

The relationship between risk for eating disorder and health-related quality of life in patients with multiple sclerosis

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ÖZET

Multipl sklerozlu hastalarda yeme bozukluğu riski ile sağlıkla ilgili yaşam kalitesi arasındaki ilişki

Amaç: Çalışmanın amacı, multipl skleroz (MS)'lu hastalarda yeme bozukluğu riskini ve sağlıkla ilgili yaşam kalitesini değerlendirmek ve yeme bozukluğu riski ile ilişkili faktörleri belirlemektir.

Yöntem: Bu kesitsel çalışmanın örneklemini 57 hasta oluşturdu. Veriler soru formu, Yeme Tutum Testi (YTT) ve MS Yaşam Kalitesi-54 Ölçeği (Multiple Sclerosis Quality of Life-54, MSQOL-54) kullanılarak toplandı. Verilerin değerlendirilmesi için Kolmogorov Smirnov testi, tanımlayıcı istatistikler, güvenilirlik analizi ve korelasyon analizi uygulandı.

Bulgular: Hastaların ortalama YTT puanı 18.4 ± 8.4 'dür. Toplam altı hastada (%10.5) yeme bozukluğu riski tespit edildi. Ortalama MSQOL-54 bileşik fiziksel sağlık puanı 64.1 ± 22.3 ve ortalama bileşik mental sağlık puanı 66.4 ± 22.0 idi. YTT puanları ile MSQOL-54 bileşik fiziksel sağlık alt ölçek puanları arasında negatif yönde anlamlı ilişkiler olduğu bulundu ($p < 0.05$). YTT puanları MSQOL-54 bileşik mental sağlık boyutu puanı ($p < 0.05$) ve emosyonel sorunlara bağlı rol sınırlılıkları alt ölçek puanı ile negatif yönde ilişkili idi ($p < 0.001$).

Sonuç: Çalışmanın sonuçları MS'li hastalarda yeme bozukluğu riskinin nisbeten yüksek, sağlıkla ilgili yaşam kalitesinin ise orta düzeyin üstünde olduğunu gösterdi. Yeme bozukluğu riski hastaların sağlıkla ilgili yaşam kalitesini olumsuz yönde etkiledi.

Anahtar Kelimeler: Yeme bozuklukları, multipl skleroz, sağlıkla ilgili yaşam kalitesi

SUMMARY

Objective: The purpose of this study was to evaluate the risk for eating disorder and health-related quality of life in patients with multiple sclerosis (MS) and also to determine the factors associated with risk for eating disorder.

Methods: The sample of this cross-sectional study consisted of 57 patients. Data were collected by using a questionnaire, the Eating Attitudes Test (EAT), and the MS Quality of Life-54 Instrument (MSQOL-54). The Kolmogorov-Smirnov test, descriptive analysis, reliability analysis, and correlation analysis were applied to analyze the data.

Results: The mean EAT score of the patients was 18.4 ± 8.4 . Total six patients (10.5%) had risk for eating disorder. The mean MSQOL-54 physical health composite score was 64.1 ± 22.3 , and the mean mental health composite score was 66.4 ± 22.0 . It was found that there were significant negative correlations between the EAT scores and the MSQOL-54 physical health composite subscale scores ($p < 0.05$). The EAT scores were negatively correlated with the MSQOL-54 mental health composite score ($p < 0.05$) and role limitations due to mental problems subscale score ($p < 0.001$).

Conclusion: The results of this study showed that the risk for eating disorder was relatively high in patients with MS and the health-related quality of life of patients was also higher than moderate level. The risk for eating disorder adversely affected health-related quality of life of patients.

Key words: Eating disorders, multiple sclerosis, health-related quality of life.

Introduction

Multiple sclerosis (MS) is an inflammatory, chronic and generally progressive disease of central nervous system. MS is the main reason for neurologic function disorders in young adults, especially in women (1-3). Although the cause of the disease is not clearly known, genetic, immunologic, and environmental factors are reported to contribute to development of the disease (2,4). While neurologic function disorders are mild in early stages of MS, different neurologic symptoms including muscle weakness, reduced mobility, bladder instability, visual problems, face numbness, dysphagia, and cognitive impairment may occur in time, depending on the affected area of the brain (4). Symptoms such as pain, fatigue, loss of appetite, and mood disturbances are common in patients (4,5). In addition, patients may suffer from altered body image due to MS (5). These health problems and adverse effects of medicines cause deterioration of nutrition status of patients (4). Therefore, the risk of morbidity and mortality increases while quality of life decreases in patients with MS (2,6,7).

