

Effect of depression on quality of life of patients with multiple sclerosis

Wpływ depresji na jakość życia chorych ze stwardnieniem rozsianym

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Keywords

multiple sclerosis, depression, quality of life, disability

Abstract

Background and purpose: Depression is a common complication of multiple sclerosis. It can essentially affect the natural course of the disease, treatment and rehabilitation results and can significantly decrease the quality of life. The aim of this study is to assess the effect of depression on multiple sclerosis patients' quality of life using the Polish version of the Functional Assessment of Multiple Sclerosis questionnaire (FAMS).

Material and methods: Ninety-four patients aged 18–51 years, treated as inpatients at a neurological department, were examined. Depression was diagnosed using the DSM-IV criteria. Depression was assessed by means of the Hamilton Depression Rating Scale (HDRS). The influence of depression on the quality of life assessed with Functional Assessment of Multiple Sclerosis questionnaire (FAMS) and its association with locomotor insufficiency were analyzed (EDSS-Kurtzky Scale). The Fischer exact test and the Mann-Whitney test were used for statistical analysis.

Results: Fifty-eight patients (62%) suffered from depression. Among them, 48 patients (51%) suffered mild depression and 10 patients (11%) had moderate or severe depression. A significantly better quality of life was noted in patients without depression in comparison to patients with mild and, especially, to those with moderate or severe depression ($p < 0.005$). A clear association between the degree of locomotor insufficiency, depression severity, and quality of life of patients with multiple sclerosis was found.

Conclusions: High incidence of depression and its severity are associated with locomotor insufficiency. Depression significantly affects multiple sclerosis patients' quality of life. The Polish version of FAMS questionnaire is a reliable and sensitive tool assessing quality of life and should be widely used in clinical practice.

Słowa kluczowe

stwardnienie rozsiane, depresja, jakość życia, niepełnosprawność

Streszczenie

Założenia i cel pracy: Depresja może wpływać na naturalny przebieg stwardnienia rozsianego, leczenie i rehabilitację oraz znamienne obniża jakość życia. Celem pracy była ocena wpływu depresji i jej nasilenia na jakość życia chorych ze stwardnieniem rozsianym z wykorzystaniem standaryzowanej, polskiej wersji nowego Kwestionariusza do Oceny Jakości Życia w Stwardnieniu Rozsianym (FAMS).

Materiał i metody: Badaniem objęto 94 osoby w wieku 18–51 lat leczonych na neurologicznym oddziale szpitalnym. Depresję rozpoznawano stosując kryteria DSM-IV, a jej nasilenie oceniano za pomocą Skali Depresji Hamiltona. Analizowano następnie wpływ depresji na jakość życia ocenianą kwestionariuszem FAMS i jej związek z niewydolnością ruchową (skala EDSS-Kurtzky'ego). W obliczeniach statystycznych posługiwano się testem Fischer'a i testem Manna-Whitney'a.

Wyniki: Depresję stwierdzono u 58 chorych (62%), z tego lekką u 48 (51%) a umiarkowaną i ciężką u 10 chorych (11%). Analiza statystyczna wykazała istotnie lepszą jakość życia w grupie osób bez depresji w porównaniu z grupą z lekką, a zwłaszcza umiarkowaną i ciężką depresją ($p < 0,005$). Wykazano również wyraźny związek między nasileniem depresji a stopniem niepełnosprawności chorych.

Wnioski: Depresja jest częstym powikłaniem stwardnienia rozsianego. Jej występowanie związane jest z czasem trwania choroby i stopniem niewydolności ruchowej oraz znamienne wpływa na jakość życia chorych. Kwestionariusz FAMS ocenia większość aspektów jakości życia i może być użytecznym narzędziem do badania chorych ze stwardnieniem rozsianym.

