



Unemployment among women with multiple sclerosis: the role of coping and perceived stress and support in the workplace

L.B. Strober & P.A. Arnett

To cite this article: L.B. Strober & P.A. Arnett (2016) Unemployment among women with multiple sclerosis: the role of coping and perceived stress and support in the workplace, Psychology, Health & Medicine, 21:4, 496-504, DOI: [10.1080/13548506.2015.1093645](https://doi.org/10.1080/13548506.2015.1093645)

To link to this article: <http://dx.doi.org/10.1080/13548506.2015.1093645>



Published online: 12 Oct 2015.



Submit your article to this journal [↗](#)



Article views: 86



View related articles [↗](#)



View Crossmark data [↗](#)

Unemployment among women with multiple sclerosis: the role of coping and perceived stress and support in the workplace

L.B. Strober^{a,b} and P.A. Arnett^c

^aKessler Foundation, West Orange, NJ 07052, USA; ^bDepartment of Physical Medicine & Rehabilitation, State University of New Jersey – New Jersey Medical School, Newark, NJ, USA; ^cDepartment of Psychology, The Pennsylvania State University, University Park, PA, USA

ABSTRACT

Unemployment is high among individuals with multiple sclerosis (MS). Certain disease variables and demographics have been found to distinguish employed and unemployed individuals. However, these variables only account for 14–20% of the variance. Other factors, such as coping, perceived stress and social support, in the workforce have been proposed, but not yet fully examined. The purpose of the present investigation was to examine the role of known factors associated with unemployment in MS, as well as coping and perceived work stress and social support. Sixty-eight women with MS were asked about their employment status and reasons for leaving. They completed a comprehensive assessment including measures of cognition, disease symptoms, psychological functioning, coping and stress. Consistent with previous findings, certain disease and demographic variables were associated with being unemployed. In particular, women who left work due to their MS were found to be older, had a longer disease duration and progressive course, reported greater disability and fatigue, and performed worse on a cognitive measure. However, we also found that coping style distinguished those who were employed from those who left work due to their MS. In particular, those who left work reported utilizing maladaptive coping mechanisms such as behavioral disengagement and substance use. With regard to perceived work stress and support, individuals who were employed reported that job security and fellow co-workers were more of an uplift than a hassle in their lives, suggesting some benefit in employment. These findings suggest that further consideration be given to role of coping and perception of the benefit of employment among individuals with MS when making recommendations regarding work decisions.

ARTICLE HISTORY

Received 6 April 2015
Accepted 8 September 2015

KEYWORDS

Multiple sclerosis;
employment; coping; stress;
social support

Introduction

Rates of unemployment in multiple sclerosis range from 56 to 80% (Julian, Vella, Vollmer, Hadjimichael, & Mohr, 2008; Kornblith, LaRocca, & Baum, 1986; LaRocca, Kalb, Kendall,

& Scheinberg, 1982). Female gender, younger or older age, less education, greater disability and progressive course are known predictive factors (LaRocca, Kalb, Scheinberg, & Kendall, 1985; Pompeii, Moon, & McCrory, 2005). Other factors include balance and difficulty in walking (O' Connor, Cano, Ramio I Torrenta, Thompson, & Playford, 2005), bladder/bowel incontinence and heat sensitivity (Simmons, Tribe, & McDonald, 2010). Fatigue (Smith & Arnett, 2005) and cognitive difficulties (Morrow et al., 2010; Simmons et al., 2010) are also reported as significant contributors, with fatigue likely being the greatest culprit.

While these symptoms are certainly detrimental, many have contended that they are insufficient in accounting for the high rates of unemployment. In fact, one of the earliest investigations of unemployment in MS found that disease variables and demographics only accounted for 14% of the differences in employment status (LaRocca et al., 1985). It was suggested that coping style as well as premorbid personality, characteristics of the workplace and social support systems were likely to 'affect a patient's reaction to the illness and his/her attitude toward employment.' (p. 204). Despite this, the role of coping and perception of work stress and support in the workplace has been minimally examined.

Coping styles may improve our understanding of how an individual with MS handles the symptoms associated with their MS and their ultimate effect(s) on a multitude of outcomes, such as employment. Investigations in MS have supported these contentions (Arnett, Higginson, Voss, Randolph, & Grandey, 2002; McCabe, 2006; Pakenham, 1999; Rabinowitz & Arnett, 2009).

Work-related stress and perceived support in the workplace are also important factors when attempting to understand an individual's decision to leave the workforce. It has long been purported that stress is associated with exacerbations in MS (Mohr, Hart, Julian, Cox, & Pelletier, 2004) and it is not uncommon for patients to receive the message that they should reduce stress in their lives. For some, work may be the greatest stressor in their lives. If an individual hears this message and feels that they cannot deal with the stressors at work and are fearful that their MS may worsen, they may prematurely leave the workforce. In fact, women with MS are more likely to be unemployed than men (Ketelaer, 1993; LaRocca et al., 1985; McFadden et al., 2012) and more importantly, 60% report leaving the workforce prematurely due to a perceived inability to manage home and work demands (McFadden et al., 2012). Thus, it is important to evaluate the relationship of one's perceived stress and present means of coping and resources.

