



Health-related quality of life and associated factors among health workers in tertiary care hospitals of Peshawar, Pakistan: an analytical cross-sectional study

Mohammad Omar , Muhammad Ahmad , Aqib Muhammad , Seema Iqbal ,
Abdul Basit , Saqib Iqbal , Baseer Ahmed , Shahzada Abdul Rafay ,
Lubaba Waheed , Maheera Zulfiqar , Salman Khan ,
Syed Tauseeq Haider , Kashif Ur Rehman Khalil ✉²

ABSTRACT

Objective: To assess health-related quality of life (QoL) and its associated factors among health workers (HWs) in tertiary care hospitals of Peshawar, Pakistan.

Methods: This analytical cross-sectional study was conducted from February to May 2024 in Medicine and Allied and Surgical and Allied departments of three public and six private tertiary care hospitals in Peshawar. Using non-probability convenience sampling, 365 HWs, including specialists, trainee medical officers, house officers, and nurses, were recruited. Health-related QoL was assessed using World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire. Data were analysed using descriptive and inferential statistics, with $p < 0.05$ considered statistically significant.

Results: Among 365 health workers, majority ($n=211$, 57.8%) were male, with overall mean age of 29.22 ± 6.49 years. The WHOQOL-BREF demonstrated good internal consistency (Cronbach's $\alpha=0.883$). Mean scores for the physical, psychological, social relationships, and environmental domains were 50.96 ± 14.99 , 58.31 ± 16.40 , 61.97 ± 23.28 , and 54.27 ± 17.83 , respectively. Male gender, married status, and employment in Medicine and Allied departments were significantly associated with higher social relationship scores. Nurses had higher physical health scores than other professional groups ($p=0.010$). Morning shifts, working <8 hours/day, and private-sector employment were associated with better QoL in selected domains. Age was weakly associated with social relationships ($r=0.110$, $p=0.036$), while commute duration had no significant impact on any domain.

Conclusion: Health-related QoL among HWs varied across WHOQOL-BREF domains and was significantly associated with demographic and occupational factors, particularly gender, professional designation, department, work shift, shift duration, and hospital sector. Workplace interventions targeting modifiable occupational factors may improve well-being and QoL of HWs.

Keywords: Quality of Life (MeSH); Psychological Well-Being (MeSH); Peshawar (Non-MeSH); WHOQOL-BREF (Non-MeSH); Community Health Workers (MeSH); Allied Health Personnel (MeSH); Health Personnel (MeSH); Physicians (MeSH); Surgeons (MeSH); Nurses (MeSH).

THIS ARTICLE MAY BE CITED AS: Omar M, Ahmad M, Muhammad A, Iqbal S, Basit A, Iqbal S, et al. Health-related quality of life and associated factors among health workers in tertiary care hospitals of Peshawar, Pakistan: an analytical cross-sectional study. *Khyber Med Univ J* 2026;18(2):225-31. <https://doi.org/10.35845/kmu.2026.24052>

INTRODUCTION

Health workers (HWs) play a vital role in delivering healthcare services and ensuring the effective functioning of healthcare systems. Their

physical, psychological, and social well-being is essential not only for maintaining their own health but also for delivering safe, effective, and high-quality patient care. World Health Organization (WHO) defines health as a state of complete

- 1: Undergraduate Medical Student, Khyber Medical College, Peshawar, Pakistan
- 2: Department of Community Medicine, Khyber Medical College, Peshawar, Pakistan

Cell #: +92-347-6681017

Email ✉: dr.kashif.khalil@gmail.com

Date Submitted: May 26, 2025

Date Revised: March 25, 2026

Date Accepted: March 31, 2026

physical, mental and social well-being and not merely the absence of disease or infirmity.¹ Accordingly, health is recognized as a multidimensional construct. The WHO Quality of Life (WHOQOL) Group defines quality of life (QoL) as individuals' perception of their position in life, within the context of the culture and value systems where they live, in relation to their goals, expectations, standards, and concerns.² Consequently, QoL is a subjective and multidimensional concept influenced by physical, psychological, social, environmental, occupational, and personal factors.

