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The quality of life with regard to the sexual sphere and acceptance of the disease in young adults suffering from multiple sclerosis

Ocena jakości życia z uwzględnieniem sfery seksualnej i akceptacji choroby u młodych dorosłych chorujących na stwardnienie rozsiane

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Introduction: Multiple sclerosis as a disease of various dynamic and unpredictable consequences at different periods of the disease can lead to quality of life reduction. One

of the guarantors for maintaining a good quality of life is accepting the disease.

The aim of the study was to evaluate the quality of life, taking into account the sexual sphere and acceptance of the disease among young adults with multiple sclerosis.

Material and Methods: The study included 120 people of both sexes, aged from 18 to 35 years of age suffering from multiple sclerosis during remission, independent in everyday activities or requiring a minimum of help. The study used a questionnaire MSQOL-54 instrument and the AIS scale. The statistical analysis used the following: Kruskal-Wallis test, Mann-Whitney test, Chi2, Spearman coefficient. Program Statistica 7.1 was also used. The level of significance was $p < 0.05$.

Results: The overall quality of life increases with the acceptance of the disease (Spearman

$r = -0.364$; $p = 0.000$). It has been demonstrated the existence of significant statistical positive correlation between satisfaction with the sexual sphere and acceptance of the disease (Spearman's $r = 0.271$; $p = 0.005$) and satisfaction with the sexual sphere and quality of life (Spearman's $r = 0.467$; $p = 0.000$).

Conclusions: The factor determining the quality of life of patients with MS is the acceptance of the disease. Satisfaction with sexual life is a significant factor in assessing the quality of life by patients and the acceptance of their illness.

Introduction

Multiple sclerosis (*sclerosis multiplex* - MS) is a disease with a very non-specific nature of the high variability of symptoms [1], with the peak incidence (20-40 years of age) being the highest human activity in the aspect of family life and occupational activity. SM not only leads to permanent disability

Wstęp: Stwardnienie rozsiane jako schorzenie o różnorodnej dynamice i nieprzewidywalności następstw na różnym czasie trwania choroby prowadzi do obniżenia jakości życia. Za jeden z gwarantów pozwalających na zachowanie dobrej jakości życia uznaje się akceptację choroby.

Celem badania była ocena jakości życia z uwzględnieniem sfery seksualnej i akceptacji choroby przez młodych dorosłych chorych na stwardnienie rozsiane.

Materiał i metody: W badaniu uczestniczyło 120 osób obojga płci, w wieku od 18 do 35 r.ż. chorujących na stwardnienie rozsiane w trakcie remisji, samodzielnych w czynnościach dnia codziennego lub wymagających niewielkiej pomocy. W badaniu wykorzystano kwestionariusz MSQOL-54 Instrument oraz skalę AIS. Do analizy statystycznej wykorzystano testy: Kruskala-Wallisa, U Manna-Whitney'a, Chi2, współczynnik rang Spearmana. Użyto programu Statistica 7.1. Przyjęto poziom istotności $p < 0,05$.

Wyniki: Ogólna jakość życia rośnie wraz ze wzrostem akceptacji choroby (r -Spearmana $0,364$; $p = 0,000$). Wykazano występowanie istotnie statystycznej korelacji dodatniej pomiędzy satysfakcją ze sfery seksualnej a akceptacją choroby (r -Spearmana $0,271$; $p = 0,005$), oraz satysfakcją ze sfery seksualnej a jakością życia (r -Spearmana $0,467$; $p = 0,000$).

Wnioski: Czynnikiem determinującym jakość życia pacjentów z SM jest akceptacja choroby. Satysfakcja z życia seksualnego jest znaczącym czynnikiem w ocenie jakości życia przez pacjentów i akceptacji swojej choroby.

but also escalates the social consequences [2,3]. It is estimated that about 40-60 thousand people suffers from multiple sclerosis in the whole country. However, these data are only presumed, because studies on the disease in Poland seem to be insufficient [4,5]. Multiple sclerosis forces reevaluation the sick person's professional, family and

