ORIGINAL ARTICLE

QUALITY OF LIFE IN MIGRAINE PATIENTS AND ASSOCIATION WITH AGE, GENDER, EDUCATION LEVEL AND MARITAL STATUS OF PATIENTS IN A TERTIARY CARE HOSPITAL

Shazia Tauqeer, Shazia Faqir, Asfandyar Qureshi, Maria Shafiq, Raisa Naz, Kinza Sammar*, Munazza Qasim

Department of Physiology, Ayub Medical College, *Abbottabad International Medical College, Abbottabad, Pakistan

Background: Migraines are globally prevalent and contribute to be the foremost neurological problems for which patients frequently seek medical care. Disabilities caused by migraine are one of the main causes contributing to the poor quality of life (QOL) among patients with migraine. This study aimed to determine the QOL in migraine patients. **Methods:** It was an observational **c**ross-sectional study conducted in Ayub Teaching Hospital, Abbottabad, from Jan to Jul 2024. Both age and sex matched male and female aged 18–50 years, with diagnosis of migraine were included. WHO-BREF scoring through software was administered. Socio-demographic data, age, gender, family and socioeconomic history was recorded for each patient. **Results:** Mean age of the subjects was 37.91±8.48 years. There were 41 (41%) male and 59 (59%) were female cases. Sixty-three (63%) cases had mild to moderate, and 37 (37%) cases had severe migraine. Mean physical health score was 22.86±2.67, mean psychological health score was 20.96±2.08, mean social relationship score was 10.52±2.02, mean environment score was 28.08±1.02, and mean total WHOQOL-BREF score was 82.42±4.31 with minimum and maximum total score as 72 and 94. **Conclusion:** The patients with migraine have lower health related quality of life (HRQOL).

Keywords: Migraine, Quality of life, QOL, WHO QOL-BREF scoring

Pak J Physiol 2025;21(1):75–9, **DOI:** https://doi.org/10.69656/pjp.v21i1.1807

INTRODUCTION

Migraine is classified as one of the primary headaches in which patients experience recurrent attacks of throbbing headaches, usually associated with pre attack of nausea, vomiting, flashes of light and photophobia lasting hours to days.[1] A specific diagnostic criteria for diagnosis of migraine is specified by International Classification of Headache Disorders 3rd edition.[2] Migraine is one of the most common presenting neurological complaint in medical OPD. Reduced quality of life (QOL) was reported in patients with migraine when compared with age- and sex-matched people without migraine.

Migraine is often a permanent devastating neurological condition. It not only has serious effects on physical health of patients but also affects patients' daily life domains in terms of their interpersonal relationships, psychological well-being, perceived QOL, emotional status and economic load. Migraine is the 21st principal cause of disability adjusted life-years (DALYs) worldwide, 10th in the Western Europe and 6th leading cause worldwide, in the age group 25–39 years.[3]

According to report of Global Burden of Disease (2015), migraine was hierarchical the 7th principal cause of the years lived with disability (YLD) in migraine population and 1st foremost cause of years lived with disability in patients less than fifty years of age.[3] The WHO definition of QOL is 'an individual's perception of their position in life in context of culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.' This definition takes into account different facets of quality of life as well as overall quality of life and health.

Migraine patients have reported limitations with respect to their learning in occupational skills, educational prospects and other daily life activities performance and poor quality of sleep all as the top leading cause of disability among all neurological disorders.[4] Migraine has a significant and debilitating impact on academic, social, physical, and occupational functioning of the sufferer. Migraine frequent episodes not only significantly impair an individual's capability to function during that period but can also reduce the QOL in between the episodes.[5] This finding appeared to be accurate because chronic migraine (CM) affects the physical, psychological, emotional, and social lives of CM patients. Negative impact of migraine attack (even moderate attacks) has been reported between 50–73% of CM patients on the family and social relationships, even during the in between periods of attacks when patient is having subtle fear about the occurrence of next migraine attack. This is accompanied by marked functional impairment and affects their academic, physical, social, and occupational performance. More than 90% of the sufferers either are not able to go to their work or cannot concentrate or perform properly during the period of migraine attack.[6]

