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The Relationship Between Emotional Intelligence and Mental Health with the Mediating Role of Quality of Life in Patients with Multiple Sclerosis

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A B S T R A C T

The main objective of the present study was to determine the relationship between emotional intelligence and mental health with the mediating role of the quality of life in patients with multiple sclerosis. The research method was descriptive-correlational with a structural equation modeling approach. The population included all patients with multiple sclerosis in Kashan in the year 2022, from whom 65 patients visiting Shahid Beheshti Hospital in Kashan were selected through convenience sampling and responded to the Goldberg and Hiller Mental Health Questionnaires (1979), Schutte Self-Report Emotional Intelligence (SSREI), and the Hobart et al. Quality of Life Scale for MS Patients (2001). Data were analyzed using SPSS version 22 and AMOS, employing Pearson correlation tests and structural equation modeling. The results showed that the correlation between emotional intelligence and mental health was positive and significant. The correlation between quality of life and mental health was also positive and significant. Furthermore, quality of life played a mediating role in the relationship between emotional intelligence and mental health in patients with MS. Therefore, emotional intelligence and quality of life play an important role in the mental health of patients with MS. In developing therapeutic programs for these patients, factors affecting emotional intelligence and quality of life should be considered.

Keywords: *Emotional Intelligence, Quality of Life, Mental Health, Multiple Sclerosis Patients*

1. Introduction

Approximately 2.5 million people worldwide suffer from multiple sclerosis, a chronic neuro-inflammatory disease of the brain and spinal cord, which is a common cause of severe physical disability in young people, especially women (1). Multiple sclerosis represents a significant personal, social, and economic burden; the average age of onset is 30 years (a critical age for career and family planning), and about 50% of patients require the permanent use of a wheelchair 25 years after diagnosis. The disease manifests heterogeneously, including sensory and visual disorders, motor impairments, fatigue, pain, and cognitive deficits. These lesions are characteristic of multiple sclerosis. The disease is caused by the infiltration of immune cells into the blood-brain barrier (BBB), leading to inflammation, demyelination, gliosis, and axonal neural damage, resulting in impaired neural signaling (2). Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system that predominantly affects young adults and causes damage to the myelin of the brain and spinal cord, leading to a wide range of symptoms including weakness, fatigue, balance and walking difficulties, bladder dysfunction, muscle spasticity, disability, and mild cognitive decline (3)The disease reduces the independence and ability of individuals to participate effectively in family and community life. Demyelination of nerve fibers not only affects sensory and motor system functions but may also cause psychological and psychiatric symptoms and signs (4). Mental health disorders associated with MS and other chronic diseases and pain conditions often result in diminished hope for the future and heightened levels of depression, anxiety, and stress, depending on the severity and nature of the disease and pain (1, 3, 4). The World Health Organization defines mental health as a state of internal well-being, confidence in one's efficacy, self-reliance, competitive capacity, intergenerational belonging, and the realization of one's intellectual and emotional potential. Poor mental health can hinder societal progress and the achievement of personal goals, as well as the development of healthy interpersonal relationships (5). In MS patients, in addition to treating physical symptoms, psychological health issues caused by the stresses and effects of MS must also be addressed, thus identifying the components that impact their health is crucial.

Studies by Fiorelli et al. (2020) have shown that emotional intelligence plays a significant role in crisis management during emergencies. Accordingly, previous research has identified emotional intelligence as a major factor that directly influences physical, mental, and emotional health (6). According to Mayer and colleagues (2004), emotional intelligence skills and abilities encompass four domains: the ability to perceive emotions, use emotions to facilitate thought, understand emotions, and manage emotions (7). Emotional intelligence is the ability to recognize, understand, regulate emotions, and use them in life, which is one of the most important aspects that improves mental health (8). Enhancing emotional intelligence can provide appropriate responses to many life problems (9). Results from Estrada et al. (2021) showed that emotional intelligence reduces psychological stress among students (10). Rajabiyan Dehzireh and Heydari (2020) demonstrated that in predicting resilience, life satisfaction, and mental health in couples, spiritual intelligence and emotional intelligence play a significant role (11).