Eating disorders are psychiatric diseases that occur primarily in adolescence and young adulthood, characterized by changes on eating behavior. Eating disorders are classified as anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (8-11). Results suggest that the prevalence of eating disorders in Western countries is higher than that of the non-Western countries. However, there is a gradual increase in rate of eating disorders in non-Western countries (12). Several studies have reported that eating disorders are more common in women (8,13). Genetic, biologic (dopamine, serotonin, and leptin levels), sociocultural and psychological factors such as concerns about body shape and weight dissatisfaction play a role in occurrence of these disorders (8,11,14). Determination of autoantibodies affecting structures related to eating behavior and structural abnormalities in brain shows the importance of biological factors in development of eating disorders (9,15). The highest mortality among psychiatric diseases is detected in patients with eating disorders. However, health problems of individuals with eating disorder may be misinterpreted by health care professionals and the diagnosis of disease may be delayed (8).

Patients with MS are at increased risk for developing eating disorders because of their physical and psychosocial problems. Evaluation of the risk for eating disorder in patients with MS is necessary in terms of effective symptom management and evidence based practices. However, to our knowledge, so far there is only one published study regarding possible eating disorders in patients with MS (16). It is unknown whether there is a relationship between eating disorders and health-related

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quality of life in patients with MS. Therefore, the purpose of this study is to determine the risk for eating disorder and health-related quality of life in patients with MS. In addition, to investigate relationships between the risk for eating disorder and age, body mass index (BMI), disease duration, and health-related quality of life was also aimed.

Material and Methods

Design and sample

This study was performed cross-sectionally between November 2012 and April 2013. The study population consisted of 78 patients with MS who were followed up by the Neurology Department of a training hospital at Ankara city center. The study included 57 patients with MS who were able to communicate in Turkish and provide informed written consent (73.1% response rate). Patients who had diabetes and psychiatric di-

seases such as major depression, anxiety disorders, alcohol and substance abuse and personality disorders (frequently seen concurrently with eating disorders), who underwent MS attack within the last two months, and who were clinically unstable were excluded from the study (17-19).

Data collection instruments

Data were obtained via face-to-face interviews and medical records. The interviews with patients lasted approximately 20 minutes. The questionnaires prepared to collect data comprised of three sections. The first section was personal data form and the second section was Eating Attitude Test (EAT). The third section also included MS Quality of Life-54 Scale (MSQOL-54).

Personal data form: The form prepared by examining the literature was used for data collection. The personal data form included socio-demographic (age, gender, education level,

Table 1. Means, standard deviations, medians, ranges and correlations between eating disorder risk and age, body mass index, disease duration and quality of life (N = 57)

Variables	M (SD)	Median	Range	Eating Attitudes Test
Age (years)	36.4 (11.3)	36.0	19-70	-0.021
Body mass index (kg/m ²)	24.0 (4.5)	23.7	14.0-43.0	-0.171
Disease duration (months)	69.5 (67.8)	48.0	1-300	0.226
Physical Health Composite	64.1 (22.3)	72.1	16.6-96.9	-0.244
Sexual function	79.8 (30.7)	100.0	0.0-100.0	-0.084
Physical function	71.8 (30.8)	85.0	5.0-100.0	-0.271*
Social function	69.9 (23.9)	75.0	16.7-100.0	-0.176
Pain	66.6 (27.4)	76.7	0.0-100.0	-0.170
Health distress	64.4 (21.3)	65.0	0.0-100.0	-0.136
Health perceptions	55.3 (21.7)	60.0	10.0-100.0	-0.156
Role limitations due to physical problems	53.1 (44.3)	50.0	0.0-100.0	-0.387**
Energy/fatigue	51.5 (23.5)	56.0	0.0-96.0	-0.161
Mental Health Composite	66.4 (22.0)	72.5	18.1-100.0	-0.244*
Role limitations due to emotional problems	71.5 (40.8)	100.0	0.0-100.0	-0.469***
Cognitive function	71.3 (23.6)	75.0	10.0-100.0	-0.222
Overall quality of life	66.1 (22.2)	68.4	15.0-100.0	-0.205
Health distress	64.4 (21.3)	65.0	0.0-100.0	-0.136
Emotional well-being	62.8 (19.0)	62.0	16.0-100.0	-0.183
Satisfaction with sexual function	74.1 (34.4)	100.0	0.0-100.0	0.004
Change in health	50.0 (25.9)	50.0	0.0-100.0	0.199

*p < 0.05. **p < 0.01. ***p < 0.001. Two-tailed Spearman correlation coefficients are reported (r).

marital status, employment status, income level, the presence of a caregiver, smoking and alcohol intake history) and disease-related variables (height, weight, having another chronic disease, disease duration, and medicines used). The BMI values of patients were calculated by dividing the body weight to the square of height in meter (kg/m²).

