47.14%) male students. A brief socio-demographic profile of the participants has been presented in [Table 1]. The mean age of the participants was 22 (± 1.615) years. Majority of the students belonged to nuclear family (64.58%) and to urban background (62.76%). Most of the students were from Batch 2022 (114, 29.69%)

and Batch 2020 (104, 27.08%). Only few students, 31 (8.07%) from the most senior Batch 2018 participated in the study.

[Table 2] shows sociodemographic variables did not differ significantly among various domains of quality of life. Although, students from senior batch had higher scores of different domains of quality of life. Among these, physical health domain and environmental domains had statistically significant

differences. The students with better academic performance, had significantly higher scores of domains of QoL.

[Table 3] shows positive correlation between most domains of quality of life and academic performance of students. Correlation with social relations domain is significant at 0.05 level, while correlation with environmental domain is significant at 0.01 level.

Table 1: Socio-demographic profile of participants: numbers (percentages). [N=384]

Variables	Male	Female	Total
Gender	181(47.14)	203(52.86)	384(100)
Mean Age	22.02±1.574	22.01±1.663	22.02±1.615
Type of family			
Nuclear	115(29.94)	133(34.63)	248(64.58)
Joint	65(16.92)	66(17.18)	131(34.11)
Background			
Urban	99(25.78)	142(36.97)	241(62.76)
Rural	82(21.35)	57(14.84)	139(36.19)
Batch			
2018	10(5.52)	21(10.34)	31(8.07)
2019	24(13.26)	24(11.82)	48(12.50)
2020	52(28.73)	52(25.62)	104(27.08)
2021	40(22.10)	47(23.15)	87(22.66)
2022	55(30.39)	59(29.06)	114(29.69)

Table 2: Results of Independent t Test and Univariate ANOVA between socio-demographic variables and different domains of quality of life

		Domain 1 Physical Health	Domain 2 Psychological	Domain 3 Social Relations	Domain 4 Environment
Gender	Male	14.42 ±2.18	13.67 ±2.6	13.88 ±3.48	13.92 ±2.28
	Female	14.02 ±2.06	13.2 ±2.49	14.1 ±2.72	13.5 ±2.27
95% Confidence Interval	Lower	-0.026	-0.041	-0.842	-0.04
	Upper	0.828	0.982	0.408	0.874
P Value		0.066	0.071	0.497	0.074
Background	Rural	14.18 ±2.22	13.74 ±2.4	13.87 ±2.75	13.56 ±2.24
	Urban	14.23 ±2.1	13.27 ±2.63	14.1 ±3.31	13.82 ±2.3
95% Confidence Interval	Lower	-0.492	-0.044	-0.87	-0.738
	Upper	0.404	1.026	0.431	0.21
P Value		0.847	0.072	0.506	0.279
Type of Family	Joint	14.06 ±2.16	14.5 ±2.38	13.89 ±2.94	13.65 ±2.06
	Nuclear	14.29 ±2.12	13.39 ±2.67	14.07 ±3.19	13.76 ±2.38
95% Confidence Interval	Lower	-0.678	-0.45	-0.84	-0.59
	Upper	0.229	0.63	0.48	0.37
P Value		0.33	0.736	0.594	0.642
Batch	2018	15.01 ±1.61	13.63 ±1.82	14.75. ±2.75	14.85 ±1.52
	2019	15.07 ±2.086	13.58 ±2.58	14.13 ±2.74	14.08 ±2.07
	2020	13.77 ±2.28	13.37 ±2.74	13.64 ±3.43	13.72 ±2.43
	2021	14.29 ±2.11	13.53 ±2.61	14.63 ±2.51	13.64 ±2.35
	2022	13.98 ±2.01	13.27 ±2.51	13.57 ±3.34	13.24 ±2.24
F		4.667	0.245	2.29	3.58
P Value		0.001**	0.913	0.059	0.007**
Performance in last Academic Examination	<50%	11.67 ±1.57	12.38 ±1.91	11.24 ±4.67	12.07 ±2.37
	50-60%	13.97 ±2.13	13.01 ±2.78	13.607 ±3.17	13.12 ±2.32
	60-70%	14.41 ±2.15	13.51 ±2.5	14.07 ±3.08	13.87 ±2.22
	70-80%	14.01 ±1.87	13.706 ±2.48	14.47 ±2.78	13.88 ±2.315
F		4.624	1.399	2.815	3.45
P Value		0.003**	0.243	0.039*	0.017*