With the scale of responsibilities HWs shoulder, their physical and emotional health is often neglected while honoring their duties.³ Besides being fulfilling and satisfying, the practice of medicine is demanding and stressful too. Hospitals are characterized by a high level of work-related stress, a factor known to increase the risk of low QoL.⁴ Results of studies suggest that many health-care workers experience professional burnout, a syndrome characterized by an emotional exhaustion, depersonalization, and a low sense of personal accomplishment.⁵

Previous studies conducted in Pakistan and other countries have reported variable health-related QoL among health workers. A study from Lahore,

Pakistan (2018),⁶ reported higher QoL scores across most domains than a later study from Abbottabad (2021),⁷ except for the Social Relationships domain, a difference that may have been influenced by the COVID-19 pandemic. Similarly, findings from India have been inconsistent, with some studies reporting QoL scores comparable to those observed in Pakistan and others demonstrating lower scores across several domains.^{8,9} A study conducted in Indonesia¹⁰ also reported substantially lower scores in the Social Relationships domain than those reported in Pakistan. These variations may reflect differences in healthcare systems, working conditions, sociodemographic characteristics, and the timing of data collection.

Despite growing evidence that the QoL of health workers influences healthcare delivery and patient outcomes, relatively few studies have evaluated the QoL of health workers in Pakistan, and the available findings are inconsistent. Existing studies have often been limited to specific professional groups, such as nurses,³ focused exclusively on the COVID-19 pandemic,⁷ or conducted at a single institution, thereby limiting their generalizability.¹¹ Furthermore, evidence from Khyber Pakhtunkhwa, particularly Peshawar, remains scarce. This multicenter study included physicians at different career stages (house officers, trainee medical officers and specialists), as well as nurses from both public and private tertiary care hospitals. By providing comprehensive evidence on the health-related QoL of health workers and its associated factors, this study aimed to address an important knowledge gap and generate evidence to inform workplace interventions and policies that promote the well-being of health workers and improve the quality of healthcare services.

METHODS

This analytical cross-sectional study was conducted in the Medicine and Allied (M&A) and Surgical and Allied (S&A) departments of three public and six private tertiary care hospitals in Peshawar, Pakistan, from February to May 2024. Ethical approval was obtained from the Institutional Research and Ethical Review Board (IREB) of Khyber Medical College, Peshawar, Pakistan (Reference No. 93/DME/KMC; dated

February 15, 2024).

We collected data anonymously through non-probability convenience sampling after obtaining appropriate informed consent from HWs (specialists, training medical officers, house officers, and nurses) of both genders and all ages who were in active service for at least six months in public and/or private tertiary hospitals in Peshawar at the time of the study.

WHO formula for quantitative variables was used as follows:

$$N = \frac{(1.96^2) \times (s^2)}{d^2}$$

where N is the sample size, s is the maximum standard deviation which was conservatively set at 0.5 for maximum variability, and d is the margin of error which was taken as 6% in this study. This formula yielded a sample size of 267. We collected a final sample of 365, resulting in the final margin of error to be reduced to 5.13%.

We assessed health-related QoL using the English version of the WHOQOL-BREF questionnaire. This validated questionnaire has 26 questions distributed under four domains: physical health (7 questions), psychological health (6 questions), social relationships (3 questions), and environmental health (8 questions). An additional 2 questions relate to general health and overall QoL. The scoring system is based on a 5-point Likert scale where 1 represents very dissatisfied /very poor and 5 represents very satisfied. The score is then transformed into a linear scale between 0-100 scales, where 0 being the minimum satisfactory and 100 being the maximum satisfaction.¹²

We also distributed a sociodemographic questionnaire alongside WHOQOL-BREF. Only fully completed questionnaires were included in the final analysis. SPSS v.26 was used for data analysis and results were reported significant where the p-value was less than 0.05. Continuous variables were expressed as mean $\pm$ standard deviation, and categorical variables were presented as frequencies and percentages. Reliability and sampling adequacy of the data for factor analysis of WHOQOL-BREF was assessed using the Cronbach's alpha coefficient, Kaiser-Mayer-Olkin (KMO)

index and Bartlett's Test of Sphericity. Inferential statistics were performed using independent t-tests, ANOVA, Pearson correlation test and paired t-tests. Effect sizes for categorical variables were determined using the Cohen's d and partial Eta squared (η^2), as appropriate. Text and tables have been used to present results.

