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Original Article

Assessment of Quality of Life Among Patients With Multiple Sclerosis in Yasuj, Iran: A Study Conducted in 2017

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Abstract

Introduction: Physical disabilities and psychological changes induced by multiple sclerosis (MS) can influence patients' self-esteem and quality of life (QoL). Evaluating QoL in individuals with MS can help mitigate certain disabilities and increase remaining functional abilities. This study sought to investigate the QoL of individuals with MS in Yasuj in 2017.

Methods: This analytical descriptive study examined patients with MS whose medical records were available at the Treatment Department of Yasuj University of Medical Sciences. A non-probabilistic convenience sampling approach was adopted. The sample consisted of 100 patients, including 78 females and 22 males. Data collection tools included a demographic information form and the Multiple Sclerosis Quality of Life-54 (MSQoL-54) questionnaire. Collected data were analyzed using SPSS version 22 through descriptive statistics, an independent t-test, and Pearson's correlation test at a 95% confidence interval.

Results: The mean ± standard deviation QoL scores for physical health and mental-psychological health were 48.33 ± 16.94 and 48.39 ± 16.63, respectively. The cognitive domain exhibited the highest QoL score (57.95 ± 19.64), while the lowest score was observed in the role limitation domain due to psychological problems (38.91 ± 32.33).

Conclusion: Several of QoL subscales, as well as physical and mental-psychological health domains among MS patients in Yasuj, received below-average scores, highlighting the significant effect of MS on various aspects of a persons' life. Given the link between personal factors and the QoL of patients with MS, and considering the difficulty or impossibility of modifying some of these factors, it is crucial to develop comprehensive support services aimed at enhancing QoL among this group of patients in Yasuj.

Keywords: Chronic conditions, Quality of life, Neurological conditions

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Introduction

The prevalence of chronic diseases has steadily increased in recent years. Researchers assert that chronic diseases can alter individuals' outlook on life and lead to significant psychological consequences (1). One such chronic disease is multiple sclerosis (MS), which can cause adverse mental, psychological, emotional, and social conditions for patients (2, 3). The findings indicate that oxidative stress and inflammation initiate a self-perpetuating pathological cycle that triggers immune-mediated myelin destruction, ultimately resulting in neurological and motor dysfunction (4). Notably, MS is one of the most prevalent neurological disorders and a leading cause of disability in young adults (5), affecting more than 2.5 million people worldwide (6).

The etiology of MS remains unclear; however, multiple factors may contribute to its development, including immunodeficiency, a history of infectious diseases, stress, and various genetic and environmental elements (7). This disease can range from relatively benign forms with minimal neurological symptoms to rapidly progressive conditions with severe clinical manifestations, resulting in disability (8). Ultimately, it can affect patients' role performance, job status, and quality of life (QoL) (2). Moreover, depending on lesion location, patients may exhibit symptoms such as exhaustion, impaired mobility, imbalance, numbness, weakness, tremors, pain, muscle spasms, depression, and visual disturbances. These symptoms can affect personal and family life (9) and lead to reduced QoL (10-12). Therefore, it is essential to assess the QoL of these patients.

QoL is a multidimensional concept covering all aspects of an individual's life, including physical, psychological, cognitive, social, cultural, and economic domains (13). Factors such as physical impairment, upper-limb function, cognitive impairment, cognitive reserve, psychological distress, depression, fatigue, age, and disease duration

affect patient-reported QoL outcomes in individuals with MS (14). Research has demonstrated that individuals with MS often experience a lower QoL due to persistent physiological damage and the demanding treatment process (12, 15). Additionally, studies suggest that these patients frequently encounter emotional and psychological challenges throughout the course of treatment (16, 17), which may further deteriorate their overall QoL.

Significance of the Study

Nowadays, developed and developing countries are confronting the MS-associated challenges. Despite notable progress in medical science, these problems have not diminished; rather, they continue to increase. Considering that patients with MS face different degrees of disability that impact their daily function and ability to cope with the disease, this study seeks to evaluate the QoL of MS patients in Yasuj during 2017 to develop effective strategies to enhance the well-being of these patients. It is worth noting that Yasuj was selected as the study area due to its largely rural population structure and limited healthcare access, such as specialized neurological services.