Given that MS affects all dimensions of a patient's life, including physical, psychological, and social conditions, and that quality of life is a multidimensional and complex concept encompassing both objective and subjective factors, understanding how the disease impacts the quality of life and consequently the mental health of these patients is crucial. Quality of life is defined by the interaction between individual personalities and the continuity of life events. Life events occur within a multidimensional set of life domains such as freedom, knowledge, economics, security, social relationships, religion, environment, and recreation, which affect the overall quality of life (12). Due to various common physical symptoms such as vision problems, spasm, weakness, and fatigue, and psychological symptoms such as cognitive disorders and mood disturbances, MS significantly impacts the quality of life (13). Like other chronic diseases, the uncertainty of the future (even one day) with MS leads to decreased quality of life and is associated with psychological disorders (3). In chronic patients, quality of life is influenced by the severity, duration of the disease, and medications used, and MS patients are no exception. Considering the importance of quality of life and its significant impact on creating, maintaining, or restoring physical, cognitive, emotional, and behavioral health in

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individuals with a chronic and progressive disease like MS, recognizing the individual and social factors that affect it, such as health-related behaviors, life-enhancing lifestyles, and psychological capital, will be very important and insightful (14). Moreover, considering the importance of regulating emotions for better adaptation to the disease, reducing stress and depression, and improving coping patterns and social relationships (15), the impact and importance of emotional intelligence on the quality of life of MS patients is demonstrated. Currently, the goal of managing MS is to minimize these symptoms and, if possible, improve function (13), and empirical literature highlights the high rates of depression, distress, anxiety, mental well-being, low quality of life, and limited social relationships in these patients. Overall, considering the research conducted and taking into account the close relationship between psychological factors and their impact on the onset or exacerbation of psychosomatic diseases such as MS, in order to reduce and minimize the occurrence of this disease or create suitable living conditions for those afflicted with MS, the present research is of special importance. Given the prevalence of the disease in younger ages, MS can be accompanied by reduced individual and social functioning and emotional and psychological problems, and with the progression of the disease and inadequate control, it can double the anxiety and depression. What seems necessary in dealing with such a disease is to examine the factors affecting the mental health of MS patients, which is explored in the present research in conjunction with the mediating construct of quality of life to determine whether emotional intelligence has a significant relationship with the mental health of MS patients.

2. Methods and Materials

2.1. Study Design and Participants

The present research was descriptive-correlational and utilized structural equation modeling. The study population included all patients with multiple sclerosis (MS) in Kashan in 2022, from which 65 patients who visited Shahid Beheshti Hospital in Kashan and met the research criteria—including a confirmed diagnosis of MS, at least one year since diagnosis, and no other mental or physical illness besides MS, with a minimum educational level of high school—were selected through convenience sampling. To conduct this study, after identifying target centers, estimating the required sample size, and obtaining the necessary permits, the researcher conducted fieldwork by visiting Shahid Beheshti Hospital in Kashan, explaining the research objectives and ethical considerations such as confidentiality of participant information and voluntary participation, and obtained informed consent from them. Subsequently, participants were asked to complete the questionnaires.

2.2. Measures

2.2.1. Quality of Life

The Hobart et al. (2001) questionnaire was used to assess the quality of life of MS patients. This scale contains 29 questions, with the first 20 assessing the physical impact and the last 9 assessing the psychological impact of MS on the patient. Each question offers five response options, scored from 1 to 5. Overall scores range from 29 to 145, with higher scores indicating lower quality of life. The maximum score on the physical dimension is 100 and the minimum is 20, while the maximum score on the psychological dimension is 45 and the minimum is 9. The reliability of this scale has been demonstrated by McGeown and Hutchinson (2004) with a Cronbach's alpha greater than 0.80, and convergent validity of the physical and psychological subscales of the MSIS-29 with other physical and psychological disability measures showing high correlation coefficients. In Iran, Ayatollahi and colleagues (2006) have translated and validated this questionnaire, reporting Cronbach's alpha coefficients of 0.95 for the physical scale and 0.89 for the psychological scale (16).

2.2.2. Emotional Intelligence

This 33-item scale, developed by Schutte et al. (1998) based on the Salovey and Mayer (1990) model, measures components of emotional intelligence, including regulation, assessment, skill, and application of emotions, though it yields only a single total score ranging from 33 to 165. Questions 5, 8, and 28 are reverse-scored, with higher overall scores indicating greater emotional intelligence. Jokar (2007) reported a reliability coefficient of 0.89 for this scale. In the current study, reliability coefficients were calculated using Cronbach's alpha for the entire emotional

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intelligence questionnaire (0.82) and for the subscales of emotion assessment and expression, emotion regulation, and utilization of emotion (0.77, 0.65, and 0.59, respectively). Validity of the questionnaire was assessed by correlating it with the Petrides and Furnham (2000) self-report emotional intelligence questionnaire, which was normed by Marani (2003), resulting in a correlation coefficient of 0.34. In the study by Rajabiyan Dehzireh and Heidari (2020), the reliability of the Schutte Emotional Intelligence Scale using Cronbach's alpha was 0.76, indicating suitable reliability for this sample (11).