RESULTS

Participant Characteristics: Amongst the 365 participants, 42.19% (n=154) were female and 57.81% (n=211) were male. The participants had a mean age of 29.22 ± 6.49 years. Among the participants, 39.72% of came from M&A departments and 60.27% from S&A departments. Most participants were unmarried (62.19%), working in public hospitals (58.36%), working shifts shorter than 8 hours (62.47%), and working on temporary contracts (83.56%). Nurses made up 14.79% of the participants, while doctors worked as house officers (38.90%), trainee medical officers (21.37%) or specialists (24.93%). Other categorical variables are described in Table I.

Reliability and validity of WHOQOL-BREF: The WHOQOL-BREF demonstrated good reliability and sampling adequacy of the data for factor analysis. Cronbach's alpha coefficient for the whole WHOQOL-BREF scale reached 0.883. Cronbach's alpha coefficient for physical, psychological, social relationships and environmental domains was 0.616, 0.638, 0.513, 0.799, respectively. The Kaiser-Mayer-Olkin (KMO) index measured 0.760, exceeding the recommended value of 0.6, and Bartlett's Test of Sphericity reached statistical significance ($\chi^2=1129.15$, $p<.001$), indicating that our data suited factor analysis.

WHOQOL-BREF Domain Scores and Associated Factors: The mean scores for the physical, psychological, social relationships, and environmental domains measured 50.96 ± 14.99 , 58.31 ± 16.40 , 61.97 ± 23.28 , and 54.27 ± 17.83 , respectively. Male participants (66.00 ± 21.71), those who were married (59.89 ± 23.54), and those working in the Medicine and Allied departments (64.81 ± 22.33) scored significantly higher in the Social Relationships domain than female participants (56.47 ± 24.30), those who were unmarried (59.89 ± 23.54),

Table I: Frequencies and percentages of different categorical variables (n=365)

Variables		Frequency	Percentage
Gender	Male	211	57.81
	Female	154	42.19
Marital Status	Unmarried	227	62.19
	Married	138	37.81
Salary	< 100000	241	66.03
	100000-150000	50	13.70
	> 150000	74	20.27
Employment Type	Temporary	305	83.56
	Permanent	60	16.44
Designation	Specialist	91	24.93
	Trainee Medical Officer	78	21.37
	House Officer	142	38.90
	Nurse	54	14.79
Department	Medicine and Allied	220	60.27
	Surgery and Allied	145	39.73
Experience	< 1 year	141	38.63
	1 to 5 years	160	43.84
	> 5 years	64	17.53
Shift Timings	Morning	283	77.53
	Evening	75	20.55
	Night	7	1.92
Shift Duration	< 8 hrs	228	62.47
	≥ 8 hours	137	37.53
Nature of Workplace	Private	152	41.64
	Public	213	58.36

and those working in the Surgical and Allied departments (57.67 ± 24.11). Nurses (55.75 ± 15.41) scored significantly higher in the physical domain than other participants ($p=0.010$). Participants who usually worked morning shifts (52.17 ± 14.70) scored significantly higher in the physical domain than those working evenings (46.90 ± 15.60) or nights (45.41 ± 12.99). Those with shift hours less than eight hours scored significantly higher in physical ($p=0.002$) and environmental ($p<0.001$) domains than those who worked more than eight hours. Participants employed in the private sector (57.20 ± 17.23) scored significantly higher in the environmental domain than those working in the public sector (52.19 ± 18.00). A complete breakdown of the relationship of different categorical variables with the domains of the WHOQOL-BREF is given in Table II.

