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### Resources evaluation in patients with multiple sclerosis: A moderation effect of time since diagnosis

**Abstract:** Multiple sclerosis significantly affects how patients maintain the resources they consider important. The aim of this paper is to describe the moderation effect of time since diagnosis on the evaluation of resources by patients with multiple sclerosis, on the basis of S.E. Hobfoll's Conservation of Resources (COR) theory. The study was conducted using paper and pencil methods and involved 77 patients, of whom 32 received their diagnosis less than four years ago, and 45 more than four years ago. The patients' resource evaluation was investigated using the Polish adaptation of the COR questionnaire. Patients who received their diagnosis more than four years ago were more likely to consider vital and spiritual resources to be more important. In patients diagnosed less than four years ago, the loss of economic, political, and vital resources was significant. It is shown moderation effect of time since diagnosis. The results may be the basis for further research.

**Key words:** Multiple Sclerosis, Time since diagnosis, COR, Resources evaluation

#### Introduction

Multiple sclerosis is a demyelinating disease of the central nervous system resulting from nervous system damage caused by genetic and environmental factors and a complex autoimmunological reaction involving demyelination, loss of oligodendrocytes, axonal injury, and remyelination, or as a result of astrogliosis (Losy, 2008). As a chronic illness, according to the findings of the World Health Organization, it is characterized by a long duration, uncertain progression, and frequently a negative prognosis. Patients are forced to make a significant effort to cope with its psychological and social consequences, including loss of body integrity and control, discomfort, limitation of independence, and increased difficulty fulfilling developmental tasks (Sęk, Kaczmarek, Ziarko, Pietrzykowska, & Lewicka, 2012).

#### Psychological Consequences of Multiple Sclerosis

In connection with the issues mentioned above, multiple sclerosis has a significant impact, not only on functioning and physical fitness – the primary symptoms include visual impairment, limb dysesthesia,

gradually increasing paresis, and neuralgias (Maciejek, & Wawrzyniak, 2013) – but also on social roles, family, professional roles, and intrapsychic processes, such as cognitive and emotional–motivational processes. This may be a result of the occurrence of secondary psychopathological symptoms during the illness, of which the most common are depressive symptoms in about 11%–34% (Alschuler, Ehde, & Jensen, 2013) of multiple sclerosis patients and fatigue in about 70%. The fatigue is considered one of the disease's three main symptoms (Losy, 2005). Studies indicate that also up to 85% of multiple sclerosis sufferers experience neuropathic pain (Fryze, 2005).

The mental health of person with multiple sclerosis depends on the social context, within which subjectively perceived social support – such as emotional, material, instrumental, and informational support – may play an important role. Social support has been found to have a significant influence on patients' quality of life, especially informational and emotional support (Lorenkowicz, Jasik, Komar, & Przychodzka, 2013). Social support is also positively associated with perceived mental health in patients (Krokavcova, van Dijk, Nagyova, et al., 2008).

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## Resource evaluation in Patients with Multiple Sclerosis

S.E. Hobfoll's resource conservation theory talks about the sociocultural context of stress, focusing on the resources in every individual. According to this theory, people aim to achieve, maintain, and protect what is most valuable to them (Hobfoll, 2012). Resources include means (capital and potential) which, as a result of a chronic disease, may become damaged or lost, or which may help cope with the unpredictability and arduousness of the disease.

Resource perception is not the same across patients with different disease duration, due to the process of adaptation and different way of functioning with the illness (DiLorenzo, Becker-Feigeles, Halper, & Picone, 2008). As Korwin-Piotrowska and Korwin-Piotrowska (2010) have stated, there is an acute stress associated with receiving a diagnosis of multiple sclerosis, with patients typically asking themselves: *why me?*, *how will I cope with this disease?*, *why now?*, thus initiating the process of adaptation to the disease. This is a time of struggle involving the search for new ways of acting and finding oneself in this new situation. Hobfoll (2012) indicated that experiencing great losses creates a need to gain new resources, and this process of seeking new resources is more intense and meaningful. The resource theory aims to examine a relatively unknown area in health psychology – the fact that, despite the difficulties associated with stress and illness, an individual remains actively involved in the performance of their roles and duties in life (Hobfoll, 2012). It also highlights the fact that their efforts are often aimed at regaining just those resources that have been lost or exhausted in a stressful situation; moreover, resource conservation creates a spiral of resource gains and losses (Hobfoll & Shirom, 2001).