In Pakistan[7] in 2017, the prevalence of migraine during 1 year (adjusted age and gender wise) was 22.5% (male 18.0%, female 26.9%), tension-type

headache (TTH) was 44.6% (male 51.2%, female 37.9%), and prevalence of chronic migraine was more in women by a ratio of 3:2. However TTH was found to be more prevalent in male patients by ratio of 4:3 (p=0.026). Over the years, frequency and severity of migraine headaches has increased.[7]

Migraine and all other headaches were found age-related, peaking between 40 and 49 years of age; though, tension-type headache was more associated with stresses, peaked nearly one decade earlier. Higher levels of education and socioeconomic status had negative association with migraine prevalence.[7]

People suffering from migraine frequently report poor quality of life (QOL) even during a period free of attack, than healthy people.[8] The global burden of diseases, injuries, and risk factors study continues to categorize migraine as a leading cause of incapacity worldwide, predominantly in individuals who are younger than 50 years.[1] Patients of migraines frequently report poor life quality during attack-free periods than healthy individuals.[9]

Migraine is also associated with considerable disability, especially among females and those living in poor socioeconomic rural populaces. Migraine alone is 7th of almost disabling neurological disorders in men, and 3rd in women aged 15–49 years.[10] A survey conducted on 4,943 Saudi people revealed that migraine was present in 1,333 (26.9%) individuals, with female predominance (1:2.9), like earlier surveys.[11] Another cross-sectional community-based survey with a sample size of 15,523 individuals, conducted in Kuwait, discovered that 23% people were diagnosed as intermittent migraine patients, and 5.4% as cases of chronic type of headache, with a mean age of 34.56±10.17 years. The prevalence of episodic migraine was 31.71% in female, surpassing over in males 14.88% (p<0.01) corresponding to previous data.[12] In a recent study from Pakistan, out of 238 patients with different types of headaches, 137 (79.19%) patients had migraines among whom migraine without aura was present in 113 (65.3%) patients.[13] Another study[14] reported that among 6.6% of patients, migraine with aura was present and migraine without aura was seen among 26.1% of patients. Millions of days are lost at work and school each year in the UK and USA by migraine, and a huge loss is estimated to be caused by migraine in the field of healthcare and overall productivity. The purpose of our study was to explore the quality of life in patients suffering from migraine in a tertiary care hospital.

MATERIAL AND METHODS

This observational, cross-sectional study was conducted in the Ayub Teaching Hospital Abbottabad for 6 months after approval from Institutional Ethical Review Committee vide No. RC/EA-2023/210 Dated 31 Dec 2023. Both male and female, age and sex matched patients, aged 18–50 years, with diagnosis of migraine according to ICH criteria were included. Subjects with other types of headaches secondary to tension/cluster headaches, underlying ENT pathologies, sinusitis, ocular pathology, structural lesions of brain etc. were excluded. Subjects who had other disabling co-morbid systemic conditions like cardiac failure, respiratory failure, malignancy etc. was excluded. Those with history of cerebrovascular accident (CVA), head injury, or sensory/ motor neurological deficit on examination were excluded.

Using WHO sample size Calculator, keeping Confidence level of 95% population mean 83.4, with Standard deviation of 11.4, sample size was 100 in total.[16] Sampling was done by consecutive non-probability sampling. Informed written consent was taken from the patients willing to participate in this study and fulfilling the criteria. WHO brief version of original scoring system consisting of 100 responses (0–100 score) was used. Responses were recorded on questionnaire for 26 responses about four domains of patient's life that is physical, social, psychological and environmental health domain. Final scoring was done as per operational definition, transformed on 0–100 scale.[4]

Demographic data, age, gender was recorded for each patient. Data was entered and analysed using SPSS-23. Descriptive statistics of the participants were calculated. For qualitative variables, percentage was calculated. For quantitative variables Mean±SD were calculated. Effect modifiers were controlled through stratification. Independent samples Student's t-test was used to compare effect modifiers, and $p \leq 0.05$ was taken as significant.