Using the Pearson correlation test, age showed a weak positive correlation with the Social Relationships score, r

(363)=.110, $p=.036$. The duration of commute did not significantly impact any domain. All domains of the WHOQOL-BREF showed moderate positive correlation to each other, $p < 0.001$ (Table III).

In addition, a paired t-test revealed significant differences between all four domains of the WHOQOL-BREF (Table IV).

DISCUSSION

Reliability analysis in this study indicated an acceptable internal consistency of WHOQOL-BREF scale as a whole ($\alpha=0.883$) and for each of its domains individually, except for the Social Relationships domain ($\alpha=0.53$). Previous studies have similarly found this domain to score lower than others.¹⁵ The small number of questions (3 items) in this domain may explain the low score.

In our study, among the four domains of WHOQOL-BREF, the Social Relationships domain (61.97 ± 23.28) received

the highest mean satisfaction rating, implying good personal relationships and social support. The Physical Health Domain (50.96 ± 14.99) receive the lowest score, which may be due to the heavy work burden on healthcare workers in Pakistan,¹⁶ long duty hours that are the norm locally,¹⁷ as well as possibly the early exposure to psychoactive drug misuse.¹⁸

The mean scores of domains of our study compared favourably with previously conducted studies inside and outside Pakistan, with significant overlap of large standard deviations amongst these studies (Table V). This indicates that the QoL of HWs in Peshawar may not be significantly different from the QoL of HWs in most other settings. This might indicate that similar challenges and issues are faced by HWs in many different parts of the world. Despite this, some differences are notable. Physical Health score (50.96 ± 14.99) in the current study was lower than that reported in Abbottabad (60.7 ± 17.4), Lahore/Islamabad (66.10 ± 11.40), and Arab countries (68.0 ± 15.7). Psychological health (58.31 ± 16.40) was comparable to Abbottabad (59.7 ± 17.3), Indonesia (60.33 ± 15.44), and the Arab nations (60.3 ± 12.7) but below Brazil (67.84 ± 13.46 and 71.59). Social Relationships (61.97 ± 23.28) exceeded Indonesia (51.57 ± 17.61) and Arab countries (53.5 ± 23.0), yet remained lower than Abbottabad (68.9 ± 17.9) and Mato Grosso do Sul, Brazil (72.07). Environmental scores (54.27 ± 17.83) were similar to India (51.42 ± 15.51) and Arab countries (55.9 ± 17.9), but lower than Lahore/Islamabad (64.46 ± 18.27) and Brazil (65.77).

The mean scores for the Social Relationships domain were significantly greater for males, for those married, and for those who earned moderate income. Previous studies also showed this domain scoring higher for males⁶ and for those married.⁹ However, a study conducted across several Arab nations found this domain to score higher in females.¹⁹ The same study also found that the score for this domain was greater in lower-middle income earning countries than that for lower-income earning countries, but became lower for those working in a higher-middle income country. Past studies have shown that higher income is associated with less time spent socializing

Table II: Relationship of different categorical variables with domains of WHOQOL-BREF