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social life [6,7], resulting in a change in quality of life. One of the guarantors for maintaining a good quality of life is an adaptation to the disease and its acceptance. In order to accept the illness it is necessary reach consensus with the image of oneself. To achieve that psychological adjustments are necessary, such as having a value system, their own identity and control over the environment [8]. In the case of multiple sclerosis process of adaptation to the disease is especially difficult because of the variable dynamics of the disease and its unpredictability and lack of control over it. Assessment of the process of adaptation and acceptance of the disease can be vital in maintaining or improving quality of life. In modern medicine the attention is drawn to the way of describing the quality of life, which should be presented subjectively and objectively. Subjective factors include, among others, satisfaction with family life (including sexual), social support, professional activity, or perception of one's life as a holistic totality. However, among the objective factors are also distinguished such as social status, social and living conditions, social contacts and the clinical picture of the disease [9,10]. The aim of the study was to evaluate the quality of life, taking into account the sexual sphere and acceptance of the disease among young adults with multiple sclerosis, taking into account some variables such as age, sex, education, marital status, duration of the disease.

Material and methods

The study included 120 people (women: n=82; 68%, men: N=38; 32%) suffering from multiple sclerosis, during remission, independent in everyday activities or requiring minimum help. Age of respondents: 18 to 35 years of age (group I between 18-24 years of age: N=18; 15%; group II between 25-29 years of age: N=35; 29%, group III between 30-35 years of age: N=67; 56%). Patients with diagnosed other pre-existing medical conditions or psycho-emotional disorders, in particularly difficult situations, e.g. : the death of a loved one, job loss, relationship breakdown, divorce, the radical health deterioration over the last 3 months were excluded from the study. The vast majority of respondents were unmarried people (Miss/ single 49%, N=59), married were 45% (N=54); divorced 6% (N=7). Education of respondents: 60% (N=72) of respondents declared higher education, 28% (N=34) secondary education, 10% (N=12), vocational, 2% (N=2) of the surveyed primary education. Duration of disease: year - 11% (N=13); 1 to 3-14% (N=16); 3 to 5 years - 29% (N=34); from 5 to 10 years - 34% (N=40); from 10 to 15 years - 12% (N=14). The study was conducted in Krakow on neurology wards in hospitals: (Szpital Uniwersytecki, Wojskowy Szpital Kliniczny, Szpital Specjalistyczny im. J. Dietla, Oddział Neurologii Szpitala Specjalistycznego im. L. Rydygiera) and the Foundation for MS patients of Bl. A. Salawa. Participation in the survey was voluntary. The study was conducted in accordance with the Declaration of Helsinki, the consent of the Bioethics Committee No. 12.6120.127.2015. The study used: - Ques-

tionnaire MSQOL-54 Instrument (Multiple Sclerosis Quality of Life) - evaluating the quality of life in multiple sclerosis, by Vickrey et al. [11]. Polish version and permission to use the questionnaire was obtained from the author. The questionnaire evaluates 14 aspects of life of the patient, which are grouped into two areas - mental and physical health and then the weighted average is calculated for them in accordance with the key which allows for an assessment of the quality of life in these two areas. For the purposes of this study apart from the assessment of mental health and physical health the part relating to sexual activity was also isolated for statistical analysis.

- Acceptance of Illness Scale (AIS) by Felton, Reverson & Hinrichsen adapted by Juczynski [12]. The sum of all points collected by the person in question is a measure of the acceptance of his current state of health and is in the range of 8 to 40 points. The higher the score, the higher the degree of acceptance of the disease.

The statistical analysis used the test: Kruskal-Wallis test, Mann-Whitney test, Chi2, coefficient of Spearman. Program Statistica 7.1 was used. The level of significance was $p < 0.05$.

Results

I. The results of the questionnaire analysis MSQOL-54

1. Overall quality of life

The high level of quality of life was found in 28% (N=33), ranging 80-90 points. The highest score >90-100 points describing the degree of quality of life received by only 4% (N=5) patients. The lowest score achieved by 2% (N=2) of the respondents value of <30 points (Fig. 1). Descriptive statistics: median (M)=70; a minimum of (min) = 5; the maximum (Max) = 91.65; SD=15.069.

2. Assessment of the physical realm

The largest group of patients - 21% (N=25) of patients who achieved result in the interval > 78-80 points and the lowest scores in the assessment of physical health was received by 2% of the research group (Fig. 2). Descriptive statistics: M=66.03; Min=14.83; Max=98.90; Standard deviation - 19.125.