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Authors' contribution: A – project of the study, work; B – collection of the data, information; C – statistical analysis; D – data interpretation; E – preparation of the manuscript; F – literature query; G – obtaining funds

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INTRODUCTION

Multiple sclerosis (MS) is a slowly progressive inflammatory-demyelinating disease of the central nervous system of unknown aetiology. An autoimmune process plays a key role in the pathogenesis that leads to damage to myelin sheaths of neuronal processes, subsequently inducing also axonal damage. Presence of disseminated foci of demyelination (the so-called plaques), situated primarily in the white matter, most frequently periventricularly¹, is a characteristic feature of the disease. The disease usually starts between the 20th and the 40th year of age. Complex pathomechanism of the disease and its disseminated nature are associated with the fact that both clinical picture of MS and its course is unusually variable. Among neurological manifestations, motor and sensory disturbances, cerebellar signs and vision disturbances are most pronounced. More and more often, cognitive dysfunction and emotional disturbances that can constitute one of the important parts of clinical picture of MS, are being emphasised. Depression is a frequent complication of multiple sclerosis. Its prevalence is estimated for 25-75% of the whole MS population^{1,2,3}. Depression may significantly affect natural course of the disease, the therapy and rehabilitation and significantly decrease quality of life (QoL). The aim of the study was to assess the effects of depression and its severity on the quality of life of patients with multiple sclerosis using the standardised, Polish version of the Functional Assessment of Multiple Sclerosis questionnaire (FAMS).

Table 1

Characteristics of the study participants			
Gender	Number of patients (%)	Age $\bar{x} \pm SD$	Disease duration
Women	50 (53.2%)	43.5 \pm 8.7	12.3 \pm 8.7
Men	44 (46.8%)	41.7 \pm 9.1	11.5 \pm 7.4
Total	94	42.6 \pm 9.4	11.8 \pm 7.8

\bar{x} arithmetic mean, SD – standard deviation

Material and methods

Ninety-four patients with clinically definite MS (according to McDonald criteria⁴), aged 18-51 years, treated at the Department of Neurology at the Specialist Hospital in Końskie, were enrolled into the study (Table 1). Disease duration was 11.8 \pm 7.8 years on average.

Patients were at different neurological status as assessed by the EDSS (Expanded Disability Status Scale by Kurtzky). Depression was diagnosed using the DSM-IV criteria and its severity was evaluated by means of the Hamilton Depression Rating Scale (HDRS); a standardised 17-item version was used in this study. Further, effects of depression on the quality of life assessed using the FAMS questionnaire and its association with motor disability (EDSS). The FAMS questionnaire (Functional Assessment of Multiple Sclerosis Quality of Life Instrument) was designed by research team of Evanston University, Illinois, USA, led by professor David Cell, in 1996⁵. We obtained permission from the author to use the Polish, standardised version of the questionnaire⁶.

The FAMS questionnaire serves for patients' self-assessment in 6 do-

mains: mobility (0-28 points), symptoms (0-28 points), emotional well-being (0-28 points), general contentment (0-28 points), thinking and fatigue (0-36 points), and family and social life (0-28 points). Patients' score can range from 0 to 176 points. Three levels of quality of life were distinguished: 0-57 points – bad quality of life, 58-117 – satisfactory, 118-176 – good.

For statistical analysis, the Fisher exact test was used and inter-group differences confirmed using the Mann-Whitney U test. Significance level was set at $p < 0.05$. Calculations were conducted using statistical package CSS-STATISTICA-PL.

Results

Depression was diagnosed in 58 patients (62%), including mild depression in 48 persons (51%) and moderate to severe depression in 10 patients (11%). Disease duration and degree of disability expressed in EDSS were important. The longer mean disease duration, the more frequent was depression and the greater its severity (Table 2).

Pronounced association between degree of disability and depression severity was also found. In the group

Table 2

Relationship between quality of life (FAMS questionnaire) and depression (Hamilton Depression Rating Scale)				
Group	Depression severity (expressed in HDRS points)	Number of patients (%)	Mean disease duration $\bar{x} \pm SD$ (years)	FAMS (points)
I	≤ 7 points No depression	36 (38%)	5.2 \pm 2.3	124 \pm 15.6
II	8 – 17 points Mild depression	48 (51%)	11.1 \pm 4.6	87 \pm 13.5
III	≥ 18 points Moderate or severe depression	10 (11%)	15 \pm 7.8	45 \pm 8.8

\bar{x} arithmetic mean, SD – standard deviation, FAMS – Functional Assessment of Multiple Sclerosis; HDRS – Hamilton Depression Rating Scale