To determine whether resource evaluation is different in patients, who have lived with their diagnoses for different periods of time, two groups need to be examined. Four years since diagnosis is a criterion that is used here to differentiate the functioning of patients; despite its imprecision, it is useful to examine the difference between patients struggling with their disease for longer and shorter times (Janssens, Buljevac, van Doorn, et al., 2006).

Because of the psychological consequences of multiple sclerosis and the probability of a change in the perception of resource evaluation, the following set of variables, relating to three main aspects, is proposed: (1) Personal factors related to illness (sense of fatigue, pain complaints, positive and negative experiences, depressive experiences), (2) Situational factors (subjectively perceived social support), (3) Coping strategies. As indicated by Hobfoll (2012), loss of resources is more significant than a gain of resources and he also draws attention to social support, and especially to the role of the family. Probably, significance of resources and their losses and gains may be altered by these specify variables.

## Goals and Hypothesis of the Study

The aim of this article is to examine the moderation effect of time since diagnosis on the evaluation of resources

by patients with multiple sclerosis, on the basis of S.E. Hobfoll's Conservation of Resources (COR) theory. The study has two main hypotheses, which have resulted from an analysis of literature:

1. There are differences between patients whose time since diagnosis is less than four years and those whose time since diagnosis is greater than four years in the scope of resource conservation – i.e., in their importance, gains, and losses.
2. Time since diagnosis is a moderator of relationship between patients' resource evaluation and the potential correlates.

## Method

### Participants

One hundred and eleven patients were invited to participate in the study, to which 83 patients consented. Seventy-seven patients were qualified to participate in the study with the aim of making the sample more homogenous in terms of age. Therefore, 46 women aged 24 to 57 ( $M=38.26$ ;  $SD=8.21$ ) and 31 males aged 26 to 55 ( $M=40.74$ ;  $SD=9.22$ ) were examined; the age range of all participants ranged from 24 to 57 ( $M=39.90$ ;  $SD=8.67$ ). The patients were divided into two groups: (1) Those whose time since diagnosis is less than four years ( $n=32$ ), and (2) Those whose time since diagnosis is greater than four years ( $n=45$ ). In terms of education, 39% of participants held a master's degree, 15.60% had basic vocational education, 14.30% had secondary vocational education, and 13% had general secondary education. As for marital status, 41% of the participants were married and 21% were single. The majority of patients lived in an urban area. Further details of the demographic description of the sample are available in our other article (Nowaczyk, & Cierpiałkowska, 2016).

The values of Pearson's chi-squared test do not indicate any statistically significant differences between the patients in terms of the demographic variables of gender, education, and place of origin. However, the results suggest that the groups of patients differ in age ( $U=473$ ,  $p=.030$ ). Patients diagnosed less than four years ago were younger than those ( $M=36.75$ ,  $SD=8.54$ ) diagnosed more than four years ago ( $M=41.24$ ,  $SD=8.36$ ).

### Measures

#### COR evaluation

The dynamics of resource conservation were measured using the Polish adaptation of Stevan E. Hobfoll's Conservation of Resources evaluation questionnaire (COR evaluation), prepared by Dudek, Gruszczyńska, and Koniarek (2006). A questionnaire with ninety-nine items in part A and ninety-nine in part B was used (Bielawska-Batorowicz, & Dudek, 2012; Nowaczyk, 2015). The COR evaluation is based on the Hobfoll's resource conservation theory, which describes stress as a phenomenon affecting resource management, creating a risk of resource loss and causing their actual loss, or inhibiting their growth. The questionnaire measures

the importance, losses, and gains of resources (taking account of changes for the better and the worse) in the last 12 months.