Another factor related to adjustment in MS is perceived social support. Perceived social support is one of the greatest predictors of depression among individuals with MS (Gay, Vrignaud, Garitte, & Meunier, 2010). For many, the workplace provides a significant level of social support. In fact, individuals with MS report that working is vital to feeling as if they are part of society (Johnson et al., 2004). Thus, social participation associated with working may serve as a buffer and may be beneficial for individuals with MS. Again, while much is known about the relationship of demographics and disease variables, much less is known about the association of coping, work-related stress and social support with unemployment in MS. The purpose of the present investigation was to examine the association of known factors associated with unemployment in MS as well as the role of coping and perceived stress and social support.

Patients & methods

Participants

Participants were recruited through the Western Pennsylvania chapter of the National Multiple Sclerosis Society and local support group meetings. More detail regarding recruitment of this sample can be found in Bruce and Arnett (2005). Exclusionary criteria included history of alcohol/drug abuse; history or current diagnosis of a neurological disorder besides MS; severe visual or motor impairment that may impede cognitive testing that was conducted for purposes outside the scope of the present investigation; evidence of a premorbid learning disability; and severe physical or neurological impairment that would have made evaluation impractical. For the purposes of this investigation, only women with MS were included. This was due, in part, to the low number of men enrolled in the study ($n = 17$) and the fact that of these, 12 (71%) were still employed. However, perhaps more important is the fact that issues surrounding employment may differ across genders at times (e.g. women choosing to stay home to take care of children or men being less able to leave the workforce if they are the primary family providers), and the finding that women with MS are more often unemployed than men. Gender differences in coping styles also exist. For instance, women tend to rely on more emotion-focused coping styles (Matud, 2004).

Measures

Employment Interview. Individuals were asked about their employment status and reason(s) for leaving their past employment, when applicable. Individuals were further asked if they left because of their MS symptoms. Individuals who reported leaving work because of their MS constituted the unemployed group.

Expanded Disability Status Scale (EDSS; Kurtzke, 1983). The EDSS was used to assess neurological disability. The EDSS was converted to questionnaire form through consultation with a board-certified neurologist. The scores were then made by an experienced neuropsychologist with expertise in MS (P.A.) upon receiving training from a neurologist specializing in MS. The use of such self-report measures has become more common in the literature and is supported by the Solari et al. (1993) study in which the intraclass correlation between patient self-report EDSS and neurologist rating was high (.84).

Fatigue Severity Scale (FSS; Krupp, LaRocca, Muir-Nash, & Steinberg, 1989). The FSS was designed specifically for use in fatiguing illnesses and assesses the severity of fatigue and its impact on an individual's life. It consists of nine items such as, 'I am easily fatigued' or 'Fatigue causes frequent problems for me.' Individuals are asked to rate themselves on a Likert scale with '1' being 'Strongly disagree' and '7' being 'Strongly agree.' The FSS has been shown to have excellent internal consistency and capability of distinguishing fatigued from non-fatigued individuals (Hagell et al., 2006).

Chicago Multiscale Depression Inventory (CMDI; Nyenhuis et al., 1998). The CMDI was specifically designed to assess depression in MS and other medically ill groups. It consists of 50 single-word items (e.g. Blue) or items consisting of a few words (e.g. Unable to fall asleep). Individuals are asked to rate how the phrase describes them in the past week with '1' being 'Not at all' and '5' being 'Extremely.' The CMDI has been found to be a valid and

reliable measure with good internal consistency and factor structure (Chang et al., 2003; Nynhuis et al., 1998).

State Trait Anxiety Inventory (STAI; Spielberger & Gorsuch, 1983). The STAI measures both state and trait anxiety, each consisting of 20 items. State items assess how an individual feels in the present moment and consists of items such as 'I feel nervous' or 'I feel worried.' The trait scales asks individuals to rate how they generally feel and consists of items such as, 'I feel pleasant' or 'I am calm, cool, and collected.' Individuals rate themselves on a Likert scale with '1' being 'Not at all' and '4' being 'Very much so.' The STAI has been shown to be a valid measure with good internal consistency and test-retest reliability (Spielberger, 1989; Spielberger & Gorsuch, 1983).

Symbol Digit Modalities Test (SDMT; Smith, 1973). The SDMT served as the sole cognitive measure given its known sensitivity to MS-related cognitive impairment and proven ability to predict employment status in MS (Strober et al., 2012).