Variables		Physical Health Domain	Psychological Domain	Social Relationships Domain	Environmental Domain
Gender of Health Workers	Male	52.06±14.31	59.40±15.65	66.00±21.71	55.57±17.11
	Female	49.44±15.79	56.80±17.32	56.47±24.30	52.50±18.69
	<i>P</i> value*	.099	.135	.000	.104
	Cohen's <i>d</i>	.175	.159	.417	.173
Marital Status of Health Workers	Unmarried	51.21±14.75	58.00±16.68	59.89±23.54	54.13±18.16
	Married	50.54±15.43	58.80±15.98	65.40±22.52	54.51±17.34
	<i>P</i> value*	.680	.651	.028	.845
	Cohen's <i>d</i>	.045	.049	.238	.021
Monthly Income of Health Workers (PKR)	< 100000	49.96±15.86	58.11±16.78	60.32±23.58	54.05±18.01
	100000-150000	54.64±11.86	59.63±14.48	71.75±19.96	56.13±14.72
	> 150000	51.74±13.64	58.06±16.53	60.75±23.06	53.76±19.27
	<i>P</i> value*	.116	.828	.006	.727
	Partial η^2	.012	.001	.028	.002
Employment Status of Health Workers	Temporary	50.85±15.42	58.20±16.25	62.61±22.92	54.45±17.67
	Permanent	51.49±12.70	58.85±17.29	58.75±24.98	53.39±18.78
	<i>P</i> value*	.765	.780	.241	.674
	Cohen's <i>d</i>	.042	.039	.166	.059
Designation of Health Workers	Specialist	52.98±13.69	59.01±15.24	62.45±21.84	54.16±18.22
	Training Medical	49.40±15.80	56.14±16.24	58.01±26.09	51.32±19.12
	House Officer	48.69±14.73	57.99±17.09	62.53±21.71	54.67±16.52
	Nurse	55.75±15.41	61.06±16.67	65.43±25.18	57.70±18.39
	<i>P</i> value*	.010	.377	.313	.241
	Partial η^2	.031	.009	0.010	.012
Education of Health Workers	MBBS	48.86±15.03	58.19±17.96	61.68±23.46	53.74±18.25
	Bachelors / Diploma	55.85±13.57	58.26±14.21	61.93±24.85	54.85±16.67
	FCPS	50.18±15.44	56.39±15.15	60.04±23.48	53.61±17.14
	PhD	52.68±12.79	60.07±14.06	64.35±19.93	56.42±17.94
	Other	54.82±17.39	63.75±16.73	67.92±22.83	55.94±21.00
	<i>P</i> value*	.020	.451	.693	.907
	Partial η^2	.032	.010	.006	.003
Department in which Health Workers is Working	Medicine and Allied	51.57±13.88	59.50±15.55	64.81±22.33	55.10±16.46
	Surgery and Allied	50.02±16.55	56.50±17.52	57.67±24.11	53.02±19.72
	<i>P</i> value*	.334	.088	.004	.276
	Cohen's <i>d</i>	.103	.183	.310	.117
Work Experience of Health Workers	< 1 year	51.06±15.66	58.92±17.23	61.47±23.60	54.83±17.54
	1 to 5 years	50.22±14.68	56.89±16.15	61.59±24.07	53.38±18.66
	> 5 years	52.57±14.33	60.49±15.03	64.06±20.67	55.27±16.45
	<i>P</i> value*	.570	.283	.732	.691
	Partial η^2	.003	.007	.002	.002
Most Frequent Shift Timing of Health Workers	Morning	52.17±14.70	59.37±16.23	63.04±23.39	54.95±18.05
	Evening	46.90±15.60	55.01±16.69	59.33±21.86	52.21±16.88
	Night	45.41±12.99	50.60±15.85	47.02±29.63	49.11±18.73
	<i>P</i> value*	.015	.056	.108	.369
	Partial η^2	.023	.016	.012	.005
Length of Shift of Health Workers	< 8 hours	52.80±14.54	59.57±16.14	63.29±22.45	57.28±17.08
	≥ 8 hours	47.89±15.28	56.20±16.67	59.79±24.54	49.27±17.99
	<i>P</i> value*	.002	.058	.166	.000
	Cohen's <i>d</i>	.332	.206	.150	.459
Sector of Hospital in which Health Workers is working	Private	52.58±14.47	58.32±16.85	61.21±25.09	57.20±17.23
	Public	49.80±15.28	58.29±16.11	62.52±21.95	52.19±18.00
	<i>P</i> value*	.080	.987	.597	.008
	Cohen's <i>d</i>	.186	.002	0.056	.283

Note: *Independent t-tests and ANOVA were applied to derive p-values, as appropriate

Table III: Correlation between age of participant, duration of commute to hospital and domains of the WHOQOL-BREF