2.2.3. *Mental Health*

The General Health Questionnaire (GHQ) is a self-report-based questionnaire adapted to various cultural contexts, with shorter versions available. The 28-item GHQ developed by Goldberg and Hiller (1979) consists of closed-response questions with four options for each, facilitating easy and straightforward data extraction. This questionnaire has four scales: somatic symptoms, anxiety and sleep disorders, social dysfunction, and severe depression. Scoring was done using a simple Likert scale from 0 to 3, ranging from least to most severe, with lower scores indicating better health and scores over 22 on any scale indicating signs of disorder. Goldberg and Blackwell successfully classified over 90% of the sample as either ill or healthy using this questionnaire, and the correlation between questionnaire scores and clinical evaluation of disorder severity was reported as above 0.80. Yazdanpanah (1996) estimated the internal consistency of the 28-item GHQ using Cronbach's alpha to be 0.92, confirming the questionnaire's validity and reliability for use in this research (17).

2.3. *Data Analysis*

In the current study, data were analyzed using SPSS version 22 and PLS software, employing Pearson correlation tests and path analysis modeling.

3. Findings and Results

The findings of the current study indicate that out of the sample group of patients with multiple sclerosis, 48 were women (73.8%) and 17 were men (26.2%), with an average age of 37.56 years, and 43.1% had a high school diploma level of education.

Table 1. presents mean and standard deviation of research variables.

Table 1

Mean and Standard Deviation of Research Variables

Variable	Mean	Standard Deviation
Somatic Symptoms	16.35	3.93
Anxiety Symptoms	16.29	2.32
Social Symptoms	13.01	3.007
Depression	16.38	2.88
Total Mental Health Score	62.04	8.83
Physical Impact	62.72	7.05
Psychological Impact	25.52	2.50
Quality of Life	88.24	8.56
Emotion Regulation	33.67	6.72
Emotion Assessment	25.21	5.27
Skills	29.32	5.78
Emotion Application	15.76	3.05
Emotional Intelligence	87.78	15.57

According to Table 2, the correlation between emotional intelligence and mental health is significantly positive (.65), the correlation between quality of life and mental health is significantly positive (.50), and the correlation between quality of life and emotional intelligence is significantly positive (.31). It should be noted that higher scores on the mental health and quality of life questionnaires respectively indicate the presence of mental health issues and lower quality of life. Therefore, it can be stated that the correlation between emotional intelligence and quality of life with mental health is significant and positive.

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Variance-based structural equation modeling is a comprehensive statistical approach for testing hypotheses about relationships between observed variables and latent variables. This variance-based approach, being the second generation of structural equation modeling techniques, challenges the constraints of the first generation, the covariance-based approach, and opens new horizons in fields utilizing this advanced statistical method. Advantages include:

Insensitivity to non-normal distribution of data.

Insensitivity to small sample sizes.

Use of mixed measurement models.

Ability to use a measurement model with only one question.

The capability of this approach and its software to genuinely support moderating variables.

Implementation of a model developed by the researcher (new model development).

Application of highly complex models.

Table 2

Correlation among Emotional Intelligence, Quality of Life, and Mental Health

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1												
2	.91**	1											
3	.93**	.80**	1										
4	.91**	.77**	.79**	1									
5	.74**	.70**	.66**	.58**	1								
6	.37**	.36**	.33**	.42**	.15*	1							
7	.02	.006	.02	.09*	.02*	.49**	1						
8	.31**	.29*	.27*	.37**	.13*	.96**	.69**	1					
9	.60**	.51**	.51**	.66**	.35**	.45**	.21	.43**	1				
10	.15	.17	.09	.16	.014	.18	.24*	.22	.10	1			
11	.59**	.54**	.58**	.52**	.46**	.24*	.07	.22	.56**	.04	1		
12	.43**	.38**	.37**	.48**	.24*	.55**	.21	.52**	.54**	.14	.53**	1	
13	.65**	.58**	.57**	.67**	.39**	.51**	.25**	.50*	.84**	.37**	.78**	.79**	1