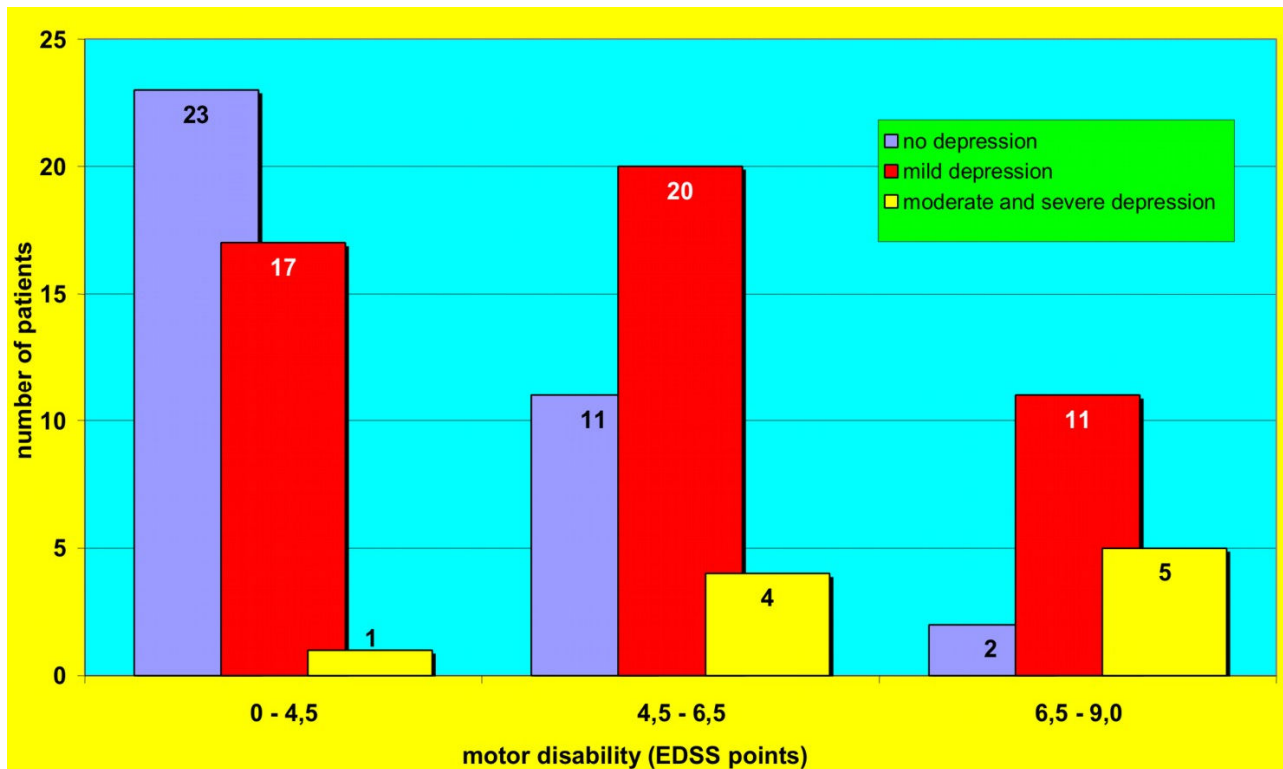


Figure 1
Correlation between motor disability and the presence and severity of depression

of patients with mild disability (0-4.5 points in EDSS), severe depression was sporadic; persons without depression and persons with mild depression were most numerous in this group. With worsening disability, percentages of patients with moderate or severe depression increased (Figure 1).

Statistical analysis demonstrated a significantly better quality of life among patients without depression ($p < 0.005$) as compared to patients with mild and – especially – moderate to severe depression. Persons without depression reported best quality of life (mean: 124 ± 15.6 points) as assessed using the FAMS questionnaire. With increasing depression severity, quality of life significantly worsened and was rated as bad (mean: 45 ± 8.8 points) in the group with moderate and the group with severe depression. Detailed analysis was conducted to evaluate particular variables assessed in FAMS, the physical, psychological, and social constituents of quality of life (Figure 2).

Among the analysed domains of quality of life, statistically significant differences were observed in

„emotional well-being”, „general contentment”, and „thinking and fatigue”. Quality of life of patients without depression was significantly better in these domains ($p < 0.05$) as compared to the group with mild depression and differed significantly from the mild depression and severe depression groups ($p < 0.005$). No significant differences were observed in the domains: „mobility”, „symptoms”, or „family and social life”.