Coping Orientation to Problems Experienced (COPE) Inventory (Carver, Scheier, & Weintraub, 1989). The COPE consists of 60 items assessing both problem-focused and emotion-focused coping strategies. Responses are summed to derive 15 subscales. These include: Positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities and planning. Individuals are asked to rate themselves on a Likert scale, indicating the extent to which they employ various means of coping when faced with stressful situations with '1' being 'I usually don't do this at all' and '4' being 'I usually do this a lot.' All but one of the scales (mental disengagement) has been found to have good internal consistency (Carver et al., 1989).

Hassles & Uplifts Scale (Lazarus & Folkman, 1988). This scale was used to assess positive and negative events that occur in everyday life. Individuals are asked to rank how much 53 everyday activities (e.g. family-related obligations, your spouse, enough money for necessities) is a hassle and how much it is an uplift. For the purpose of the present study, we examined the specific items pertaining to work including, 'Fellow workers,' 'Client, customers, patients, etc.' 'Your supervisor or employer,' 'The nature of your work' and 'Your job security.' The Hassles and Uplifts Scale has been found to be significantly correlated with external life events and psychological symptoms and to have good test-retest reliability (Kanner, Coyne, Schaefer, & Lazarus, 1981).

Statistical analyses

All statistical analyses were conducted using SPSS version 21.0. Initial comparisons of group means (Independent *t*-test) and proportions (χ^2) were made with regard to demographic factors, disease variables, fatigue, depression, anxiety and cognitive performance. A multivariate analysis of covariance was conducted among the subscales of the coping measure to reduce the likelihood of a Type I error given the multiple comparisons. Finally, pairwise *t*-tests with a Bonferroni correction were conducted for the employed group to determine whether or not they perceived their work as more of a hassle or more as an uplifting aspect of their daily life.

Results

A total of 80 women with definite MS were eligible. Twelve were excluded as they reported that they were not working and did not attribute this to their MS ($N = 10$) or described themselves as unemployed but not having left a job recently ($N = 2$). This resulted in 68 women with MS enrolled in the study. Twenty-seven (39.7%) reported leaving work because of their MS. Of the remaining 41, 29 (70.7%) were employed full-time and 12 were employed part-time (29.3%). As shown in Table 1, those who left were older, $t(66) = 2.63, p = .011$, had a longer disease duration, $t(66) = 2.32, p = .024$, were more likely to have a progressive course (44% vs. 12%), $X^2 = 9.03, p = .003$, reported greater disability, $t(66) = 4.24, p < .001$, and fatigue, $t(66) = 2.95, p = .004$, and performed worse on the SDMT, $t(66) = -3.62, p = .001$. There were no differences with regard to education level, depression or anxiety.

With regard to coping, those who left the workforce were more likely to endorse utilization of maladaptive coping behaviors, particularly behavioral disengagement, $F(1,66) = 4.30, p = .042$ and substance use, $F(1,66) = 6.04, p = .017$. There were no other significant differences found on the remaining 13 subscales (Table 2).

On the Hassles & Uplifts Scale, employed individuals described their fellow co-workers, $t(39) = -2.56, p = .014$, nature of their work, $t(39) = -2.11, p = .041$ and job security, $t(39) = -3.03, p = .004$ as more of an uplift than a hassle. However, when applying a Bonferroni correction, only job security remained statistically significant with a trend for fellow co-workers (critical alpha value = .01). Still, the 'fellow co-workers' and 'nature of work' items showed medium effect sizes ($d = .41$ and $.33$). Their failure to meet the relatively conservative statistical benchmark we set due to the Bonferroni correction was due mainly to low statistical power. There was no difference with regard to the other items pertaining to work (see Table 3).

Discussion

Unemployment is a major concern for people living with MS. Yet, there is a paucity of information regarding which factors, above and beyond disease and demographic variables, are

Table 1. Comparison of demographic, disease variables, psychological well-being and cognitive testing between unemployed and employed individuals with multiple sclerosis.

Variable	Mean (SD) or %		t or X^2	p
	Unemployed ($N = 27$)	Employed ($N = 41$)		
Age (years)	51.74 (8.31)	46.07 (8.93)	$t(66) = 2.63$.011
Education (years)	13.85 (1.94)	14.44 (1.94)	$t(66) = -1.22$	ns
Disease duration (years)	12.70 (7.69)	8.68 (7.14)	$t(66) = 2.32$.024
EDSS	5.52 (1.47)	4.05 (1.35)	$t(66) = 4.24$	<.001
MS course†	15RR/12P(44%)†	36RR/5P(12%)	$X^2 = 9.03$.003
FSS	6.06 (.69)	5.23 (1.28)	$t(66) = 3.44$.001
CMDI mood	22.44 (7.81)	22.68 (9.70)	$t(66) = -.11$	ns
CMDI evaluative	19.56 (8.57)	19.24 (6.92)	$t(66) = .17$	ns
CMDI vegetative	36.48 (8.72)	33.73 (8.52)	$t(66) = 1.29$	ns
STAI state	46.67 (4.26)	45.34 (5.25)	$t(66) = 1.10$	ns
STAI trait	39.74 (8.18)	38.59 (8.97)	$t(66) = .54$	ns
SDMT	45.52 (8.92)	53.59 (9.03)	$t(66) = -3.62$.001