*p<0.05; **p<0.01

1-Emotional Intelligence; 2-Emotion Regulation; 3-Emotion Assessment; 4-Emotion Regulation Skills; 5-Emotion Application; 6-Physical Impact; 7-Psychological Impact; 8-Quality of Life; 9-Somatic Symptoms; 10-Anxiety Symptoms; 11-Social Symptoms; 12-Depression; 13-Total Mental Health Score

Figure 1

Model with Beta Values

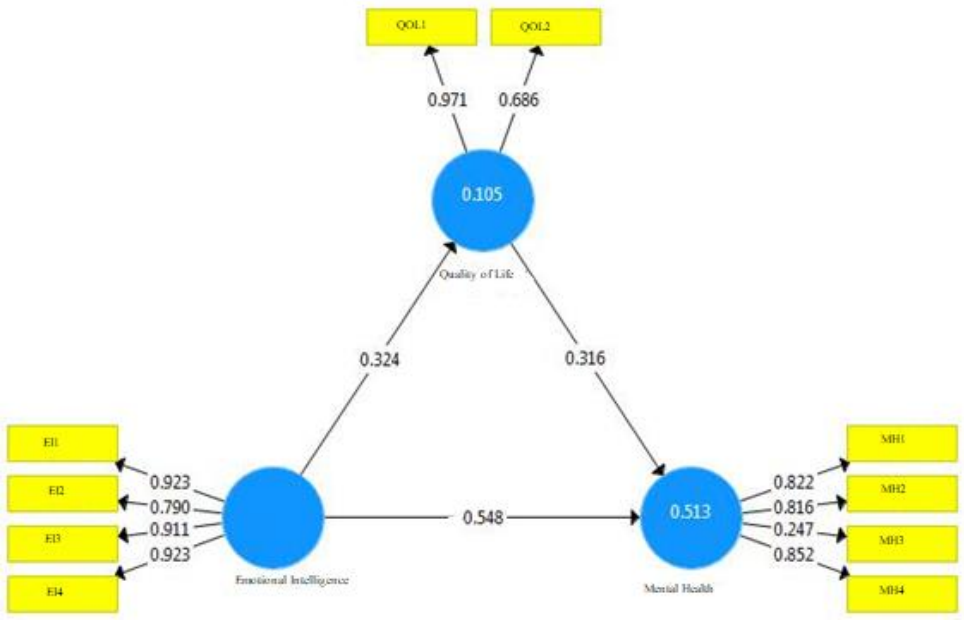

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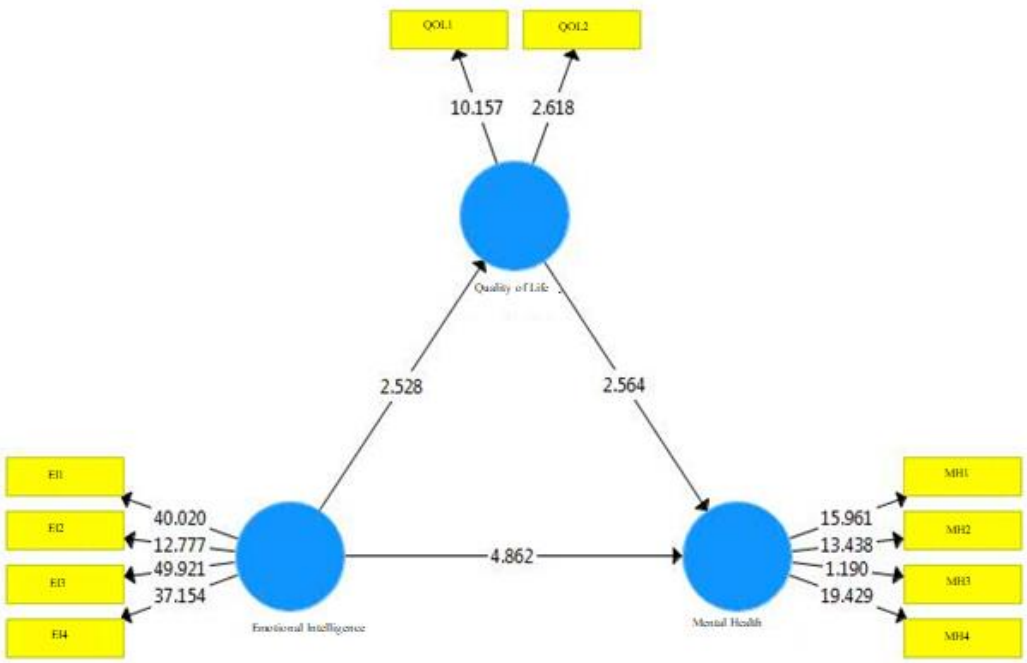
Figure 2