3. Evaluation of psychiatric

The largest group of patients - 23% (N=28) were patients who received > 80-90 points. A detailed schedule obtained by the respondents point is represented by Fig.3. Descriptive statistics: M=69.72; Min=3.90; Max=97.34; Standard deviation - 17.688.

4. Evaluation of satisfaction with sex life

Distribution of the results of the evaluation of satisfaction with sex life respondents with MS amounted to 30 points. (Lack of satisfaction with sex life) - 13%; from 30 to 60 points (quite satisfactory sex life) - 26% of respondents; from 60 to 90 points (satisfactory sex life) - 42% of respondents; 90 points and above (maximum satisfaction with sex life) - 19% of respondents. No statistically significant correlation was indicated between satisfaction with sex life and marital status ($p = 0.107$). However, correlation between satisfaction with sex life and the age has been demonstrated ($p = 0.026$) (Tab. I). The highest median value of satisfaction with sex life (M=78) was at the age range

18-24 years. The lowest score of sexual life (M=50) was indicated with patients aged 30-35 years.

There has also been a significant statistical correlation between satisfaction with sex life and duration of the disease ($p = 0.028$) (Tab. II). The lowest satisfaction with sex life (M=50) was observed in the respondents suffering from 11 to 15 years, the highest (M=78) in patients with disease duration of a year. The result of Spearman coefficient indicated the presence of significant statistical positive correlation between acceptance of illness and satisfaction with sex life - the degree of acceptance of the disease increases with increasing satisfaction with sex life: Spearman $r = 0.271$; T ($n-2$)=2.857; $p = 0.005$.

II. The results of analysis of scale AIS

The largest group of patients - 30% (N=35) received a range of points of >35-40 on the scale AIS least points (>5-10) recorded was only 3% (N=4) of the respondents. The higher the number of points scored, the higher the degree of acceptance of the disease. A detailed breakdown of points scored by the subjects are presented in Fig. 4.

III. The analysis of results between the overall quality of life of patients and selected variables (gender, age, marital status, education, disease duration)

Statistical analysis using the U test of Mann-Whitney showed no statistical significance between the overall quality of life and sex of the respondents ($p = 0.068$). However, men get a higher value of the minimum overall quality of life (Min=22) compared to women (Min=5). No statistical significance (Kruskal-Wallis) were demonstrated between age and overall quality of life of respondents ($p = 0.217$). The lowest minimum value (Min=5) assess the overall quality of life occurred in the youngest group of 18-24 years of age, but the median value (M=79) were in this age range the highest. Additionally, the highest minimum overall assessment of quality of life (Min=41) was observed in patients aged 25-29 years, in the group between 30-35 years of age - M=69; Min=21.

Also, no significant correlation (Kruskal-Wallis test) between the marital status of respondents and the overall quality of life ($p = 0.226$), and education and the overall quality of life ($p = 0.405$). Median (M=59) overall quality of life was the lowest in people with primary education, and the highest (M=73) in patients with higher education. The lowest value of quality of life (Min=5) was observed in patients with secondary education. Statistical significance between the overall quality of life and disease duration was not demonstrated ($p = 0.881$). The median values were at a similar level, regardless of the duration of the disease. People with 3-5 years (min=5) and 6-10 years (min=24) received the lowest minimum points in quality of life compared with those of other disease duration (year 1 - 3 years old and 10 - 15 years disease duration). The analysis shows that the median value shows a slight downward trend with the longer duration of the disease.

IV. The analysis results depending on the assessment of the realm of physical and mental health spheres and selected variables (gender, age, marital status, education, disease duration).

It has been shown that there is a statistically significant relationship between the assessment of physical health sphere and mental health and gender - details Tab. III. There were no statistical significance between the assessment of physical health and disease duration ($p=0.076$) and between the assessment of mental health and disease duration ($p=0.641$). In contrast, there was a statistically significant difference in the assessment of physical health sphere depending on the level of education (Tab. IV).