Variables		Age of Participant	Duration of commute to hospital	Physical Health Domain	Psychological Domain	Social Relationships Domain	Environmental Domain
Age of Participant	Pearson, r		----	----	----	----	----
	p-value						
Duration of commute to hospital	Pearson, r	.072					
	p-value	.168					
Physical Health Domain	Pearson, r	-.006	-.008				
	p-value	.909	.885				
Psychological Domain	Pearson, r	.033	.028	.583**			
	p-value	.526	.599	.000			
Social Relationships Domain	Pearson, r	.110*	.055	.410**	.525**		
	p-value	.036	.299	.000	.000		
Environmental Domain	Pearson, r	-.012	-.068	.609**	.612**	.510**	
	p-value	.825	.197	.000	.000	.000	

Note: *Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

Table IV: Paired t-test for the four domains of WHOQOL-BREF

Variables		Paired Differences				t-test	Sig. (2-tailed)
		Mean	Std. Deviation	95% CI of the difference			
				Lower	Upper		
Pair 1	Physical Health - Psychological	-7.35	14.40	-8.83	-5.87	-9.75	<0.001
Pair 2	Physical Health - Social Relationships	-11.02	21.92	-13.27	-8.76	-9.60	<0.001
Pair 3	Physical Health - Environmental	-3.31	14.73	-4.83	-1.80	-4.30	<0.001
Pair 4	Psychological - Social Relationships	-3.67	20.24	-5.75	-1.59	-3.46	0.001
Pair 5	Psychological - Environmental	4.03	15.13	2.48	5.59	5.09	<0.001
Pair 6	Social Relationships - Environmental	7.70	20.89	5.55	9.85	7.04	<0.001

Table V: Comparison of WHOQOL-BREF Domain scores of previous national and international studies

Studies	Physical Health Domain	Psychological Domain	Social Relationships Domain	Environmental Domain
Current Study in Peshawar, Pakistan, 2024	50.96 ± 14.99	58.31 ± 16.40	61.97 ± 23.28	54.27 ± 17.83
Abbottabad, Pakistan, 2021 ⁷	60.7 ± 17.4	59.7 ± 17.3	68.9 ± 17.9	58.2 ± 18.4
Lahore and Islamabad, Pakistan, 2018 ⁶	66.10 ± 11.40	64.13 ± 9.88	64.48 ± 11.63	64.46 ± 18.27
Karnataka, India, 2017 ⁸	63.31	66.19	64.59	59.86
India, Nationwide, 2013 ⁹	58.82 ± 15.56	56.45 ± 15.52	59.08 ± 19.03	51.42 ± 15.51
19 Arab Countries, 2022 ¹⁹	68.0 ± 15.7	60.3 ± 12.7	53.5 ± 23.0	55.9 ± 17.9
Indonesia, Nationwide, 2021 ¹⁰	63.18 ± 10.62	60.33 ± 15.44	51.57 ± 17.61	57.28 ± 12.48
State of Paraíba, Brazil, 2017 ²⁰	68.99 ± 14.65	67.84 ± 13.46	67.49 ± 16.77	60.91 ± 12.42
Mato Grosso do Sul, Brazil, 2013 ²¹	63.89	71.59	72.07	65.77

with others and more time spent alone.²² This might explain why our studies show the mean score for the Social Relationships domain falling in the highest earning HWs.

The mean scores of all domains, except the environmental domain, found in our study were considerably lower than

those measured in the general population in a large population-based cross-sectional study carried out in Khyber Pakhtunkhwa, Pakistan in 2015.¹² The mean scores of the physical, psychological, social relationship and environmental domains in the general population in that study were 65.0 ± 15.2, 67.4 ± 15.0, 72.0 ± 16.5, 55.5 ± 15.0,

respectively. The unique stresses that HWs face in their line of duty might be to blame for this difference. A study conducted at a tertiary care hospital in Lahore involving 106 nurses revealed that 79% experienced burnout.³ Likewise, a cross-sectional study examining burnout among 179 emergency department physicians found that 42.4% exhibited

signs of emotional exhaustion.²³

Health Workers play an essential role within our healthcare system, and ensuring their well-being is essential for optimal patient care and improved clinical outcomes. However, the current study, and studies conducted previously within Pakistan, have consistently reported lower QoL scores across multiple domains in HWs as compared to the general population. Policies that lead to improved QoL in HWs will enhance performance and job satisfaction. Interventions at the organizational level, such as improving workplace conditions, alongside individual psychological support, can help mitigate stressors, strengthen resilience, and reduce the risk of burnout.