Model with T-Values



To examine the mediating role of quality of life in the relationship between emotional intelligence and mental health in patients with multiple sclerosis, variance-based structural equation modeling was used, and the results are presented in path diagram form. The structural equation model tested hypotheses about the mediating role of quality of life in the relationship between emotional intelligence and mental health in patients with multiple sclerosis using modeling software. The presented model is illustrated in figures below, displaying the relationships among variables and the coefficients of each, with numbers on the lines representing standardized beta coefficients from the regression equation between variables, also known as path coefficients, and the number inside the blue circle indicates the coefficient of determination, explaining the dependent variable by independent variables.

Table 3

Estimation of Regression Coefficients in Direct and Indirect Relationships of the Research Model

Research Hypothesis	t-Value	Standard Coefficient	R^2	Significance Level	Hypothesis Outcome
Emotional Intelligence → Quality of Life	2.528	0.324	0.105	0.012	Confirmed
Quality of Life → Mental Health	2.564	0.316	0.513	0.011	Confirmed
Emotional Intelligence → Mental Health	4.862	0.548	0.513	0.000	Confirmed
Emotional Intelligence → Quality of Life → Mental Health	2.234	0.102	0.513	0.037	Confirmed

The estimated effect coefficients in Table 3 indicate whether there is a significant influence in the model. In the first column, the standard effect coefficient is presented, followed respectively by the t-value, R^2, significance level, and finally, the outcome of the pathway.

As seen in Table 3, considering that the p-value of the effect of emotional intelligence on quality of life is 0.012, which is less than 0.05, and with a t-value of 2.528, which exceeds the critical value of 1.96, the effect coefficient of 0.324 is significant at the 95% confidence level, confirming the significant and approved effect of emotional intelligence on quality of life in the model.

Similarly, given that the p-value of the effect of quality of life on mental health is 0.011, which is less than 0.05, and with a t-value of 2.564, which exceeds the critical value of 1.96, the effect coefficient of 0.316 is significant at the 95%

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confidence level, confirming the significant and approved effect of quality of life on mental health in the model.

Also, considering that the p-value of the effect of emotional intelligence on mental health is zero, which is less than 0.05, and with a t-value of 4.862, which exceeds the critical value of 1.96, the effect coefficient of 0.548 is significant at the 95% confidence level, confirming the significant and approved effect of emotional intelligence on mental health in the model.

Based on the results in Table 3, the indirect effect of emotional intelligence on mental health through quality of life, with a p-value of 0.037, which is less than 0.05, and with a t-value of 2.234, which exceeds the critical value of 1.96, the indirect effect coefficient of 0.102 is significant at the 95% confidence level, confirming the significant and approved indirect effect of emotional intelligence on mental health through quality of life in the model.

In PLS modeling, one of the appropriate criteria for evaluating the measurement or outer model is that a construct should share more variance with its indicators than it shares with other constructs in a specific model. For this assessment, researchers suggest using the Average Variance Extracted (AVE), which is the mean of the shared variance between the construct and its indicators. This criterion, which indicates the validity of the measurement tool, assumes that the targeted latent variable shares more common variance with its defined indicators than any other latent variable. Researchers recommend AVE values of 0.5 or higher, indicating that the construct explains about 50% or more of the variance of its indicators.

Convergent validity is a criterion used for fitting measurement models in the PLS method. The AVE indicator represents the mean variance shared between each construct and its own indicators. Simply put, AVE shows the correlation of a construct with its own indicators. Fornell and Larcker (1981) introduced the AVE criterion to measure convergent validity and set the critical value at 0.5, indicating that values above 0.5 demonstrate acceptable convergent validity.