Subscales were featured in the questionnaire, including the following resources: vital resources, relating to the active pursuit of one's interests and goals; spiritual resources, related to faith, religion, hope, good relations with other people, and being a decent person; family resources, relating to family relations and the importance of family to the patient; economic and political resources, relating to socioeconomic status; power and prestige resources, relating to the need for dominance and high social position (Gruszczyńska, 2012).

The questionnaire consists of two parts. Part A determines the importance of resources on a five-point Likert scale, and part B asks the same questions as part A, but indicates the degree of change for the worse (in the case of resource loss) or better (resource gains) on the same answering format from 0 = *no change at all* to 5 = *very big change*. In Part B, the resource losses and resource gains are calculated by multiplying the value of the importance of the resources by the size of its change. Once the results had been summarized, separate gain values (indicators) and loss values (indicators) were determined.

The following are some sample questionnaire items relating to vital resources: *Sense of optimism, Feeling independent*; spiritual resources: *Hope, Loyalty of friends*; economic and political resources: *Financial stability, Free time*; power and prestige resources: *Role as a leader, Stable employment*; and family resources: *Good marriage, Good relationship with my children*.

#### *Proactive coping inventory (PCI)*

Coping strategies were measured using the Polish adaptation of the PCI prepared by Sęk, Pasikowski, Taubert, Greenglas, and Schwarzer (2002), including the following strategies: proactive coping, preventive coping, reactive coping, strategic planning, emotional support-seeking, instrumental support-seeking and avoidance. The scale consists of fifty-five items, and the answer format was a four-point Likert scale. Examples of items from the questionnaire include *Others help me feel cared for* for emotional support-seeking and *I ask others what they would do in my situation* for instrumental support-seeking.

#### *Positive and negative experience scale*

In our study the Positive and Negative Experience (SPIND) scale of Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi, and Biswas-Diener, adapted into Polish by Kaczmarek and Baran (2015) was used. The scale has twelve items, which measure positive feelings (SPIND-P, 6 items, e.g., *positive, good*), and negative feelings (SPIND-N, 6 items, e.g. *bad, sad*) over the past four weeks. The answers are provided on a five-point Likert scale then summed up within each subscales.

#### *Pain complaints*

A pain complaints (PC) scale has also been designed by the present author (for details see Nowaczyk, 2015).

This scale consists of ten items and measures the pain experienced by patients over the last 6 months and its impact on their functioning on the behavioral, cognitive, and emotional levels. A sample item from the pain complaints scale is *The pain has made me more anxious*. The answer format was a seven-point Likert scale from 0 = *never* to 6 = *always*.

#### *Sense of Fatigue*

A sense of fatigue (FS) scale was developed by the author (for details see Nowaczyk, 2015). The scale measures the sense of fatigue and its impact on functioning over the last 6 months. There were ten items, and the answer format was a seven-point Likert scale, from 0 = *never* to 6 = *always*. A sample item from the fatigue scale is: *Fatigue has made it impossible to deal with my affairs*.

#### *Depressive experiences questionnaire (DEQ)*

The depressive experiences of dependency, self-criticism, and low efficacy were measured using the Polish version of the DEQ of Blatt, D'Aflitti, and Quinlan (Czeszkiewicz, Kopczyńska, & Nowaczyk, 2015). There were sixty-six items, and the answer format was a seven-point numeric scale. Sample questionnaire items include *The lack of permanence in human relationships doesn't bother me* for dependency, *What I do and say has a very strong impact on those around me* for efficacy, and *Usually I am not satisfied with what I have* for self-criticism. The three indicators were obtained on the basis of the results of factor analysis made by Zuroff, Quinlan and Blatt (1990).

#### *Barrer's inventory of socially supportive behaviors (ISSB)*

Subjectively perceived social support was measured using a version of the ISSB adapted into Polish by Sęk. In this study, four types of social support – material (*You were loaned up to a thousand zloty*), instrumental (*You have been sent information that should help you understand your current situation*), informational (*Told you what to expect in a situation that was about to happen*), and emotional (*Expressed interest and concern in your well-being*) – were taken into account (Nowaczyk, 2015). Thus, forty items were used with was a five-point answer format.