Discussion

A general view, based on the publication of Cottrell and Wilson as of 1926, that a feeling of euphoria is frequently present in MS patients, expressed as a feeling of happiness persistent despite disease progression and disability⁷, have long been widely accepted. These authors observed euphoric mood in over 60% of their patients. More recent reports, beginning with the fifties of the previous century, reversed those proportions^{3,8}.

Numerous studies showed that depression is the most frequent psychiatric disturbance in multiple sclero-

sis and can occur at any stage of the disease; its prevalence is higher in comparison with other neurological diseases causing similar degree of disability^{2,8}. Symptoms of depression can appear as early as at early MS stages, even when the disease has not yet resulted in motor disturbances, and can sometimes precede occurrence of first symptoms of multiple sclerosis^{9,10}.

Risk of occurrence of depression in patients with MS during their lifetime is approximately 50%, while its prevalence ranges from 25 to 75%^{1,2,3}. Most often, episodes of mild and moderate, rarer - severe depression – occur and have a form of anxiety, irritability and decreased attention. In patients with MS and concomitant depression, the risk of suicide increases and is from 2 to 7.5-fold greater than in the general population¹¹.

In our study, we diagnosed depression in 58 patients (62%), with mild depression found in 48 (51%) of patients and moderate and severe depression in 10 patients (11%).

These results are similar to those of other authors. Chwastiak et al.¹² observed mild depression in 41.8% of patients and moderate and severe