The limitations of the current study include the fact that it was conducted in a single city and with a sample that did not adequately reflect staff working evening and night duties regularly. In addition, future studies amongst other healthcare workers, including physiotherapists, technicians, personal care workers in health services and health management and support personnel will help bring forward a more complete picture of the QoL of HWs in Peshawar.

CONCLUSION

The findings of this study indicate that QoL of HWs in Peshawar is comparable with that in many other cities within and outside Pakistan, and lower as compared to some others. However, targeted interventions are needed to address disparities to improve health-related QoL of female staff, HOs, TMOs, those working in public hospitals, individuals with lower salaries, and those assigned evening or night shifts regularly or shifts longer than 8 hours to help increase overall QoL, and thereby improve patient care and service. Specifically, institutions should consider implementing structured duty-hour regulations and adequate staffing to distribute the workload more evenly. In addition, providing on-site mental health services including stress management programmes may help address psychosocial stressors.

REFERENCES

- World Health Organisation. Mental health. [Accessed on: February 3, 2025]. Available from URL: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- World Health Organisation. Study protocol for the World Health Organization project to develop a Quality of Life assessment instrument (WHOQOL) Qual Life Res 1993;2(2):153-9. <https://doi.org/10.1007/BF00435734>
- Naz S, Hashmi AM, Asif A. Burnout and quality of life in nurses of a tertiary care hospital in Pakistan. J Pak Med Assoc 2016;66(5):532-6.
- Dinibutun SR. Factors affecting burnout and job satisfaction of physicians at public and private hospitals: a comparative analysis. J Healthc Leadersh 2023;15:387-401. <https://doi.org/10.2147/jhl.S440021>
- Spickard AJ, Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. JAMA 2002;288(12):1447-50. <https://doi.org/10.1001/jama.288.12.1447>
- Ghazanfar H, Iqbal S, Naseem S. Quality of life of post-graduate medical students working in private and public hospitals in Punjab as measured by WHOQOL-BREF questionnaire. J Pak Med Assoc 2018;68(6):908-13.
- Arshad S, Lodhi FS, Rabbani U, Anis S, Misbah MB. Impact of the COVID-19 pandemic on quality of life of health care workers in Pakistan. J Ayub Med Coll Abbottabad 2021;33(Suppl 1)(4):S778-87.
- Sathyananda RB, Manjunath U. Assessment of quality of life among the health workers of primary health centers managed by a nongovernment organization in Karnataka, India: a case study. Int J Health Allied Sci 2017;6:240-4. https://doi.org/10.4103/ijhas.IJHAS_128_17
- Arun A, Arathi M, Karunya B, Thendral R, Milton B, Matthew VK. Comparative study of psychological impact of COVID-19 on healthcare and non-healthcare workers using WHO-QOL BREF and PHQ-9 scale-an Indian nationwide cross-sectional study. Int Neuropsychiatr Dis J 2022;18(4):1-12. <https://doi.org/10.9734/indj/2022/v18i4357>
- Hadning I, Qurrotu'Ainii N. An analysis of health workers' quality of life in Indonesia during COVID-19 pandemic. In: Wardaningsih S, Tamayo MDB, Thane S, Natason A (editors). ICoSIHSN 2020. Proceedings of the 4th International Conference on Sustainable Innovation 2020-Health Science and Nursing; 2020 Oct 13-14; Yogyakarta, Indonesia Atlantis Press; 2021. pp. 425-30. <https://doi.org/10.2991/ahsr.k.210115.085>
- Ahmad B, Ayub A, Nawaz S, Ahmad SS. Health related quality of life assessment among the employees in Police and Services Hospital Peshawar, Khyber Pakhtunkhwa. Northwest J Med Sci 2023;2(2):7-12. <https://doi.org/10.69723/njms.02.02.0311>
- Lodhi FS, Montazeri A, Nedjat S, Mahmoodi M, Farooq U, Yaseri M, et al. Assessing the quality of life among Pakistani general population and their associated factors by using the World Health Organization's quality of life instrument (WHOQOL-BREF): a population based cross-sectional study. Health Qual Life Outcomes 2019;17(1):9. <https://doi.org/10.1186/s12955-018-1065-x>
- Kaiser HF. A second generation Little Jiffy. Psychometrika 1970;35 (4):401-15. <https://doi.org/10.1007/BF02291817>
- Bartlett MS. A note on the multiplying factors for various χ^2 approximations. J R Stat Soc Ser B (Methodological) 1954;16(2):296-8. <https://doi.org/10.1111/j.2517-6161.1954.tb00174.x>
- Ilić I, Šipetić S, Grujić J, Mačuzić IŽ, Kocić S, Ilić M. Psychometric properties of the World Health Organization's Quality of Life (WHOQOL-BREF) questionnaire in medical students. Medicina 2019;55(12):772. <https://doi.org/10.3390/medicina55120772>
- Zia A, Ali Z, Khan F, Imran R, Zubair F, Sajjad M, et al. Comparing the impact of workload on the mental health of house officers at public and private hospitals of Peshawar. Pak J Health Sci 2024;5(04):61-6. <https://doi.org/10.54393/pjhs.v5i04.1382>
- Ashrafi SKA, Shaikh SUH, Abbasi SZ.