#### **Procedure**

Between November 2014 and May 2015, the study was carried out in the neurological wards of hospitals in Poznań and at a private multiple sclerosis treatment center, with the consent of the Poznań branch of the Polish Multiple Sclerosis Society. In accordance with the psychologist's code of ethics with regard to psychological studies, having obtaining consent from the heads of each institution, and having received information from the attending neurologists on the health of the multiple sclerosis patients, 111 patients were invited to the research, of whom 83 of them gave their oral consent. The interview lasted from 30 min to 2 hours. Depending on the patients'

health, the researcher read out the questions or waited for the patients to fill out the form. The study had two stages: First, the patients gave demographic data and filled in the PCI and COR evaluations. Second, the patients answered the questions for the ISSB, DEQ, SPIND, FS, and PC scales. Some patients decided to complete the entire study without dividing it into stages.

## Results

### Descriptive statistics for variables in the study

The descriptive statistics as well as Cronbach's alphas for all the measured variables are presented in Table 1.

There is no difference between the patient groups in terms of the personal variables related to the illness (sense of fatigue, pain complaints, positive and negative experiences, depressive experiences), in subjectively perceived social support, or in the use of coping strategies ( $p > .05$ ). In both groups, the overall importance of resources is most correlated with coping strategies, especially emotional support-seeking ( $r = .46, p < .01$ ). On the other hand, losses of all resources are most correlated with high negative feelings only for those patients who received a diagnosis less than 4 years ago ( $\rho = .62, p < .01$ ). We also observed moderate correlation with negative feelings in this group of patients for losses of vital

**Table 1. Descriptive statistics of all variables: mean values, standard deviations, minimal and maximal values, and Cronbach's alpha reliability score**

| Variable                                     | Min        | Max | M     | SD     | $\alpha$ |     |
|--|------------|-----|-------|--------|----------|-----|
| <b>Coping strategies</b>                     |            |     |       |        | .99      |     |
| Avoidance                                    | 1          | 4   | 2.45  | 0.69   | .93      |     |
| Emotional support-seeking                    | 1          | 4   | 2.73  | 0.57   | .92      |     |
| Instrumental support-seeking                 | 1          | 4   | 2.66  | 0.58   | .95      |     |
| Proactive coping                             | 1          | 4   | 2.52  | 0.47   | .97      |     |
| Preventive coping                            | 1          | 4   | 2.70  | 0.52   | .96      |     |
| Reactive coping                              | 1          | 4   | 2.70  | 0.47   | .86      |     |
| Strategic planning                           | 1          | 4   | 2.62  | 0.68   | .99      |     |
| <b>Personal variables related to illness</b> |            |     |       |        |          |     |
| Positive experiences (feelings)              | 6          | 30  | 20.88 | 4.41   | .89      |     |
| Negative experiences (feelings)              | 6          | 25  | 14.90 | 4.84   | .85      |     |
| Sense of fatigue                             | 0          | 57  | 31.36 | 14.43  | .95      |     |
| Pain complaints                              | 0          | 60  | 23.14 | 19.60  | .98      |     |
| Depressive experiences                       |            |     |       |        | .82      |     |
| Self-criticism                               | 28         | 116 | 71.75 | 21.05  | .85      |     |
| Level of efficacy                            | 20         | 56  | 38.53 | 7.34   | .56      |     |
| Dependency                                   | 13         | 53  | 32.47 | 8.42   | .60      |     |
| <b>Subjectively perceived social support</b> |            |     |       |        | .96      |     |
| Emotional                                    | 2          | 70  | 29.21 | 20.46  | .95      |     |
| Informational                                | 0          | 52  | 14.91 | 13.12  | .93      |     |
| Instrumental                                 | 0          | 16  | 3.14  | 3.47   | .74      |     |
| Material                                     | 0          | 18  | 2.97  | 3.58   | .69      |     |
| <b>Resource evaluations</b>                  |            |     |       |        | .98      |     |
| All resources                                | Importance | 267 | 455   | 385.70 | 43.20    | .95 |
|  | Loss       | 0   | 2255  | 192.78 | 362.53   | .99 |
|  | Gain       | 0   | 2275  | 373.58 | 475.43   | .99 |