RESULTS

Mean age of the patients was 37.91±8.48 (Range: 18–50) years. There were 38 (38%) cases 18–35 years old, and 62 (62%) cases 36–50 years old, 41 (41%) were males. Sixty-three (63%) cases had mild to moderate and 37 (37%) cases had severe migraine. There were 25 (25%) cases educated <12 and 75 (75%) cases received ≥12 years education, 34 (34%) were married. (Table-1).

Table-1: Descriptive statistics of patients

Variables	Frequency (N)	Percentage (%)
Age (Years)		
18–35 years	38	38 %
36–50 years	38	62%
Gender		
Male	41	41%
Female	59	59%
Severity of disease		
Mild-moderate	63	63%
Severe	37	37%
Level of education		
<12 years	25	25%
>12 year	75	75%
Marital status		
Married	35	35%
Unmarried	65	65%

The mean physical health score was 22.86±2.67, mean psychological health score was 20.96±2.08, and mean social relationship score was 10.52±2.02. Mean environment score was 28.08±1.02 and mean total WHOQOL-BREF score was 82.42±4.31 with minimum and maximum total score as 72 and 94. The mean physical health score, psychological health score, social relationship score, environment score and total WHOQOL-BREF score was statistically similar in age groups and gender (p>0.05).

The psychological health score, social relationship score, environment score and total WHOQOL-BREF score was statistically similar with respect to severity of migraine, and mean physical health score was significantly higher in cases who had severe migraine (p<0.05).

The mean physical health score, social relationship score, environment score and total WHOQOL-BREF score was statistically same with respect to education level, p>0.05. The mean psychological health score was higher in cases who had <12 years of education, p<0.05.

The mean physical health score, psychological Health score, social relationship scores and total WHOQOL-BREF score was found statistically same in both married/single groups, p>0.05. The mean environment score was statistically higher in married cases (p<0.05) (Table -2).

Table-2: Comparison of mean WHO QOL-BREF scoring and different study groups (Mean±SD)

Groups	Physical Health Score	Psychological Health Score	Social Relationship Score	Environmental Score	Total WHOQOL-BREF Score
Age					
18–35 Years	23.32±2.53	20.87±2.07	10.61±0.97	28.47±1.90	83.26±3.95
36–50 Years	22.58±2.73	21.02±2.11	10.47±1.08	27.84±2.07	81.90±4.46
***t*-test**	1.344	-0.343	0.640	1.537	1.543
p	0.182	0.733	0.523	0.127	0.126
Gender					
Male	22.93±2.67	21.17±2.11	10.44±1.03	27.85±1.98	82.39±4.18
Female	22.81±2.69	20.81±2.07	10.44±1.05	28.24±2.05	82.44±4.43
***t*-test**	22.81	0.842	-0.648	28.24	82.44
p	0.836	0.402	0.519	0.353	0.954
Severity of migraine					
Mild-Moderate	22.35±2.46	21.16±2.07	10.59±1.03	27.89±2.08	81.98±4.21
Severe	23.73±2.82	20.62±2.10	10.41±1.07	28.41±1.89	83.16±4.43
***t*-test**	-2.569	1.248	0.844	-1.239	-1.326
p	**0.012***	0.215	0.401	0.218	0.188
Marital Status					
Married	22.82±2.54	21.21±2.04	10.29±1.06	28.74±1.93	83.06±4.05
Unmarried	22.88±2.75	20.83±2.11	10.64±1.02	27.74±1.99	82.09±4.43
***t*-test**	-0.098	0.846	1.571	2.385	1.065
p	0.922	0.400	0.119	**0.019***	0.289
Educational status					
<12 Years	22.36±2.31	21.84±2.06	10.60±1.04	28.32±2.04	83.12±3.83
>12 Years	23.03±2.77	20.67±2.02	10.49±1.04	28.00±2.02	82.19±4.45
***t*-test**	1.083	2.502	0.443	0.685	0.938
p	0.281	**0.014***	0.659	0.495	0.351