Eating Attitude Test (EAT): The scale developed by Garner and Garfinkel (20) is a self-report tool evaluating behavior and attitudes associated with eating in patients with eating disorder and possible disorders in eating behaviors in normal individuals. The 40-item EAT is a 6-point Likert-type scale (Always: 6, Very frequently: 5, Often: 4, Sometimes: 3, Rarely: 2, Never: 1). "Sometimes" is evaluated as 1, "rarely" as 2, "never" as 3, and the other options as 0 point in items with number 1,18,19,23,27, and 39 in the scale. In the other items of the scale, "always" is calculated as 3, "very frequently" as 2, "often" as 1, and the other options as 0 point. The cutoff score of the scale is 30 (20). In the validity and reliability study performed by Savaşır and Erol (21), the Cronbach's alpha coefficient of the scale adapted for Turkish population was found to be 0.70. In our study, the internal consistency of the EAT was supported with reliability analysis (Cronbach's alpha coefficient=0.70).

Table II. Distribution of Eating Attitude Test scores by risk for eating disorder (N = 57)

Risk for eating disorder	n	%
Present (≥30 score)	6	10.5
Absent (<30 score)	51	89.5

Multiple Sclerosis Quality of Life-54 (MSQOL-54): The scale developed by Vickery et al. (22) in order to evaluate health-related quality of life of patients with MS consists of total 54 items. There are 12 multi-item scales and two single-item scales (satisfaction with sexual function, change in health) in the MSQOL-54. Two composite scores are obtained on the scale. The physical health composite includes physical function (10 items), sexual function (four items), social function (three items), pain (three items), health distress (four items), health perceptions (five items), role limitations due to physical problems (four items), and energy/fatigue (five items). The mental health composite includes emotional well-being (five items), role limitations due to emotional problems (three items), cognitive function (four items), health distress, and overall quality of life (two items). The subscale scores are calculated by dividing the raw total score by number of items in the subscale. The MSQOL-54 physical and mental health composite scores are calculated by weighting subscale scores at a rate of their contribution to total score. The scale is scored from 0 to 100 with a higher score representing greater health-related quality of life (22). The MSQOL-54 was adapted for Turkish population by Idiman et al. (23) by performing validity and reliability study.

Ethics considerations

The study was carried out in conformity with Helsinki Declaration principles. The study was approved from the Hospital's Local Ethics Committee before the study. The participants were informed about the purpose and procedure of the study before written informed consent was obtained.

Data analysis

All statistical analyses were performed using SPSS 15.0 (SPSS Inc., Chicago, USA) statistic package program. It was examined whether or not data show a normal distribution with the one-sample Kolmogorov-Smirnov test. The internal consistency of scales was assessed by reliability analysis (Cronbach's alpha coefficient). Descriptive statistics (means, medians, standard deviations (SDs), ranges, percentages) were used in the study. As parameters did not comply with normal distribution assumptions, Spearman's rho correlation coefficient was used to assess correlations. In the study, confidence interval in all tests was accepted as 95%.

Results

The mean age of study group was 36.4±11.3 years, the median disease duration was 48 months, and the mean BMI was 24.0±4.5 (Table I). The majority of the patients were women (73.7%), married (68.4%), were working (57.9%) and had an income equal to their expenses (75%). Approximately half of the patients graduated from university (45.6%). Most of the patients were non-smoker (89.5%) and non-drinker (93%). All of the patients (100%) were diagnosed with relapsing-remitting MS, and 84.6% received medical therapy. Three patients (5.3%) had another chronic disease. More than half of the patients (54.4%) reported that they had a caregiver, and patients frequently (48.4%) received support from spouse and kids.

The mean EAT score of the patients was 18.4±8.4 (range=6-41). Six out of 57 patients (10.5%, five women and one man) had risk for eating disorder (EAT ≥30; Table II).

As shown in Table I, the mean MSQOL-54 physical health composite score was 64.1±22.3. The sexual function had the highest mean subscale score and energy/fatigue had the lowest mean subscale score. In the study, the mean MSQOL-54 mental health composite score was 66.4±22.0. While the role limitations due to emotional problems and cognitive function subscale scores were ranked as the highest, the emotional well-being received the lowest ranking among mental health composite subscale scores (Table I).