V. Assessment of the relationship between acceptance of the disease and quality of life

Statistical analysis showed that the overall quality of life increased with the acceptance of the disease (AIS) r -Spearman=0.361; $T(n-2)=4.138$; $p=0.000$. The assessment of the relationship between acceptance of the disease and quality of life in the mental and physical showed that a high score on a scale of AIS correlated with an increase in the assessment of physical health: Spearman $r=0.516$; $T(n-2)=6.491$; $p=0.000$ and mental health: Spearman $r=0.434$; $T(n-2)=5.179$; $p=0.000$. The result obtained correlation coefficient of r -Spearman confirmed a positive correlation between the mental health and physical health (with an increase in mental health assessment increased also physical health assessment) - Spearman $r=0.775$; $T(n-2)=13.331$; $p=0.000$.

Discussion Multiple sclerosis with its variety of symptoms and their uneven distribution of time leads to changes in the quality of life of patients and difficulty in accepting their situation. The importance of acceptance in adapting to living with a chronic disease is indicated by Pakenham et al. [13] and Załuski [14]. Acceptance of the disease is essential to keep the welfare of not only physical, but also mental. The results of their study support the conclusion that the majority of patients have a high level of acceptance of the disease, despite the different duration of the disease, however, the results differ from the reported ones by other authors [15, 16]. It cannot be ruled out that the separateness of the results affect the dependent variables or the selection of research tools.

Respondents in the study positively evaluated their quality of life. Unfortunately, the highest score of quality of life was reported by a relatively small number of respondents. It can therefore be concluded that multiple sclerosis prevents patients get the best quality of life, which is also indicated by Benedict et al. [17].

In the assessment of physical health and mental the results noted in the own study indicated a significantly lower scores, proving the influence of the disease on quality of life in these spheres. Mental health evaluation was at a higher level compared to assessment of physical health, which is quite obvious implication, taking into account the volatile and unpredictable nature of the

disease leading to increasing disability. Similar conclusions were reached by Rimaz et al. [18] O'Conner et al. [19] Schipper et al. [20] Kargafard et al. [21] and Goretti et al. [22]. while different results were obtained by Lorencowicz et al. [23]. According to her publication it can be concluded that as a result of major changes in the functioning of the physical realm there is also a change in the psyche of a patient with MS. It is worth emphasizing that the group studied by Lorencowicz et al. had a significantly higher average age than the group of respondents in our study.

Based on the analysis of the results it can be stated that in assessing the quality of life in both the mental and physical, women scored lower results compared to men, as in the results of Miller et al. [24]. Miller et al. indicated that such result might be linked to the role of a woman, her societal functions and having more responsibilities. Deterioration of medical fitness in women caused greater limitations in daily functioning, thereby lowering the assessment of the quality of life.

In our study we evaluated the relationship between quality of life and gender, age, marital status, education and duration of the disease. Statistical analysis showed that the higher the level of education and age of the respondents, the better the result obtained in the questionnaire MSQOL-54. However, with the extension to the duration of the disease, quality of life showed a declining trend. Quite surprising was the result of analysis between quality of life and marital status. Persons who are married reported the lowest quality of life compared with those which are in informal relationships. It cannot be ruled out that being married, creates awareness of the risk of losing a spouse, while persons who are not in stable relationships do not have similar dilemmas, and that they are better prepared to cope alone, even in difficult situations. Of course, this consideration is purely hypothetical and not confirmed by research. In contrast, different results were presented by Fernández et al. [25]. Moreover, the author also showed that at lower values of quality of life is influenced by education level, female gender and younger age. Similar conclusions were presented by Tepavcevic et al. [9]. Analyzing the results of Tepavcevic et al. higher values in the evaluation of the mental health can be noted than in the evaluation of physical health, as well as correlating the quality of life duration of the disease. Also, Garcia-Martin, et al. [26] Tadic et al. [27] Idiman et al. [28] showed that with increasing duration of the disease itself has worsened considerably quality of life. This relation has also been confirmed in the analysis of our research.

For young adults a very important factor in achieving good quality of life is a successful sex life. Disturbances in the sexual sphere are usually secondary to MS, but may be an important determinant of psycho-emotional functioning. In the present study respondents assessed satisfaction with sex life at an average level, which may indicate the impact of the disease on this sphere. It was also shown that the quality

of sex life decreased with the duration of disease and age. Similar results were presented by Kessler et al. [29] Tepavcevic et al. [30] Dobrakowski et al. [31] Calabrò et al. [32]. Summarizing the above considerations on the acceptance of the disease and quality of life for young adults with MS can cite the results of Sistiago et al. [33], which are comparable to the results of our own research and confirm the validity of statements that quality of life is dependent on the degree of acceptance of the disease. In planning the holistic care of young patients with MS many factors that determine satisfaction with life should be taken into account, including and satisfaction with sex life [34, 35].