*Significant

DISCUSSION

Migraine is reported as a devastating neurological disorder that is presented as moderate-severe headaches, being unilateral and throbbing most often, accompanied by sensitivity to light and sound nausea, and vomiting. With chronic migraine (CM) and frequent attacks, the patients suffered significant effect on psychological, social, academic, and occupational domains of life. Migraine is undoubtedly reported as the principal cause of infirmity among neurological disorders, responsible for over one half of all the Years Lived with Disability (YLDs). The recurrent attacks are associated with noteworthy functional impairments, involving both physical and psychological health of patient during or after an immediate migraine attack.[7–10] The severity of CM and incidence may increase over time, and attacks incline to occur more frequently for at least 15 days a month.[11] It has been tiered as the 3rd most common disease in the world in both males and females. Commonly, they have poor well-being and very low health related quality of life (HRQOL) during the attacks and period following immediately after an attack a when compared with age and gender-matched healthy controls.[11] In comparative studies, migraine sufferers have worse personal well-being and QOL.[12]

Migraine is highly associated with numerous psychological disorders, including depression, severe anxiety, and bipolar affective disorders.[10] Considerable evidence is available in literature that migraine can have serious implications on QOL, affecting patients to the extent that they can't perform activities of daily life easily. A study from Saudi Arabia showed Health Related Quality of Life lower than those of the general population and worsened consistently with increased migraine severity.[11] Migraine is often a lifelong neurological condition. A poorly documented part of chronic migraine's burden is that it not only affects physical health but also has effects on patients' daily

lives in terms of their interpersonal relationships, perceived QOL, emotional status and economic burden.[13,14]

In our study the physical health score, the psychological health score, social relationship score, environmental score and total WHO-QOL BREF score had no significant differences in relation to both age groups which is not consistent with some other studies[5,15]. Younger age group appeared to be significantly associated with lower QOL scores because of the younger people being more physically, and socially active and are involved in multiple work-related activities.[16] The mean physical health score, psychological health score, social relationship score, environment score and total WHOQOL-BREF score in our study were statistically similar in both gender. These findings are not consistent with other studies where female predominance of CM was found 3:1.[16] Estimates of prevalence of CM range from 1 to 3%.[17] In another study, the prevalence of migraine was found to be higher in females.[18] In another study in KSA, migraine was found to be more common in women, and in town areas, though it was related to high redundancy rates.

The third parameter of our study was severity of disease where significant differences were seen in physical health score, while psychological, social, environmental and total WHO-QOL BREF score were not statistically different. A comparative analysis of migraine with other chronic diseases like diabetes, hypertension, back pain, arthritis, anxiety and depression predicted that the effect of CM on HRQOL is comparable to the impact of depression, and even more severe than those of other above mentioned chronic disorders. The headache disorders are also commonly associated with impaired quality of life (QOL) across European countries.[20] Impact in a variety of domains including social relationship and environmental, both on migraineurs and on other people (their partners, colleagues and children) is quite high.[21]

The mean physical health score, social relationship score, environment score, and total WHOQOL-BREF score did not vary with education level. The mean psychological health score was higher in cases who had <12 years of education. These findings are not consistent with findings of a study[6] on medical students and interns where incidence was higher who reported a drop in their educational performance and ability to concentrate and attend the classes during episode of migraine. However, our study has similarities with findings of another study[20] conducted to investigate the QOL and the level of migraine-associated disability. Significant number of patients reported negative impacts on educational attainment, the limitations to physical activity or temporary debility leading to decreased earning potential, workplace performance and careers.[21] Lower scores had positive association with younger age groups, prolonged disease duration, increased frequency of chronic migraine attacks, and co-morbid chronic illnesses.[22]