The correlations between the mean EAT score and age, BMI, disease duration, and the mean MSQOL-54 scores are shown Table I. The Spearman's correlation coefficient indicated significant negative correlations between the EAT scores and the MSQOL-54 physical health composite subscale scores (physical function: $r=-0.271$, $p=0.041$; role limitations due to physical problems: $r=-0.387$, $p=0.003$; respectively). The EAT scores were negatively correlated with the MSQOL-54 mental health composite score ($r = -0.306$, $p = 0.026$), as well as role limitations due to mental problems subscale score ($r = -0.469$, $p < 0.001$). However, the EAT scores were not associated with age, BMI values, and disease duration ($p > 0.05$) (Table I).

Discussion

This was the first study to assess the relationship between possible eating disorder and health-related quality of life in patients with MS. Data related to eating disorders in patients with MS are limited. Terzi et al. (16) found that 9.1% of patients with MS had disordered eating behaviors. In our study, the risk for eating disorder of the patients with MS (10.5%) is similar to that reported by Terzi et al. (16) (Table II). Clinical evidences show that dysphagia occurred in more than one third of patients with MS (33%-43%) (3,6,7) and that this situation

contributes to eating disorders (4). On the other hand, eating disorders are generally associated with altered body image (8). Pfaffenberger et al. (5) found that patients with MS were more dissatisfied with their body image than healthy controls. Further studies need to be done in order to fully understand all of the factors that contribute to eating disorders in patients with MS.

In this study, it was determined that the health-related quality of life of patients was higher than moderate level and the physical health was affected more compared to emotional health because of disease (Table I). Life standard of at least one third of patients with MS become quite reduced. Most patients have no job, and this situation is generally related to outcomes of disease. Parallel to these findings, some studies have reported that quality of life is lower in patients with MS compared to healthy population and those with other chronic diseases (24,25). The lack of standardized measures in many studies prevents the comparison of results with other samples. In a limited number of studies where the MSQOL-54 was used as measure tool, the health-related quality of life of patients with MS was determined relatively lower in proportion to this study (22,26,27). This situation is considered to arise from characteristics of the participants. In the MSQOL-54, the most affected areas were energy/fatigue (physical health composite dimension) and emotional well-being (mental health composite dimension) in our study (Table I). In the study performed by Romberg et al. (28), the main affected areas were role limitations due to physical and emotional problems. Effective interventions should be implemented to increase health-related quality of life of the patients (25).

The results showed that physical functions decrease and role limitations due to physical problems increase in patients with higher risk of eating disorder. Additionally, mental health composite dimension of quality of life was determined to be influenced and role limitations due to emotional problems increased in patients with higher risk of eating disorder (Table I). No other study performed in this area on patients with MS was encountered in the literature; thus, comparing our results is not possible. In our study, it is not known exactly how these interactions occurs, but this may be partly due to pyramidal, sensory, visual, cerebellar or brainstem impairments, activity intolerance related to pain, weakness and fatigue, and mood disturbances including depression that influence eating behavior (3,5-7). On the other hand, this situation might be arisen from the influence of the deteriorating nutrition status due to eating disorder on the physical and psychosocial well-being (6,29). Further research is required to determine how the interaction between eating disorders and health-related quality of life occurs in patients with MS.

In our study, the risk for eating disorder was found not to be associated with age, BMI values, and disease duration (Table I). Our findings are consistent with Terzi et al.'s (16) study indicating that there are no differences between patients who had normal eating behavior and those who had risk for eating disorder in terms of age, BMI, and disease duration.

Limitations

Some limitations are present in this study. The small sample size, collection of data based on self-report, and cross-sectional study design are major limitations of the study. These results should be supported with other studies and follow-up studies should be performed. Future studies should be con-

ducted to compare the risk for eating disorders in patients with MS versus healthy controls. Furthermore, it is possible that medicines used by the patients affect the results. Therefore, the results of this study cannot be generalized. However, as there is no further study in this area, we believe that our study will illuminate other studies to be performed in the future.

Conclusions

The results showed that the risk for eating disorder was relatively high in patients with MS and the health-related quality of life of patients was higher than moderate level. The risk for eating disorder affected health-related quality of life of patients negatively. Patients with MS should be directed to relevant departments for final diagnosis and treatment by evaluating possible eating disorder. In addition, patients and their family should be informed about effects of nutrition status on prognosis of the disease and quality of life.

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