Materials and Methods

This descriptive-analytical cross-sectional study assessed all individuals with MS who visited the MS Association in Yasuj and had a medical record registered with the Vice-Chancellory of Treatment at Yasuj University of Medical Sciences (Iran) in 2017. The inclusion criteria comprised a confirmed MS diagnosis by a neurologist, ongoing treatment, a medical record at a recognized healthcare center, at least one year since diagnosis, absence of pregnancy, no history of severe acute stress during the past six months, and no other diseases such as hypertension, diabetes, cardiovascular diseases, severe psychiatric disorders, or other neurological conditions that could influence QoL outcomes. One hundred eligible MS patients were recruited using non-probability convenience sampling after providing informed consent. Given the descriptive nature of the study and the non-probability sampling method used, the sample size was determined primarily based on the availability and willingness of eligible patients registered with the Yasouj MS Association during the study period, as well as reference to previous similar studies (18). The voluntary nature of participation and the confidentiality of collected data were strongly emphasized.

It is important to note that an inherent limitation of this study stems from the non-probability convenience sampling, which restricts the generalizability of the findings to the broader population of MS patients beyond the sampled cohort in Yasuj. Reliance on patients who attend an MS association may not fully represent the entire spectrum of the disease. Although this approach was practical for initial descriptive purposes, future research is strongly recommended to use probability sampling techniques to validate these results in a more diverse patient population.

Data collection instruments included a demographic form covering variables such as gender, marital status, age, age at disease onset, and duration of illness, as well as the MSQOL-54 questionnaire designed by Barbara Vickrey at the University of California (19). This 54-item scale evaluates 14 aspects of QoL by incorporating 18 additional questions into the 36-item Short-Form Health Survey (SF-36), thereby making it a more specialized tool for patients with MS. The 14 QoL domains include physical function, role limitations due to physical problems, role limitations due to psychological problems, pain, mental well-being, energy, health perception, social function, cognitive function, health distress, sexual function, health change, sexual satisfaction, and overall QoL.

It should be noted that QoL was evaluated through two combined categories: physical and mental-psychological health. To derive these composite scores, all constituent subscale scores (ranging from 0 to 100) were averaged with equal weighting (1:1), whereby higher scores indicate better QoL. The physical health score represents the average of physical function, health perception, energy, role limitations due to physical problems, pain, sexual satisfaction, social function, and health change. Mental-psychological health is calculated as the average of health distress, overall QoL, mental well-being, role limitations due to psychological problems, and cognitive function. This equal weighting approach ensures that no single domain disproportionately influences the composite score, thereby maintaining a balanced representation of the underlying constructs. The validity and reliability of the Persian version of this questionnaire were tested by Ghaem et al, who reported a Cronbach's alpha coefficient above 0.70, and factor analysis confirmed the construct validity of the questionnaire (20).

This questionnaire was completed by MS patients visiting the MS Association, and the collected data were analyzed with SPSS version 22 with descriptive statistics, independent t-test, and Pearson correlation coefficient at a 95% confidence level.

Results

This study analyzed data from a total of 100 patients, comprising 78% females and 22% males. Of the participants, 45% were single, and 55% were married, with ages ranging from 18 to 65 years. Table 1 presents the mean and standard deviation of the demographic variables assessed in this study. It is noteworthy that, because the MSQOL-54 questionnaire was administered in person

Table 1. Mean and Standard Deviation of Variables Studied in MS Patients

Variable	Mean ± SD
Patient's Age	36.63 ± 9.6
Age at Disease Onset	31.17 ± 9.2
Disease Duration	6.09 ± 3.5

Note. SD: Standard deviation.

and reviewed immediately after completion, none of the questionnaires contained missing items.

The mean ± standard deviation QoL scores for the composite domains of physical and mental-psychological health were 48.33 ± 16.94 and 48.39 ± 16.63, respectively. These composite values were calculated from the means of their related subscales. The highest QoL score (57.95 ± 19.64) belonged to the cognitive function domain, whereas the lowest score was associated with role limitations due to psychological problems (38.91 ± 32.33), as depicted in Table 2.