The mean physical health score, psychological health score, social relationship scores and total WHOQOL-BREF score was statistically similar in married/single groups. The mean environment score was statistically higher in married cases. Some studies have reported that people with migraine often feel that CM lessens their supposed credibility and charge in the home, workplace as well as their interpersonal relationships and parenting capabilities.[22,23] Many aspects of dealing with their family, colleagues and friends, social gatherings, leisure time events, performance and concentration on daily life activities at home or at work contribute to low QOL.[24] The migraineurs mostly conveyed being affected negatively for socialization, feeling energetic or frustrated, feelings of shyness, being a burden to others.[25]

Assessment of QOL in migraine patients is essential in their headache management. The clinicians do not play ample role to discover the patients' QOL and its negative impact. Migraine is a chronic illness, where the attacks are unpredictable. Patients feeling restricted, try to limit their normal daily activities in order to prevent attacks, which eventually results in their low QOL.[26] There is substantial evidence available that medical care provided to CM sufferers is usually suboptimal. The majority of patients in this context are undertreated and not managed properly in other health related domains.[27,28]

CONCLUSION

Chronic migraine patients have quite lower health related quality of life. The healthcare professionals should routinely assess this and related infirmity to determine whether these patients are receiving an effective and adequate treatment.

REFERENCES

1. Al Harbi FG, Al Ateeq MA. Quality of life of migraine patients followed in neurology clinics in Riyadh, Saudi Arabia. J Family Community Med 2020;27(1):37–45.
2. Almosaiteer SA, Rabbani U, Alharbi BA, Aldukhaye A. Quality of life and its predictors among patients with migraine in Qassim region, Saudi Arabia: a cross-sectional study. Egypt J Neurol Psychiatry Neurosurg 2022;58(1):69.
3. Facts and Figures-The Migraine Trust. Available from: https://www.migrainetrust.org/about-migraine/migraine-what-is-it/facts-figures/ [Accessed: 2 Aug 2023].
4. World Health Organization. WHOQOL: Measuring Quality of Life. Available from: https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/ [Accessed: 10 Aug 2024].
5. Steiner TJ, Stovner LJ, Vos T, Jensen R, Katsarava Z. Migraine is first cause of disability in under 50s: Will health politicians now take notice? J Headache Pain 2018;19(1):17.
6. Ibrahim NK, Alotaibi AK, Alhazmi AM, Alshehri RZ, Saimaldaher RN, Murad MA. Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. Pak J Med Sci 2017;33(2):270–5.