Table 1. continued

| Variable           |            | Min | Max | M      | SD     | $\alpha$ |
|--------------------|------------|-----|-----|--------|--------|----------|
| Vital              | Importance | 78  | 140 | 123.71 | 13.62  | .94      |
|                    | Loss       | 0   | 680 | 67.27  | 117.41 |          |
|                    | Gain       | 0   | 700 | 123.28 | 153.78 |          |
| Economic-political | Importance | 47  | 95  | 78.43  | 11.23  | .91      |
|                    | Loss       | 0   | 475 | 45.34  | 78.57  |          |
|                    | Gain       | 0   | 475 | 63.66  | 94.50  |          |
| Spiritual          | Importance | 60  | 147 | 95.90  | 13.10  | .81      |
|                    | Loss       | 0   | 550 | 37.18  | 86.43  |          |
|                    | Gain       | 0   | 550 | 99.03  | 130.51 |          |
| Power-prestige     | Importance | 27  | 75  | 57.25  | 11.41  | .89      |
|                    | Loss       | 0   | 375 | 30.97  | 61.30  |          |
|                    | Gain       | 0   | 375 | 49.57  | 73.07  |          |
| Family             | Importance | 4   | 35  | 30.42  | 7.07   | .90      |
|                    | Loss       | 0   | 175 | 12.01  | 31.21  |          |
|                    | Gain       | 0   | 175 | 38.03  | 47.71  |          |

Note.  $N=77$ ;  $\alpha$ =Cronbach's alpha reliability score. The tables of correlations are available on request from the corresponding author.

( $\rho = .53, p < .01$ ), economic-political ( $\rho = .63, p < .01$ ) and spiritual ( $\rho = .67, p < .01$ ) resources.

#### Differences between groups of patients in evaluation of resources

Our results regarding patients' assessment of resource importance, and the resource gains and losses, are presented in Table 2. The Shapiro–Wilk values indicate normal distribution only for the overall importance of the resources, so we used Student's  $t$ -test for this variable, while the Mann–Whitney  $U$ -test was employed for the other variables regarding resource evaluation. The results indicate that the overall importance of resources differs between the two groups of patients ( $t = -2.16, p = .034$ ); patients with a time since diagnosis of over four years considered all resources to be more important than those with time since diagnosis below 4 years. The effect size (Cohen's  $d = 0.49$ ) for this difference is medium. Also, the significant differences in the same direction with regard to the importance of vital ( $U = 470, p = .010$ ) and spiritual ( $U = 453, p = .006$ ) resources were found, whereas for the importance of economic-political resources this difference was only marginally significant ( $U = 534, p = .054$ ).

The overall resource loss was bigger in patients who were diagnosed with the disease in the last four years, but the difference was statistically significant only for loss of vital ( $U = 516, p = .031$ ) and economic-political ( $U = 481, p = .012$ ) resources. The effect sizes for aforementioned differences are moderate. The loss of power-prestige resources was only marginally significant ( $U = 541, p = .051$ ).

#### Correlates of Resource Evaluation

Several hierarchical regression analyses were conducted to determine whether time since diagnosis is a moderator of relationship between resources evaluation and its correlates. Because of the small sample size, we used only those variables that the most strongly correlated with the dependent variables. First, we used in the model all the potentially significant correlates, then we removed those which turned out insignificant. Thus, in the final models we tested a moderation effect only for these correlates which remained significant. Prior to these analyses, in order to reduce multicollinearity, the quantitative predictors were standardized. The resultant models are presented in Tables 3-5.