Using independent t-tests, physical and mental-psychological health were compared across gender and marital status. For gender comparisons, women exhibited numerically higher mean scores for both physical health (49.24 vs. 45.11) and mental-psychological health (49.04 vs. 46.11) than men. However, these differences did not reach statistical significance for either the physical component ($P = 0.46$) or the mental-psychological component ($P = 0.55$). The calculated Cohen's d for the difference in physical health scores between genders was 0.24, indicating a small effect size. Similarly, in terms of marital status, no statistically significant differences were observed between single and married participants for physical health ($P = 0.70$) or mental-psychological health ($P = 0.47$), as illustrated in Table 3.

Additionally, Pearson correlation analysis was conducted to examine the relationship between age, disease duration, and the two overall domains (i.e., physical and mental-psychological health). QoL exhibited a negative correlation with age and disease duration, indicating that as the age and duration of the disease increased, QoL tended to decrease. For the correlation between age and physical health, the Pearson correlation coefficient was -0.17, indicating a weak correlation; however, this correlation was not statistically significant (Table 4).

Table 2. Mean and Standard Deviation of 14 Subscales of Qol and Two Composite Domains of Physical and Mental-Psychological Health

Subscales of QoL	Mean ± SD
1. Physical Function	49.30 ± 29.09
2. Role Limitations Due to Physical Health Problems	41.75 ± 40.21
3. Role Limitations Due to Psychological Problems	38.91 ± 32.33
4. Pain	52.15 ± 24.03
5. Psychological Well-being	44.88 ± 13.00
6. Energy	43.36 ± 13.81
7. Health Perception	44.60 ± 12.96
8. Social Function	54.33 ± 17.26
9. Cognitive Function	57.95 ± 19.64
10. Health Distress	52.85 ± 17.95
11. Sexual Function	52.41 ± 29.83
12. Health Changes	45.75 ± 26.12
13. Sexual Satisfaction	50.45 ± 25.68
14. Overall QoL	53.98 ± 21.14
*Composite Physical Health Domain	48.33 ± 16.94
*Composite Mental-Psychological Health Domain	48.39 ± 16.63

Note. QoL: Quality of life; SD: Standard deviation; * Composite domains were calculated according to the scoring algorithm of the instrument.

Discussion

MS is one of the most disabling neurological conditions in adults, characterized by a wide range of symptoms and a highly unpredictable prognosis that can severely impair the QoL (10, 14). Previous research has demonstrated that factors such as high self-esteem, self-efficacy, resilience, and social support play crucial roles in improving QoL. Conversely, symptoms such as disability, fatigue, depression, cognitive dysfunction, and unemployment are considered risk factors for reduced QoL (13).

In this study, the mean age of the participants was 36.6 ± 9.6 years, and the mean age at diagnosis was 31.17 ± 9.2 years. The reported figures closely align with the ages of onset recorded in other studies. Visser et al reported that nearly 80% of participants were female, with a mean age of 43 years and a mean age of disease onset of 34 years (21). Research conducted by Sabanagic-Hajric et al indicated a mean age of disease onset of 30.39 ± 8.48 years (18). Sehanovic et al analyzed two groups in which the patients' mean age was 42.0 ± 9.3 years in the first group and 37.5 ± 10.8 years in the second group. The number of females exceeded that of males in both groups (22), consistent with the present and other similar studies (10, 21, 22).

Overall, the present study revealed that the mean scores for most QoL domains were below average (< 50). The mean ± standard deviation values for physical and mental-psychological health were 48.33 ± 16.94 and 48.39 ± 16.63, respectively. In the study by Visser et al, the mean scores for these two composite domains)physical and mental-psychological health) were 42.5 ± 17.2 and 58.3 ± 21.5, respectively, which is roughly consistent with our findings (21). In contrast, Hyarat et al reported significantly different mean scores for physical health (33.9 ± 18.2) and mental-psychological health (22.3 ± 20.4) (10). These lower

Table 3. Descriptive Statistics and Independent t-test Results for Physical and Mental-psychological Health in Men vs. Women and Singles vs. Married Individuals

Variable	Group	Physical (Mean ± SD)	Mental-psychological (Mean ± SD)	Physical *P*-value	Physical Cohen's d	Mental-psychological P-value	Mental-psychological Cohen's d
Gender	Male	45.11 ± 18.58	46.11 ± 19.26	0.46	0.24	0.55	0.17
	Female	49.24 ± 16.46	49.04 ± 15.90				
Marital Status	Single	48.79 ± 16.80	49.73 ± 16.40	0.70	0.04	0.47	0.14
	Married	47.95 ± 17.19	47.30 ± 16.89				

Note. SD: Standard deviation.