7. Demir ÜF, Bozkurt O. Effects of perceived social support, depression and anxiety levels on migraine. Noro Psikiyatr Ars 2020;57:210–5.
8. Agbetou M, Adoukonou T. Lifestyle modifications for migraine management. Front Neurol 2022;13:719467.
9. Charles AJ. The pathophysiology of migraine: Implications for clinical management. Lancet Neurol 2018;17(2):174–82.
10. Goadsby PJ, Holland PR, Martins-Oliveira M, Hoffmann J, Schankin C, Akerman S. Pathophysiology of migraine: a disorder of sensory processing. Physiol Rev 2017;97(2):553–622.
11. Saylor D, Steiner TJ. The global burden of headache. Semin Neurol 2018;38(2):182–90.
12. Muayqil T, Al-Jafen BN, Al-Saaran Z, Al-Shammari M, Alkthiry A, Muhammad WS, *et al.* Migraine and headache prevalence and associated comorbidities in a large Saudi sample. Eur Neurol 2018;79(3–4):126–34.
13. Lakhiar MA, Bughio AH, Arain AA, Lakhiar MA. Migraine; the most common headache disorders a neurology clinical perspective. Professional Med J 2019;26(2):264–8.
14. Jat MI, Afridi MI, Amar W, Lal C. Prevalence of Migraine among patients of Depressive Disorder. Pak J Med Sci 2018;34(4):964–7.
15. Shaik MM, Hassan NB, Tan HL, Gan SH. Quality of life and migraine disability among female migraine patients in a tertiary hospital in Malaysia. Biomed Res Int 2015;2015:523717.
16. Alwhaibi M, Alhawassi TM. Humanistic and economic burden of depression and anxiety among adults with migraine: a systematic review. Depress Anxiety 2020;37(11):1146–59.
17. Frankish H, Boyce N, Horton R. Mental health for all: a global goal. Lancet 2018;392:1493–4.
18. Vargas LG. Gender gap in migraine: A feminist understanding of a complicated health disparity. Bachelor Tucson. University of Arizona; 2019. [Accessed: 2 Jul 2024].
19. Desouky DE, Zaid HA, Taha AA. Migraine, tension-type headache, and depression among Saudi female students in Taif University. J Egypt Public Health Assoc 2019;94(1):7.
20. Almalki ZA, Alzhrani MAG, Altowairqi AT, Aljawi YA, Fallatah SA, Assaedi LM, *et al.* Prevalence of migraine headache in Taif City, Saudi Arabia. J Clin Med Res 2018;10(2):125–33.
21. Katsarava Z, Mania M, Lampl C, Herberhold J, Steiner TJ. Poor medical care for people with migraine in Europe —evidence from the Eurolight study. J Headache Pain 2018;19(1):10.
22. Underwood M, Achana F, Carnes D, Eldridge S, Ellard DR, Griffiths F, *et al*. Supportive self-management program for people with chronic headaches and migraine: a randomized controlled trial and economic evaluation. Neurology 2023;100: e1339–52.
23. Al Ghadeer HA, Al Salman SA, Albaqshi FM, Alsuliman SR. Alsowailem FA, Albusror HA, *et al.* Quality of life and disability among migraine patients: A single-center study in Al Ahsa, Saudi Arabia. Cureus 2021;13(11):e19210.
24. Almehmadi MA, Khan AA. Prevalence and impact of primary headache on job performance and quality of life among family medicine board residents in Makkah, Jeddah and Taif in Saudi Arabia. Ann Clin Anal Med 2020;9(3):279–91.
25. AboTaleb HA, Al-Hayani MM, Alghamdi BS. Migraine-related disabilities among Saudi migraine patients and its association with social factors. Arch Neurosci 2021;8(1):e108778.
26. Pradeep R, Nemichandra SC, Harsha S, Radhika K. Migraine disability, quality of life, and its predictors. Ann Neurosci 2020;27(1):18–23.
27. Haw NJ, Cabaluna IT, Kaw GE, Cortez JF, Chua MP, Guce K. A cross-sectional study on the burden and impact of migraine on work productivity and quality of life in selected workplaces in the Philippines. J Headache Pain 2020;21(1):125.
28. Al Jumah M, Al Khathaami AM, Kojan S, Hussain M, Thomas H, Steiner TJ. The prevalence of primary headache disorders in Saudi Arabia: a cross-sectional population-based study. J Headache Pain 2020;21(1):11.

Address for Correspondence:

Dr Maria Shafiq, Department of Physiology, Ayub Medical College, Abbottabad, Pakistan. **Cell:** +92-332-9928090
Email: mariasaboor1@gmail.com

Received: 17 Dec 2024 **Reviewed:** 14 Feb 2024 **Accepted:** 4 Mar 2024

Contribution of Authors:

ST: Concept, Study design, Literature review
AQ: Critical appreciation, Proof reading, Literature review
RN: Data analysis, Revision, Literature review
MQ: Review, Final approval of the manuscript
SF: Data collection and analysis, Literature review, Write-up
MS: Critical appraisal, Proofreading
KS: Data collection, Tabulation

Conflict of Interest: There is no conflict of interest **Funding:** No funding or research grant was received