As shown, a moderation effect can only be observed for overall resource loss, especially losses of vital and economic-political resources; interaction between time since diagnosis and negative feelings is significant (see Table 3-5). Simple effect analysis shows, that relationship between negative feelings and losses of all resources ( $\beta = 0.52, p < .01$ ), vital ( $\beta = 0.54, p < .001$ ), economic-political ( $\beta = 0.54, p < .001$ ) is medium strength and positive in the patients diagnosed less than four years ago, while in the group diagnosed more than four years ago, this relation is close to 0 for overall loss of resources ( $\beta = -0.04, p > .05$ ), loss of vital ( $\beta = -0.02, p > .05$ ) and economic-political ( $\beta = -0.02, p > .05$ ) resources.

This indicates that negative feelings are associated with the perception of loss of resources, especially vital and economic-political but only among those dealing with the disease for a shorter time.

Table 2. Differences in evaluation of resources in the two groups

| Resource evaluation variable | time since diagnosis      |                           | U/t    | $r_g/d$ |       |
|------------------------------|---------------------------|---------------------------|--------|---------|-------|
|                              | below 4 years<br>(n = 32) | above 4 years<br>(n = 45) |        |         |       |
|                              | M                         |                           |        |         |       |
| All resources                | Importance                | 373.41                    | 394.44 | -2.16*  | 0.49  |
|                              | Loss                      | 45.53                     | 34.36  | 511*    | 0.29  |
|                              | Gain                      | 40.30                     | 38.08  | 678     | 0.05  |
| Vital                        | Importance                | 31.19                     | 44.56  | 470*    | -0.35 |
|                              | Loss                      | 45.36                     | 34.48  | 516*    | 0.28  |
|                              | Gain                      | 39.66                     | 38.53  | 699     | 0.03  |
| Economic-political           | Importance                | 33.19                     | 43.13  | 534#    | -0.26 |
|                              | Loss                      | 46.47                     | 33.69  | 481*    | 0.33  |
|                              | Gain                      | 40.23                     | 38.12  | 680     | 0.05  |
| Spiritual                    | Importance                | 30.66                     | 44.93  | 453**   | -0.37 |
|                              | Loss                      | 42.69                     | 36.38  | 602     | 0.16  |
|                              | Gain                      | 40.02                     | 38.28  | 687     | 0.04  |
| Power - prestige             | Importance                | 35.47                     | 41.51  | 607     | -0.15 |
|                              | Loss                      | 44.59                     | 35.02  | 541#    | 0.25  |
|                              | Gain                      | 40.31                     | 38.07  | 678     | 0.05  |
| Family                       | Importance                | 35.61                     | 41.41  | 611     | -0.15 |
|                              | Loss                      | 41.17                     | 37.46  | 650     | 0.09  |
|                              | Gain                      | 39.14                     | 38.90  | 715     | 0.00  |

Note.  $r_g$  = Glass' rank biserial correlation coefficient

\*  $p < .05$ , # = marginally significant

Table 3. Summary of hierarchical regression analysis of the losses of all resources

| Predictors            | Adjusted $R^2$ | $\Delta R^2$ | F     | B (SE)          | $\beta$ | VIF  |
|-----------------------|----------------|--------------|-------|-----------------|---------|------|
| <b>Step 1</b>         | -.01           | .07          | 0.87  |                 |         |      |
| Age                   |                |              |       | -7.87 (32.00)   | -0.03   | 1.12 |
| Gender                |                |              |       | -63.31 (64.51)  | -0.13   | 1.06 |
| Place of origin       |                |              |       | 20.72 (77.61)   | 0.04    | 1.14 |
| Marital status        |                |              |       | -116.72 (65.56) | -0.24   | 1.11 |
| Education             |                |              |       | -2.36 (67.65)   | -0.01   | 1.19 |
| <b>Step 2</b>         | .10            | .13*         | 1.96  |                 |         |      |
| Negative feelings     |                |              |       | 82.55 (29.91)   | 0.35**  | 1.12 |
| Time since diagnosis  |                |              |       | -67.60 (65.34)  | -0.14   | 1.25 |
| <b>Step 3</b>         | .16            | .07*         | 2.50* |                 |         |      |
| Time since diagnosis* |                |              |       | -128.99 (56.47) | -0.41*  | 2.40 |
| Negative feelings     |                |              |       |                 |         |      |

Note.  $N = 77$ .