Table 4. Correlation Between Age and Disease Duration With Physical Health and Mental-Psychological Health

Composite	Physical Health		Mental-Psychological Health	
Domains Variable	*P*-value	Correlation (r)	*P*-value	Correlation (r)
Age	0.08	-0.17	0.17	-0.13
Disease Duration	0.11	-0.15	0.34	-0.09

values may be due to differences in sample characteristics or population size. Additionally, another study indicated a mean score of 57.2 for physical and mental-psychological health (23). In conclusion, multiple studies indicate that individuals with MS tend to experience lower QoL than the general population (10-12).

In the present study, the highest score was observed in the cognitive functioning domain. This finding differs from those of Visser et al (21) and Hyarat et al (10) but complies with Miller's study (24). In Visser et al's research (21), the highest score belonged to the sexual function, while in Hyarat et al's study, physical function received the highest score (10). This relatively high cognitive domain score in our sample can be partly attributed to the younger mean age of participants (36.63 years) and earlier disease stage, as severe cognitive decline is more commonly associated with older age or longer disease duration (25).

The domain with the lowest score among the 14 QoL domains was role limitation due to psychological problems, aligning with the findings of Visser et al (21). In general, observed differences in domain scores_such as the comparatively low value for role limitation due to psychological problems (38.91) compared to results reported by Visser et al (21) and Hyarat et al (10)_may be influenced by several factors, including cultural norms. Patients in different cultures may vary in their willingness to express psychological distress affecting daily functioning compared to other populations, which can lead to discrepancies in sensitive domains such as role limitations due to psychological problems.

It is worth noting that the high standard deviation in the subscale "Role Limitations due to Physical Problems" is largely inherent to the Multiple Sclerosis Quality of Life-54 (MSQoL-54) instrument when applied to populations with heterogeneous disease manifestations such as MS. The MSQOL-54 is specifically designed to capture the wide spectrum of functional impact experienced by MS patients, ranging from near independence to severe disability. Consequently, the substantial variability in this specific domain primarily reflects the broad range of physical disability levels and associated role limitations among the 100 participants, which are well-recognized features of MS disease progression.

There was no significant correlation between marital status and QoL in the current study. However, Sabanagic-Hajric et al reported that married patients achieved higher scores than their single counterparts in both physical and mental-psychological health domains (18).

Conclusion

The results of this study clearly demonstrate that several subscales of QoL, as well as the two composite domains of physical health and mental-psychological health, received below-average scores (< 50) among patients with MS in Yasuj. This finding underscores the substantial and pervasive effect of MS on various dimensions of patients' lives. Therefore, the development and implementation of comprehensive, evidence-based support services are essential to improve QoL in this group of patients in Yasuj. Specifically, in light of the lowest score observed in the subscale "Role Limitations Due to Psychological Problems" and the generally below-average scores across mental health domains, we strongly recommend the integration of effective, evidence-based psychotherapeutic interventions, particularly Cognitive Behavioral Therapy (CBT) or related psychoeducational programs, as a core component of these support services. Furthermore, holistic improvement in patient outcomes requires that comprehensive support services also encompass consistent provision of targeted psychological and social counseling together with specialized physiotherapy to effectively address the multifaceted physical, psychological, and social challenges faced by these patients.

While this study provides a baseline assessment of QoL and identifies critical areas of need, future research should adopt interventional and longitudinal designs. In particular, rigorous assessment of the long-term effectiveness, feasibility, and cost-effectiveness of newly proposed integrated care models (CBT combined with physiotherapy/social support) tailored to the Yasuj MS population is recommended.

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Competing Interests

The authors declare no conflict of interests.

Ethical Approval

Ethical approval for this study was obtained from the Ethics Committee of Yasuj University of Medical Sciences (Ethical Code: IR.YUMS.REC.1396.112). Written informed consent was obtained from all participants.

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