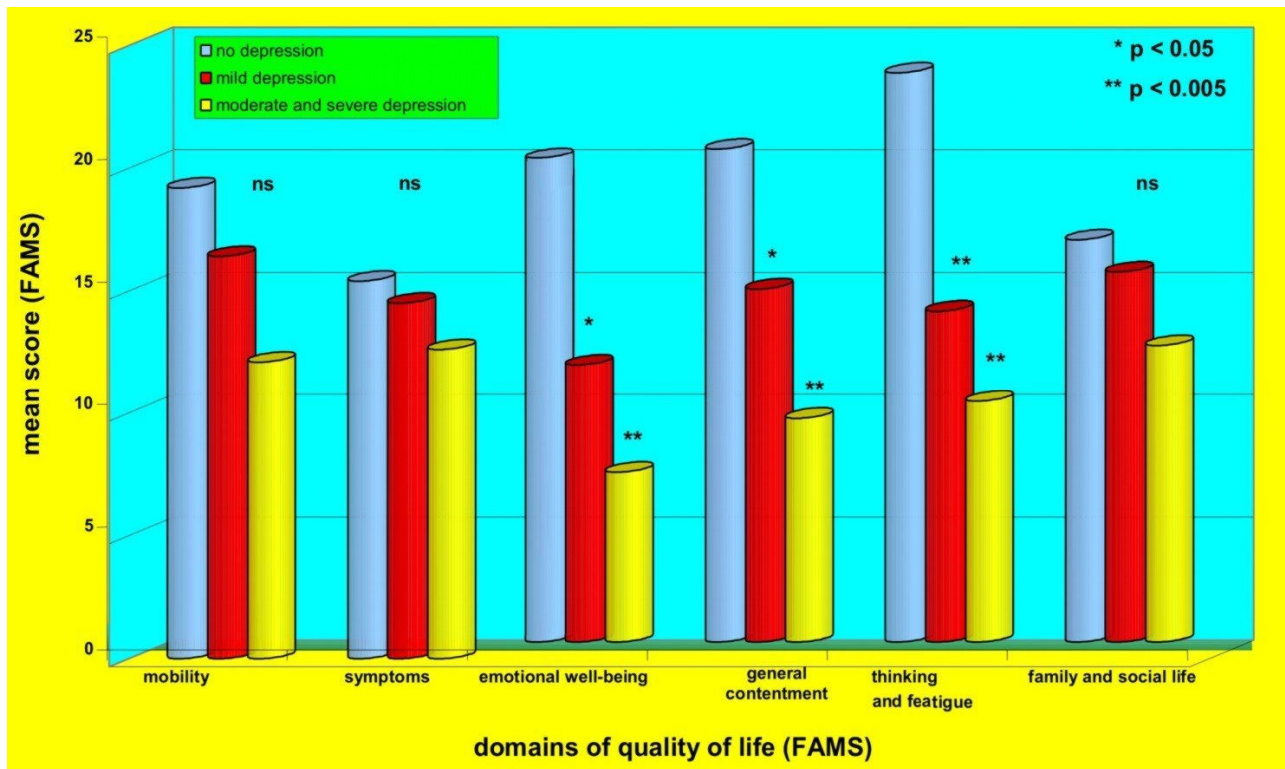


Figure 2
Relationship between depression severity and quality of life

depression in 29.1%. In a study involving a large group of patients (over 1300 persons), a marked correlation between depression and clinical status severity and disease duration was demonstrated¹². In studies conducted by Sadvnick et al.¹³ in a group of 221 patients with MS from Vancouver, Canada, depression was diagnosed in 50% of patients. Furthermore, Joffe et al.³ found depression in 42% of 100 evaluated patients.

Many authors also emphasise the effects of depression on quality of life of patients with MS^{8,14,15}. In our study, QoL assessed using the FAMS questionnaire was very significantly associated with the presence and severity of depression. Patients with moderate to severe depression perceived their quality of life as very low (45 points on average). Significant differences observed especially in the assessment of psychological aspects of QoL („emotional well-being”, „general contentment”, „thinking and fatigue”), considering the lack of significant differences in the remaining QoL domains, suggest that the mental domain is most important in determining patients’ quality of life.

Concomitantly, there is an evident effect of motor function (assessed in the EDSS) on depression and its severity. However, patients’ self-assessment in the physical domains of quality of life („mobility”, „symptoms”) is statistically not related to depression. Social aspect of quality of life, seemingly not affected by depression, is also noticeable. This is likely associated with patients’ dependence on their social environment.

In studies of Lobentanz et al.¹⁶, quality of life was assessed in 504 MS patients in relation to depression severity, fatigue, and sleep disturbances. It was demonstrated that these disturbances occur in over half of the patients and are, aside from motor disability, main independent predictive factors of quality of life¹⁶. Further, Janssens et al.¹⁷ demonstrate that depression and anxiety are the most important factors determining quality of life. Similar conclusions can be drawn from the work of Fruehwald et al.¹⁸, where it was shown that depression, anxiety, motor disability and disease duration have the largest impact on quality of life of patients with MS.

There is a certain problem in QoL studies resulting from the lack of appropriate experimental tools, especially in Polish language^{19,20}. There are many questionnaires for the assessment of quality of life; however, they are rarely standardised and available in Polish cultural version.

Among general questionnaires, used also in other diseases, the short 36-point health survey SF-36, Sickness Impact Profile (SIP), Test and Simonson questionnaire, as well as Life Satisfaction questionnaire (LSQ) and Quality of Well-Being Scale (QWBS) are used for the assessment of QoL in MS patients^{19,20}.

Most frequently used specific scales assessing quality of life in MS include Multiple Sclerosis Quality of Life Instrument (MSQoL-54), Multiple Sclerosis Quality of Life Inventory (MSQLI) and Multiple Sclerosis Impact Scale (MSIS-29)^{19,20}. Unfortunately, they have not been translated and standardised for Polish use.

In Poland, only a few questionnaires are available. Cultural and language adaptation was completed for Polish versions of the Hamburg Quality of

Life Questionnaire (HAQUAM), quality of Life Index (QLI) authored by Carol Ferrans and Marjorie Powers, and the Functional Assessment of Multiple Sclerosis (FAMS)^{19,20}. The scales are protected by copyright and their use requires authors' permission in each individual case.

According to the author of the FAMS questionnaire, quality of life can be understood only when its evaluation takes into account patient's functioning level, perceived ailments associated with the disease, feeling of danger and personal losses²¹. Assessment of quality of life by means of FAMS questionnaire seems to consider all these factors.

Conclusions

1. Depression is a frequent complication of multiple sclerosis.
2. Prevalence and severity of depression is associated with disease duration, degree of motor disability and significantly affects quality of life of patients with multiple sclerosis.
3. The FAMS questionnaire standardised for use in Polish-speaking patients evaluates most of the aspects of quality of life and may be a useful tool for assessment of MS patients.
4. Results of this study suggest that early diagnosis and management of depression may significantly improve quality of life of patients with MS.