Table 3: Correlation between academic performance and different domains of quality of life

		Last Acad performance	Total Score QoL	Overall QOL	Health Satisfaction	DOM 1(7)	DOM 2(6)	DOM 3(3)	DOM 4(8)
Last Acad performance	PC	1	.143**	.112*	.014	.076	.099	.126*	.135**
	S		.005	.029	.787	.136	.053	.014	.008
	N	384	384	384	384	384	384	384	384

Total Score QoL	PC	.143**	1	.576**	.527**	.754**	.768**	.798**	.820**
	S	.005		.000	.000	.000	.000	.000	.000
Overall QOL	PC	.112*	.576**	1	.453**	.406**	.543**	.408**	.513**
	S	.029	.000		.000	.000	.000	.000	.000
Health Satisfaction	PC	.014	.527**	.453**	1	.431**	.511**	.348**	.451**
	S	.787	.000	.000		.000	.000	.000	.000
DOM 1(7)	PC	.076	.754**	.406**	.431**	1	.574**	.409**	.576**
	S	.136	.000	.000	.000		.000	.000	.000
DOM 2(6)	PC	.099	.768**	.543**	.511**	.574**	1	.499**	.580**
	S	.053	.000	.000	.000	.000		.000	.000
DOM 3(3)	PC	.126*	.798**	.408**	.348**	.409**	.499**	1	.490**
	S	.014	.000	.000	.000	.000	.000		.000
DOM 4(8)	PC	.135**	.820**	.513**	.451**	.576**	.580**	.490**	1
	S	.008	.000	.000	.000	.000	.000	.000	
PC: Pearson Correlation									
S: Sig. (2-tailed)									
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

DISCUSSION

The present study explored the relationship between socio-demographic variables, academic performance, and various domains of Quality of Life (QoL) among students from academic batches 2018-2023. Gender differences in QoL were observed across multiple domains, although these differences were not statistically significant. Male students reported higher scores in the physical health and psychological domains, while female students scored higher in social relationships. This is consistent with previous studies indicating that female students may have better social support networks, leading to higher QoL in social relationships.^[8] On the other hand, male students often demonstrate better physical health outcomes, possibly due to differences in coping mechanisms and lifestyle choices.^[9] Despite these trends, none of the gender differences reached statistical significance, suggesting that gender may not be a primary determinant of QoL among students. The study found that students from nuclear families had slightly better scores in the physical health, psychological, and environmental domains compared to those from joint families. This observation is in line with previous research, which suggests that students from nuclear families may experience fewer familial obligations and stressors, potentially leading to better QoL.^[10] However, the differences were not statistically significant, indicating that family structure alone may not have a strong impact on QoL. It is possible that other mediating factors, such as the quality of familial support, play a more significant role.

The study revealed minor differences in QoL scores between students from urban and rural backgrounds. Urban students scored higher in the social relations and environmental domains, while rural students scored higher in physical health. The urban advantage in social relations and environment may be attributed to better access to social, recreational, and healthcare facilities in urban areas.^[10,11] However, rural students may benefit from a less stressful and less polluted environment, which could positively impact their physical health. Despite these

observations, none of the differences were statistically significant, suggesting that the urban-rural divide may have a limited impact on students' overall QoL.