Socdem: Gender 0 = man, 1 = woman, Place of origin 0 = city, 1 = village, Marital status 0 = without relationship, 1 = with relationship, Education 0 = secondary education (also elementary and basic vocational), 1 = higher education

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

**Table 4. Summary of hierarchical regression analysis of the losses of economic- political resources**

| Predictors                                 | Adjusted $R^2$ | $\Delta R^2$ | $F$   | $B (SE)$       | $\beta$ | VIF  |
|--|----------------|--------------|-------|----------------|---------|------|
| <b>Step 1</b>                              | -.02           | .07          | 0.81  |                |         |      |
| Age  |                |              |       | -0.98 (7.13)   | -0.02   | 1.12 |
| Gender                                     |                |              |       | -12.78 (14.38) | -0.12   | 1.06 |
| Place of origin                            |                |              |       | 7.76 (17.30)   | 0.06    | 1.14 |
| Marital status                             |                |              |       | -22.70 (14.61) | -0.21   | 1.11 |
| Education                                  |                |              |       | 10.27 (15.08)  | 0.10    | 1.19 |
| <b>Step 2</b>                              | .09            | .13*         | 1.90  |                |         |      |
| Negative feelings                          |                |              |       | 16.82 (6.67)   | 0.32*   | 1.12 |
| Time since diagnosis                       |                |              |       | -21.51 (14.57) | -0.20   | 1.25 |
| <b>Step 3</b>                              | .15            | .06*         | 2.33* |                |         |      |
| Time since diagnosis*<br>Negative feelings |                |              |       | -26.92 (12.67) | -0.39*  | 2.40 |

Note.  $N = 77$ .

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

**Table 5. Summary of hierarchical regression analysis of the losses of vital resources**

| Predictors                                 | Adjusted $R^2$ | $\Delta R^2$ | $F$               | $B(SE)$        | $\beta$ | VIF  |
|--|----------------|--------------|-------------------|----------------|---------|------|
| <b>Step 1</b>                              | -.03           | .05          | 0.64              |                |         |      |
| Age  |                |              |                   | -1.86 (11.14)  | -0.02   | 1.12 |
| Gender                                     |                |              |                   | -18.03 (22.46) | -0.11   | 1.06 |
| Place of origin                            |                |              |                   | .01 (27.02)    | 0.00    | 1.14 |
| Marital status                             |                |              |                   | -35.90 (22.83) | -0.21   | 1.11 |
| Education                                  |                |              |                   | -6.13 (23.56)  | -0.04   | 1.19 |
| <b>Step 2</b>                              | .12            | .16**        | 2.16 <sup>#</sup> |                |         |      |
| Negative feelings                          |                |              |                   | 30.04 (10.22)  | 0.37**  | 1.12 |
| Time since diagnosis                       |                |              |                   | -35.00 (22.32) | -0.21   | 1.25 |
| <b>Step 3</b>                              | .20            | .08*         | 2.89**            |                |         |      |
| Time since diagnosis*<br>Negative feelings |                |              |                   | -48.66 (19.08) | -0.45*  | 2.40 |

Note.  $N = 77$ . # = marginally significant

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

## Discussion

Considering the main hypotheses, there are differences between patients who received their diagnoses in the last four years and those who received them longer ago in terms of resource evaluation, and especially resource importance and losses. The results indicate that resources were perceived as more important in patients whose time since

diagnosis is greater than four years; furthermore, the most valuable resources for them seem to be those related to vital and spiritual aspects of life. For patients who received their diagnoses less than four years ago, there were perceived losses of resources, especially vital and economic-political resources. Our results suggest that time since diagnosis may be a moderator of the relation between negative feelings and loss of those resources.