- Optimum working hours for College of Physicians and Surgeons Pakistan fellowship residents of general medicine and general surgery disciplines. J Coll Physicians Surg Pak 2024;34(02):217-21. <https://doi.org/10.29271/jcpsp.2024.02.217>
18. Imran N, Haider II, Bhatti MR, Sohail A, Zafar M. Prevalence of Psychoactive Drug Use Among Medical Students in Lahore. Annals King Edward Med Univ 2012;17(4):338. <https://doi.org/10.21649/akemu.v17i4.357>
 19. Ghazy RM, Abubakar Fiidow O, Abdullah FSA, Elbarazi I, Ismail II, Alqutub ST, et al. Quality of life among health care workers in Arab countries 2 years after COVID-19 pandemic. Front Public Health 2022;10:917128. <https://doi.org/10.3389/fpubh.2022.917128>
 20. Azevedo WF, Mathias L. Work addiction and quality of life: a study with physicians. Einstein (Sao Paulo) 2017;15(2):130-5. <https://doi.org/10.1590/s1679-45082017ao3960>
 21. Mello MH, Souza JC. Quality of life of orthopedists in Mato Grosso do Sul. Rev Bras Ortop 2013;48(1):92-9. <https://doi.org/10.1016/j.rboe.2012.04.002>
 22. Bianchi EC, Vohs KD. Social class and social worlds: income predicts the frequency and nature of social contact. Soc Psychol Pers Sci 2016;7(5):479-86. <https://doi.org/10.1177/1948550616641472>
 23. Zafar W, Khan UR, Siddiqui SA, Jamali S, Razzak JA. Workplace violence and self-reported psychological health: coping with post-traumatic stress, mental distress, and burnout among physicians working in the emergency departments compared to other specialties in Pakistan. J Emerg Med 2016;50(1):167-77. <https://doi.org/10.1016/j.jemermed.2015.02.049>

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

MO: Conception and study design, drafting the manuscript, approval of the final version to be published

MA, AM, AB & SIq: Acquisition, analysis and interpretation of data, drafting the manuscript, approval of the final version to be published

SI, BA, SAR, LW, MZ, SK & STH: Acquisition, analysis and interpretation of data, critical review, approval of the final version to be published

KRK: Conception and study design, drafting the manuscript, critical review, approval of the final version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest, whether financial or otherwise, that could influence the integrity, objectivity, or validity of their research work.

GRANT SUPPORT AND FINANCIAL DISCLOSURE

Authors declared no specific grant for this research from any funding agency in the public, commercial or non-profit sectors.

DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.



This is an Open Access article distributed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

KMUJ web address: www.kmu.j.kmu.edu.pk
Email address: kmu.j@kmu.edu.pk