One of the most striking findings of the study was the significant difference in QoL scores among different academic batches. Students from senior batches (2018 and 2019) had significantly higher scores in the physical health and environmental domains compared to more recent batches. This could be due to the cumulative experience and familiarity that senior students develop over the course of their academic journey, allowing them to better manage academic pressures and environmental challenges.^[12] Moreover, senior students may have better access to campus facilities, more established social networks, and greater self-sufficiency, which collectively contribute to higher QoL. The findings align with studies highlighting that senior students generally have higher levels of well-being and better adjustment to academic life.^[13]

A significant association was observed between academic performance and QoL. Students with higher academic performance ($\geq 70\%$ in exams) had better scores in the physical health, social relationships, and environmental domains. The correlation analysis further revealed a significant positive relationship between academic performance and QoL scores, particularly in the social relations and environmental domains. Previous research by Solis et al and Yildirim et al in Brazil and Turkey respectively suggests that better academic performance enhances self-esteem and self-efficacy, leading to improved psychological well-being.^[14,15] Higher-performing students may also have access to more academic resources, greater support from faculty, and better time management skills, all of which contribute to higher QoL. These findings are consistent with those of a study by Pillay et al in South Africa, who found that students with higher academic achievements had better physical and psychological health.^[16]

Interestingly, students with lower academic performance ($< 50\%$) had the lowest scores across all domains of QoL. Poor academic performance is often

linked to higher stress levels, anxiety, and a sense of inadequacy.^[17] This highlights the need for interventions aimed at supporting low-performing students, such as counselling services, academic support programs, and mental health resources.

The Pearson correlation analysis revealed a positive and statistically significant relationship between academic performance and most domains of QoL. Notably, there was a significant positive correlation between academic performance and the environmental ($r = 0.135$, $p < 0.01$) and social relations ($r = 0.126$, $p < 0.05$) domains. This finding implies that students with better academic outcomes tend to have more positive perceptions of their social and environmental conditions. It is plausible that students who excel academically experience a greater sense of control and autonomy, which may translate to better engagement with their environment and social network.^[3]

The strongest correlations in this study were observed between overall QoL and total QoL score ($r = 0.576$, $p < 0.01$) as well as health satisfaction ($r = 0.527$, $p < 0.01$). These relationships are consistent with previous research by Sarwar et al in Pakistan, which shows that overall QoL is closely tied to health satisfaction and perceived well-being.^[16] Addressing students' health needs could therefore be a key strategy for improving overall QoL and academic outcomes.

Implications for Practice: The findings of this study have significant implications for educators, policymakers, and mental health practitioners. Since academic performance is positively correlated with QoL, academic support programs and mentorship opportunities could play a vital role in enhancing student well-being. Additionally, interventions that promote physical health, such as exercise programs, can have a positive impact on both academic performance and QoL.^[17] Universities should consider establishing peer support networks, particularly for junior students, as senior students displayed better QoL outcomes. Mental health support services should also target students with poor academic performance, as they are at greater risk of experiencing lower QoL.^[16,17] Family and teachers support shall boost up confidence and help student perform better in academics as well as improve their overall QoL.

CONCLUSION

This study highlights the complex interplay between socio-demographic factors, academic performance, and QoL among students from various academic batches. While gender, family type, and urban-rural background did not show significant differences, batch and academic performance emerged as important determinants of QoL. Senior students had significantly better scores in the physical health and environmental domains, while high academic performers showed better QoL outcomes across

multiple domains. The positive correlation between academic performance and QoL underscores the need for academic support systems and mental health interventions, especially for students with lower academic achievements. By fostering an environment that promotes physical, psychological, and social well-being, educational institutions can support students' academic success and overall quality of life.