Conclusions 1. A major factor significant and determining the quality of life of patients with multiple sclerosis is the acceptance of the disease.

2. Satisfaction with sexual activity, in addition to age, education and duration of the disease, a significant factor in the disease acceptance and quality of life.

3. It seems important to deepen the studies that take into account the aspect of marital status as determinants of quality of life in patients with multiple sclerosis.

References:

1. Compston A, Coles A: Multiple sclerosis. *Lancet* 2008; 372: 1502-1517.
2. Cavalla P, Rovei V, Masera S, Vercellino M, Masobrio M. et al: Fertility in patients with multiple sclerosis: current knowledge and future perspectives. *Neurol Sci*. 2006; 27: 231-239.
3. Przychodzka E, Lorencowicz R, Turowski K, Bednarz E: Funkcjonowanie społeczne i zawodowe pacjentów z SM. *Zdrowie i dobrostan*. Wydawnictwo Naukowe Neurocentrum. Lublin 2013; 4: 213-233.
4. Potemkowski A: Stwardnienie rozsiane w świecie i w Polsce - ocena epidemiologiczna. *Aktualn Neurol*. 2009; 2: 9-97.
5. Kułakowska A, Bartosik-Psujek H, Hozejowski R: Selected aspects of the epidemiology of multiple sclerosis in Poland - a multicenter pilot study. *Neurol Neurochir Pol*. 2010; 5: 443-452.
6. Finkelsztein A, Brooks B, Paschoal M, Fragoso D: What can we really tell women with multiple sclerosis regarding pregnancy? A systematic review and meta-analysis of the literature. *BJOG* 2011; 118: 790-797.
7. Krajewski S, Garczyński W, Zawadka M, Kowalewski M, Jakimiec R. i wsp: Aktywność zawodowa chorych na stwardnienie rozsiane. *Hygeia Public Health* 2014; 49: 134-141.
8. Korwin-Piotrowska K, Korwin-Piotrowska T, Samachowicz J: Self perception among patients with multiple sclerosis. *Arch Psych Psychother*. 2010; 3: 63-68.
9. Tepavčević K, Pekmezović T, Drušević J: Quality of life assessment in patients with multiple sclerosis. *Vojnosanit Pregl*. 2009; 66: 645-650.
10. Stachowska M, Grabowska M, Szewczyk M, Talarska D: Ocena jakości życia chorych ze stwardnieniem rozsianym. *Piel Pol*. 2013; 4: 257-261.
11. Vickrey B, Hays D, Harooni R, Myers W, Ellison W: A health-related quality of life measure for multiple sclerosis. *Qual Life Res*. 1995; 4: 187-206.
12. Juczyński Z: Narzędzia pomiaru w promocji i psychologii zdrowia. *Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego*. Warszawa, 2001: 168-171.
13. Pakenham K, Fleming M: Relations between acceptance of multiple sclerosis and positive and negative adjustments. *Psychol Health* 2011; 26: 1292-1309.
14. Livneh H, Antonak RF: Psychosocial adaptation to chronic illness and disability: a primer for counselors. *J Counseling Develop*. 2005; 83: 12-20.
15. Żychlińska K, Stefańska W: Poczucie koherencji a style radzenia sobie z chorobą przewlekłą u osób ze stwardnieniem rozsianym. *JNNN* 2013; 2: 195-204.