References

1. Selmaj K.: Stwardnienie rozsiane. Termedia Wydawnictwo Medyczne, Poznań 2006
2. Minden S.L., Schiffer R.B.: Affective disorder in multiple sclerosis. Review and recommendations for clinical research. Arch. Neurol., 1990; 47: 98-104
3. Joffe R.T., Lippert G.P., Gray T.A., Horvath Z.: Mood disorder and multiple sclerosis. Arch. Neurol., 1987; 44: 376-8
4. McDonald W.I., Compston A., Edan G., Goodkin D., Hartung H.P., Lublin F.D., i wsp.: Recommended diagnostic criteria for multiple sclerosis: guidelines from the international panel on the diagnosis of multiple sclerosis. Ann. Neurol., 2001; 50: 121-127
5. Cella D.F., Dineen K., Arason B., Reder A., Webster K.A., Karabatsos G., et al.: Validation of the functional assessment of multiple sclerosis quality of life instrument. Neurology, 1996; 47: 129-39
6. Kossakowska M.: Standaryzacja polskiej wersji Kwestionariusza do Oceny Jakości Życia w Stwardnieniu Rozsianym (FAMS). Psychologia Jakości Życia, 2004; 3: 65-80
7. Uchman D., Cegielska J., Kędra P.: Depresja i zaburzenia seksualne u chorych na stwardnienie rozsiane. Terapia, 2005; 13: 24-26

8. Amato M.P., Ponziani G., Rossi F., Liedl C.L., Stefanile C., Rossi L.: Quality of life in multiple sclerosis: the impact of depression, fatigue and disability. Mult. Scler., 2001; 7: 340-4
9. Becker H.: Psychotic symptoms as the initial manifestation of multiple sclerosis? Psychiatr. Prax, 1997; 24: 69-72
10. Wender M., Jaracz J., Modestowicz R.: Problemy diagnostyczne w przypadku stwardnienia rozsianego z dominacją objawów psychicznych. Neurol. Neurochir. Pol., 2005; 39: 252-254
11. Stenager E.N., Stenager E., Koch-Henriksen N., Bronnum-Hansen H., Hyllested K., Jensen K., Bille-Brahe U.: Suicide and multiple sclerosis an epidemiological investigation. J. Neurol. Neurosurg. Psychiatry, 1992; 55: 542-545
12. Chwastiak L., Ehde D.M., Gibbons L.E., Sullivan M., Bowen J.D., Kraft G.H.: Depressive symptoms and severity of illness in multiple sclerosis: epidemiologic study of a large community sample. Am. J. Psychiatry, 2002; 159: 1862-8
13. Sadovnick A.D., Remick R.A., Allen J., Swartz E., Yee I.M., Eisen K. et al.: Depression and multiple sclerosis. Neurology, 1996; 46: 628-632
14. Provinciali L., Ceravolo M.G., Bartolini M., Logullo F., Danni M.: A multidimensional assessment of multiple sclerosis: relationships between disability domains. Acta Neurol. Scand., 1999; 100: 156-62
15. Nicholl C.R., Lincoln N.B., Francis V.M., Stephan T.F.: Assessing quality of life in people with multiple sclerosis. Disabil. Rehabil., 2001; 23: 597-603
16. Lobentanz I.S., Asenbaum S., Vass K., Sauter C., Klosch G., Kollegger H., et al.: Factors influencing quality of life in multiple sclerosis patients: disability, depressive mood, fatigue and sleep quality. Acta Neurol. Scand., 2004; 110: 6-13
17. Janssens A.C., van Doorn P.A., de Boer J.B., Kalkers N.F., van der Meche F.G., Passchier J., Hintzen R.Q.: Anxiety and depression influence the relation between disability status and quality of life in multiple sclerosis. Mult. Scler., 2003; 9: 397-403
18. Fruehwald S., Loeffler-Stastka H., Eher R., Saletu B., Baumhackl U.: Depression and quality of life in multiple sclerosis. Acta Neurol. Scand., 2001; 104(5): 257-61
19. Opara J.: Klimetria w stwardnieniu rozsianym. Farmakoterapia w Psychiatrii i Neurologii, 2005; 3: 219-226
20. Opara J., Jaracz K., Broła W.: Aktualne możliwości oceny jakości życia w stwardnieniu rozsianym. Neurol. Neurochir. Pol., 2006; 40: 336-41
21. Talarcka D., Brzozowska E.: Jakość życia pacjentów ze stwardnieniem rozsianym. Neurol. Neurochir. Pol., 2003; 37: 561-71

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