REFERENCES

1. Group WH. Development of the WHOQOL: rationale and current status. *Int J Ment Health*. 1994;23:24–56.
2. Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. Systematic Review of Depression, Anxiety, and Other Indicators of Psychological Distress Among U.S. and Canadian Medical Students. *Academic Medicine* 2014; 81(4): 354-373.
3. Tempiski, P., Bellodi, P. L., Paro, H. B. M. S., Enns, S. C., Martins, M. A., & Schraiber, L. B. What do medical students think about their quality of life? A qualitative study. *BMC Medical Education* 2012; 12: 106.
4. Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. Medical Student Distress: Causes, Consequences, and Proposed Solutions. *Mayo Clinic Proceedings* 2005; 80(12): 1613-1622.
5. Nguyen, T. V., Zierler, B., & Nguyen, B. The Relationship Between Physical Health and Academic Achievement. *Journal of Medical Education* 2019; 24(2): 150-158.
6. Paro, H. B. M. S., Morales, N. M. O., Silva, C. H. M., Rezende, C. H. A., Pinto, R. M. C., Morales, R. R., & Tempiski, P. Health-related quality of life of medical students. *Medical Education* 2014; 48(3): 265-279.
7. Malibary, H., Zagzoog, M.M., Banjari, M.A. et al. Quality of Life (QoL) among medical students in Saudi Arabia: a study using the WHOQOL-BREF instrument. *BMC Med Educ* 2019; 19: 344. <https://doi.org/10.1186/s12909-019-1775-8>
8. Bilawal M, Shafique R, Ansari RS, Bashir MA, Nadeem MA, Qayyum SN, Shah HH, Tehseen A, Alnemr L, Noori S. Exploring the Quality of Life (QOL) of medical students in Karachi, Pakistan. *BMC Med Educ*. 2024 May 3;24(1):495. doi: 10.1186/s12909-024-05481-4. PMID: 38702657; PMCID: PMC11069173.
9. Ramón-Arhués E, Echániz-Serrano E, Martínez-Abadía B, Antón-Solanas I, Cobos-Rincón A, Santolalla-Arnedo I, Juárez-Vela R, Adam Jerue B. Predictors of the Quality of Life of University Students: A Cross-Sectional Study. *Int J Environ Res Public Health*. 2022 Sep 23;19(19):12043. doi: 10.3390/ijerph191912043. PMID: 36231345; PMCID: PMC9564890.
10. Ghassab-Abdollahi N., Shakouri S.K., Aghdam A.T., Farshbaf-Khalili A., Abdolalipour S., Farshbaf-Khalili A. Association of quality of life with physical activity, depression, and demographic characteristics and its predictors among medical students. *J. Educ. Health Promot*. 2020;9:147. doi: 10.4103/jehp.jehp_91_20. [DOI] [PMC free article] [PubMed] [Google Scholar]
11. Messina G., Quercioli C., Troiano G., Russo C., Barbini E., Nisticò F., Nante N. Italian medical students quality of life: Years 2005–2015. *Ann. Di Ig. Med. Prev. E Di Comunita*. 2016;28:245–251. doi: 10.7416/ai.2016.2103. [DOI] [PubMed] [Google Scholar]
12. Serinolli M.I., Novaretti M.C.Z. A cross-sectional study of sociodemographic factors and their influence on quality of life in medical students at Sao Paulo, Brazil. *PLoS ONE*. 2017;12:e0180009. doi: 10.1371/journal.pone.0180009. [DOI] [PMC free article] [PubMed] [Google Scholar]
13. Shareef M.A., AlAmodi A.A., Al-Khateeb A.A., Abudan Z., Alkhani M.A., Zebian S.I., Qannita A.S., Tabrizi M.J. The interplay between academic performance and quality of life among preclinical students. *BMC Med. Educ*. 2015;15:193. doi: 10.1186/s12909-015-0476-1. [DOI] [PMC free article] [PubMed] [Google Scholar]
14. Solis A.C., Lotufo-Neto F. Predictors of quality of life in Brazilian medical students: A systematic review and meta-analysis. *Braz. J. Psychiatry*. 2019;41:556–567. doi:

- 10.1590/1516-4446-2018-0116. [DOI] [PMC free article] [PubMed] [Google Scholar]
15. Yildirim Y., Kilic S.P., Akyol A.D. Relationship between life satisfaction and quality of life in Turkish nursing school students. *Nurs. Health Sci.* 2013;15:415–422. doi: 10.1111/nhs.12029. [DOI] [PubMed] [Google Scholar]
 16. Sarwar S., Aleem A., Nadeem M.A. Health Related Quality of Life (HRQOL) and its correlation with academic performance of medical students. *Pak. J. Med. Sci.* 2019;35:266–270. doi: 10.12669/pjms.35.1.147. [DOI] [PMC free article] [PubMed] [Google Scholar]
 17. Pillay N., Ramlall S., Burns J.K. Spirituality, depression and quality of life in medical students in KwaZulu-Natal. *South Afr. J. Psychiatry SAJP J. Soc. Psychiatr. South Afr.* 2019;22:731. doi: 10.4102/sajpsychoiatry.v22i1.731.