While Cronbach's alpha assumes that all indicators are equally reliable, in PLS models, the reliability of each indicator is assessed separately, leading to a more reliable combination. Given that Cronbach's alpha provides a more stringent estimate of internal reliability of latent variables, another criterion called composite reliability or the Dillon-Goldstein's rho is used in PLS path models. This measure considers the different loadings of the indicators. Generally, when the composite reliability value exceeds 0.7, it indicates that the block is unidimensional, and this index provides a better representation of the reliability of each indicator and the unidimensionality of a block compared to Cronbach's alpha. Another factor considered in evaluating the reliability of internal consistency is composite reliability. The value of this coefficient varies from 0 to 1, with values above 0.7 accepted and values below 0.6 considered undesirable.

Another factor in evaluating the reliability of internal consistency in the model is Cronbach's alpha. The value of this coefficient varies from 0 to 1, with values above 0.7 accepted and values below 0.6 considered undesirable.

Table 4

General Model Quality Metrics

Latent Variables	Convergent Validity (AVE)	Composite Reliability (CR)	Cronbach's Alpha (Alpha)
Mental Health	0.733	0.800	0.859
Emotional Intelligence	0.790	0.937	0.912
Quality of Life	0.716	0.824	0.858

According to the results in Table 4, the values for convergent validity, composite reliability, and Cronbach's alpha show a good fit for the model.

Discriminant validity assesses the extent to which a construct relates to its indicators in comparison to its relation with other constructs, such that acceptable discriminant validity of a model indicates that a construct interacts more with its own indicators than with other constructs. Fornell and Larcker state that discriminant validity is acceptable when the AVE for a construct is greater than the shared variance between that construct and other constructs in the model. For measuring discriminant validity using the Fornell-Larcker criterion, the square root of the AVE of the

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first-order latent variables should be greater than the correlation values among them.

Table 5

Fornell-Larcker Discriminant Validity Matrix

Construct	Emotional Intelligence	Mental Health	Quality of Life
Mental Health		0.729	
Emotional Intelligence	0.889	-0.651	
Quality of Life	0.840	-0.324	0.493

In the matrix of Table 5, the values on the diagonal are the square roots of the AVE values for the first-order latent variables, and the values below the diagonal are the correlations among the variables. As seen in the table, the diagonal values are greater than those below it, indicating appropriate discriminant validity and very good fit of the measurement models in the structural equation model.

Lastly, the predictive ability of the model can be assessed using the non-parametric Stone-Geisser test (1975), which is performed using the blindfolding technique. The analysis approach in Blindfolding systematically and periodically omits parts of the data sample, calculates the model parameters, and then uses these parameters to predict the omitted cases. The Q^2 value assesses the success of these predictions. A positive and large Q^2 indicates a high predictive ability of the model.

The predictive relationship index is another criterion for evaluating structural models and their quality, aimed at assessing the model's ability to predict using the Blindfolding method. The most well-known and recognized measure of this capability is the Stone-Geisser's Q^2 index, which based on this criterion, the model should predict the indicators of the endogenous latent variables. This measure determines the predictive strength of the model, and if it is above zero, it indicates an appropriate predictive power of the independent variable.

Table 6

Q^2 Values in Structural Equation Modeling Fit

Dependent Variable	SSO	SSE	Q^2 (1-SSE/SSO)
Mental Health	260.000	197.022	0.242
Emotional Intelligence	260.000	260.000	
Quality of Life	130.000	128.026	0.015

According to Table 6, it is observed in the 1-SSE/SSO section that this coefficient has been calculated and, as all values are above zero, it indicates a good fit of the model with emphasis on the predictive power of the independent variables. In the Stone-Geisser formula, SSO represents the sum of squares of observations for each block of latent variables, and SSE represents the sum of squared errors of predictions for each block of latent variables. If the coefficient is positive, it indicates that the observed values have been well reconstructed, and it can be concluded that the structural model is of good quality.

Table 7

Communalities and R^2 Values for Research Variables

Latent Model Variables	Communalities (Q^2)	R^2 Value
Mental Health	0.330	0.513
Quality of Life	0.340	0.105

It is necessary to evaluate the overall part of the model, which includes both the measurement and structural sections simultaneously. For this purpose, the GOF criterion related to the overall part of structural equation models is used.

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Wetzels et al. (2009) introduced values of 0.01, 0.25, and 0.36 as weak, medium, and strong values for GOF, respectively. This means that if a GOF value of 0.01 or close to it is calculated in a model, it can be concluded that the overall fit of that model is weak, and improvements to the relationships between the model's constructs are needed. Similarly, the other two values of GOF (0.25 for medium overall fit and 0.36 for strong overall fit) follow the same guideline. Given the 0.320 value for GOF, it indicates a good overall fit in the research model.