### Significance of Vital and Spiritual Resources in Patients

Among patients diagnosed more than four years ago – many of whom have also been suffering from multiple sclerosis for a long time – the resources related to activity and especially those associated with spiritual development (including not only faith, but also good relations with other people and the sense of being needed) proved important. This may result from changes in their value systems over the years.

The literature contains information on the significance of vital resources in patients with multiple sclerosis. A study by Pakenham and Cox (2009) showed that significant gains in vital and spiritual resources can occur in patients diagnosed with multiple sclerosis over the course of time, while Fournier, de Ridder, and Bensing (2003) indicate that an optimistic attitude plays an important role. Vital resources are perceived as more important, probably because these resources had been lost or significantly limited earlier. The experience of illness may lead to overestimation of some resources so, along with the process of adaptation to illness, resources associated with activity may be especially appreciated. A similar situation may hold for the significance of spiritual resources, which is higher in patients with greater duration of the disease.

The spiritual resources of patients may play also a crucial role in psychological adaptation to the disease. This is consistent with the results of other studies (Gordon, 2002; Nichols, & Hunt, 2011), which emphasize the positive value of spiritual resources in coping more effectively with the symptoms of the illness. The results indicate that emotional support seeking is related with a higher perceived importance of all resources (especially vital and spiritual). However, the emotional support seeking must be active – based on seeking out empathic people who may be helpful in the struggle with multiple sclerosis – in order to affect the perceived importance of vital resources.

### Loss of Resources in Patients with Multiple Sclerosis: A Moderation Effect of Time since Diagnosis

The results of this study also suggest that fundamental psychological problem occurring in these patients may be related to sense of loss (Edmonds, Vivat, Burman, Silber, & Higginson, 2007), which is often difficult to identify. Moreover, the sense of losing resources is stronger in patients who have suffered from the disease for less than four years. As assumed by Hobfoll (2012), individuals strive to achieve, maintain, and protect the resources that they considered to be the most valuable, and whose loss seemed most severe. The results of this study suggest that the sense of loss of resources may be stronger immediately (or for some time) after the patient finds out about the disease. Over the course of time, as the patient comes to cope with the various dynamics of the disease progression, resources may gradually be regained and reinforced, making life meaningful in spite of the illness. It has been shown that time since diagnosis may be a moderator of the relation between negative feelings and loss of vital

resources (Janssens, Buljevac, van Doorn, et al., 2006). It therefore seems that the self-evaluated loss of vital resources is more pronounced for functioning of patients with shorter time since diagnosis. This does not mean that they suffer from depression, but rather that the higher level of negative feelings may affect the perceived loss of these resources. Also, the other possibility cannot be ruled out that bigger loss of vital resources due to illness progression may lead to more negative feelings, at least as long as the adaptation has not been achieved.

Also, the loss of economic – political resources may be related to the high costs of treatment, the risk of losing one's job (Rumrill, 2009), or the financial burdens due to beginning or continuing rehabilitation (Bishop, Frain, Rumrill, & Rymond, 2009). Our results show that time since diagnosis may be also a moderator of relation between negative feelings and perceived loss of economic-political resources. Probably, for patients, who struggling with the disease shorter than four years, more experienced negative feelings impact on sense of loss of many resources, especially vital and these related to socioeconomic possibilities.

### Limitations of the study

The results of this study can potentially help to formulate specific implications for mental health counseling for multiple sclerosis patients, as the findings informs that patients with shorter disease duration may be more affected in terms of resources loss. However, our study has some limitations. The most serious of these pertains to the size of the research sample, which seems insufficient to properly investigate the role of resource evaluation and the moderation effect of the time since diagnosis. Second, this study uses a cross-sectional model, which makes impossible to assess the dynamics of resource evaluation within time. Third, the time since diagnosis is dummy-coded because of difficulties in finding newly diagnosed patients and the small research sample. Taking these limitations into account, our findings may serve a promising starting point for verification of the observed effects in a longitudinal approach.

### Disclosure of Conflicts of Interest

The authors declare that they have no financial or other conflicts of interest.

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