16. **Pejas-Grzybek, Skorupska-Król A:** Poziom akceptacji choroby w stwardnieniu rozsianym. *JNND* 2015; 4: 19-23.
17. **Benedict RH, Wahlig E, Bakshi R, Fishman I, Munschauer F. et al:** Predicting quality of life in multiple sclerosis: accounting for physical disability, fatigue, cognition, mood disorder, personality, and behavior change. *J Neurol Sci.* 2005; 231: 29-34.
18. **Rimaz S, Mohammad K, Dastoorpoor M, Jamshidi E, Majdzadeh R:** Investigation of relationship between social capital and quality of life in multiple sclerosis patients. *Glob J Health Sci.* 2014; 6: 261-272.
19. **O'Connor P, Lee L, Ng T, Narayana P, Wolinsky JS:** Determinants of overall quality of life in secondary progressive MS: a longitudinal study. *Neurology* 2001; 57: 889-891.
20. **Schipper S, Wiesmeth S, Wirtz M, Tworz S, Kugler J:** Coping strategies and health-related quality of life in multiple sclerosis patients. *Psychother Psychosom Med Psychol.* 2011; 61: 347-355.
21. **Kargarfard M, Eetemadifar M, Mehrabi M, Maghzi AH, Hayatbakhsh R:** Fatigue, depression, and health-related quality of life in patients with multiple sclerosis in Isfahan, Iran. *Eur J Neurol.* 2012; 19: 431-437.
22. **Goretti B, Portaccio E, Zipoli V, Razzolini L, Amato MP:** Coping strategies, cognitive impairment, psychological variables and their relationship with quality of life in multiple sclerosis. *Neurol Sci.* 2010; 31: 227-230.
23. **Lorencowicz R, Jasik J, Komar E, Przychodzka E:** Wpływ wsparcia społecznego dla jakości codziennego funkcjonowania osoby chorej na stwardnienie rozsiane. *JNND* 2013; 2: 205-215.
24. **Miller A, Dishon S:** Health-related quality of life in multiple sclerosis: the impact of disability, gender and employment status. *Qual Life Res.* 2006; 2: 259-271.
25. **Fernández O, Baumstarck-Barrau K, Simeoni MC, Auquier P:** Patient characteristics and determinants of quality of life in an international population with multiple sclerosis: assessment using the MusiQoL and SF-36 questionnaires. *Mult Scler.* 2011; 17: 1238-1249.
26. **Garcia-Martin E, Rodriguez-Mena D, Herrero R, Almarcegui C, Dolz I. et al:** Neuro-ophthalmologic evaluation, quality of life, and functional disability in patients with MS. *Neurology* 2013; 81: 76-83.
27. **Tadić D, Dajić V:** Quality of life in patients with multiple sclerosis in Republic of Srpska. *Med Glas (Zenica)* 2013; 10: 113-119.
28. **Idiman E, Uzunel F, Ozakbas S, Yozbatiran N, Oguz M. et al:** Cross-cultural adaptation and validation of multiple sclerosis quality of life questionnaire (MSQOL-54) in a Turkish multiple sclerosis sample. *J Neurol Sci.* 2006; 240: 77-80.
29. **Kessler M, Fowler J, Panicker N:** Sexual dysfunction in multiple sclerosis. *Expert Rev Neurother.* 2009; 9: 341-350.
30. **Tepavcevic K, Kostic J, Basuroski D, Stojisavljevic N, Pekmezovic T. et al:** The impact of sexual dysfunction on the quality of life measured by MSQoL-54 in patients with multiple sclerosis. *Mult Scler.* 2008; 14: 1131-1136.
31. **Dobrakowski P, Pierzchała K, Łabuz-Roszak B:** Sexual dysfunctions and sexual satisfaction among multiple sclerosis patients. *Wiad Lek.* 2013; 66: 180-184.
32. **Calabrò S, Bramanti P:** Sexual dysfunction in multiple sclerosis: still a neglected problem? *Disabil Rehabil.* 2014; 36: 1483.
33. **Sistiaga A, Castillo-Triviño T, Aliri J, Gaztañaga M, Acha J. et al:** Cognitive performance and quality of life in multiple sclerosis in Gipuzkoa. *Revista Neurol.* 2014; 16: 337-344.
34. **Guo Z-N, He S-Y, Zhang H-J, Wu J, Yang Y:** Multiple sclerosis and sexual dysfunction. *Asian J Androl.* 2012; 14: 530-535.
35. **Fletcher SG, Castro-Borrero W, Remington G, Treadaway K, Lemack GE. et al:** Sexual dysfunction in patients with multiple sclerosis: a multidisciplinary approach to evaluation and management. *Nat Clin Pract Urol.* 2009; 6: 96-107.