Given the values of 0.01, 0.25, and 0.36 as weak, medium, and strong for GOF, achieved 0.320 for GOF indicates a good overall fit in the research model, highlighting the model's appropriateness in terms of predictive power and internal consistency across the constructs assessed.

4. Discussion and Conclusion

The primary aim of the current research was to determine the relationship between emotional intelligence and mental health, with the mediating role of quality of life in patients with multiple sclerosis (MS). The results indicated a significant positive relationship between emotional intelligence and the mental health of MS patients. These findings are consistent with the prior studies conducted (6, 10, 11). It can be explained that MS patients, due to the chronic and disabling nature of their condition and symptoms such as speech and visual impairments, extreme fatigue, loss of balance and vertigo, communication difficulties, short-term memory loss, decreased activity and agility, anxiety, depression, and mood changes, are significantly challenged. However, these patients can timely express their emotions and relieve psychological pressures with emotional intelligence skills; they are able to share their feelings with others and can establish relatively stable and beneficial social relationships with people in similar conditions, gaining support and friendship in stressful and troubling times of MS, which in turn enhances their mental health.

The study also revealed a significant positive correlation between emotional intelligence and the quality of life of MS patients. This finding aligns with the prior results (12, 18, 19). It can be explained that due to the symptoms and signs associated with MS, there can be disruptions in work, social activities, and daily functioning of these patients, increasing the likelihood of psychological issues (20). According to France (1992), quality of life is both physical and mental, with the mental aspects predominating. France views quality of life as an individual's perception of their well-being and believes that a decline in one's perception of life can impact other characteristics, leading to a deterioration in overall quality of life (21). However, an MS patient with emotional intelligence skills can overcome these challenges, enhance self-confidence, improve relations with others, and thereby shape better social interactions and utilize these relationships to enhance life quality and satisfaction (19).

The results also demonstrated that quality of life plays a mediating role in the relationship between emotional intelligence and mental health in MS patients. Extensive research has shown that low levels of emotional intelligence can lead to difficulties in coping and managing emotions, which may trigger a range of problems. In recent years, there has been a growing interest in the role of emotional intelligence and related programs to enhance emotional adaptability and reduce harmful behaviors in educational environments, significantly increasing (22). Therefore, MS patients, when aware of their needs and emotions, and by expressing or controlling tensions timely to achieve a level of peace and feel more satisfied, can make the social environment more tolerable. This control leads to a greater sense of competence and ultimately results in greater contentment and an improved quality of life. Moreover, enhancing the quality of life in MS patients impacts their mental health and can prevent disruptions in jobs, interpersonal communications, and the inability to fulfill personal, family, and social responsibilities.

Lastly, the limitations of the research include not controlling for the duration of MS, which is a significant factor affecting the quality of life of these individuals. The self-reported nature of the data collected in this study is a limitation that affects the validity of the results. Furthermore, the small sample size is another factor that limits the generalizability and validity of the research findings. Future researchers are advised to conduct similar studies with larger samples and to utilize methods such as observation, interviews, and personal history in data collection. Future research could also investigate the role of disease duration and individual and social support factors in the quality of life

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of these patients. Considering the findings, it is recommended that individuals with MS, beyond drug treatments, should acquire necessary knowledge about health-related behaviors and quality of life related to health under the supervision of health psychologists. Health professionals and psychologists can facilitate the development of effective interventions to improve the quality of life in this patient group. Given the role of emotional intelligence in enhancing the quality of life and mental health of MS patients, it seems that training in emotional intelligence components should be considered an essential aspect of treating individuals with MS. Thus, given the disruption in the mental health of MS patients and the existence of physical, social, anxiety, and depression issues in some of these patients, it is suggested that training, counseling, and psychological support be used to assist these patients.

Authors' Contributions

B.A. designed the study, led the data collection process, and contributed to the data analysis. S.S., the corresponding author, was primarily responsible for overseeing the structural equation modeling, interpreting the data, and leading the manuscript writing and revisions. K.T. assisted in the development of the methodology and played a key role in the administration of the questionnaires. V.A. contributed to the literature review, data entry, and initial analyses. M.M. was involved in the drafting of the manuscript, particularly in integrating the results and discussion sections. All authors were involved in refining the study's design, participated in critical revisions of the manuscript for important intellectual content, and approved the final manuscript for publication.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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