Notes: EDSS = Expanded Disability Scale; †RR = Relapsing Remitting; P = Progressive course refers to combined primary and secondary progressive subtypes; FSS = Fatigue Severity Scale; CMDI = Chicago Multiscale Depression Inventory; STAI = State Trait Anxiety Inventory; SDMT = Symbol Digit Modalities Test.

Table 2. Comparison of coping behaviors between unemployed and employed individuals with multiple sclerosis.

Variable	Mean (SD) or %		<i>F</i> , sig.	<i>d</i>
	Unemployed (<i>N</i> = 27)	Employed (<i>N</i> = 41)		
Positive interpretation & growth	12.19 (2.75)	12.98 (1.94)	<i>F</i> (1,66) = 1.93, ns	.33
Mental disengagement	8.07 (1.94)	7.73 (1.57)	<i>F</i> (1,66) = .64, ns	.19
Focus on & venting of emotions	9.78 (1.97)	9.78 (2.31)	<i>F</i> (1,66) = .00, ns	.0
Use of instrumental social support	11.30 (3.11)	11.95 (3.26)	<i>F</i> (1,66) = .68, ns	.20
Active Coping	12.78 (2.21)	12.85 (1.84)	<i>F</i> (1,66) = .02, ns	.03
Denial	4.96 (1.43)	5.23 (1.28)	<i>F</i> (1,66) = .00, ns	.20
Religious coping	12.67 (3.92)	11.76 (4.42)	<i>F</i> (1,66) = .75, ns	.22
Humor	7.15 (3.12)	6.49 (2.63)	<i>F</i> (1,66) = .89, ns	.23
Behavioral disengagement	6.63 (2.10)	5.63 (1.83)	<i>F</i> (1,66) = 4.30, .042	.51
Restraint	10.52 (2.28)	10.12 (2.53)	<i>F</i> (1,66) = .43, ns	.17
Use of emotional social Support	11.96 (3.12)	11.98 (3.16)	<i>F</i> (1,66) = .00, ns	.01
Substance abuse	4.85 (1.70)	4.15 (.57)	<i>F</i> (1,66) = 6.04, .017	.55
Acceptance	11.93 (2.54)	11.66 (2.35)	<i>F</i> (1,66) = .20, ns	.11
Suppression of competing activities	10.96 (2.33)	9.90 (2.41)	<i>F</i> (1,66) = 3.24, ns	.48
Planning	13.96 (2.21)	13.23 (2.42)	<i>F</i> (1,66) = 1.64, ns	.32

Table 3. Pairwise comparison of perceived hassle and uplift for work-related items among employed individuals.

Item	Hassle	Uplift	<i>t</i> -test, sig.	<i>d</i>
Fellow workers	1.08 (.89)	1.63 (.95)	<i>t</i> (39) = -2.56, <i>p</i> = .014	.41
Clients, customers, patients	1.07 (.93)	1.46 (1.08)	<i>t</i> (40) = -1.71, <i>p</i> = .096	.27
Supervisor or employer	1.18 (1.00)	1.41 (1.19)	<i>t</i> (38) = -.87, <i>p</i> = .391	.14
Nature of your work	1.23 (1.03)	1.78 (1.00)	<i>t</i> (39) = -2.11, <i>p</i> = .041	.33
Job security	.65 (.92)	1.48 (1.15)	<i>t</i> (39) = -3.03, <i>p</i> = .004	.48

associated with unemployment/disability. We found that certain disease and demographic variables were associated with women having MS being unemployed. These included longer disease duration, progressive course, fatigue, slowed processing speed and older age.

Of particular interest to the present study was the role of coping styles among employed and unemployed women with MS. While there appeared to be little difference overall in coping styles, we found significant differences in coping between women who are unemployed and employed on 2 of the 15 subscales. More specifically, unemployed individuals endorsed greater utilization of what is considered maladaptive coping, namely behavioral disengagement and substance use. Behavioral disengagement has been described as 'reducing one's effort to deal with the stressor, even giving up the attempt to attain goals with which the stressor is interfering.' (p. 269) (Carver et al., 1989). It has been referred to as feeling helpless and expecting a poor coping outcome. Feelings of learned helplessness have, in fact, been shown to be associated with poor outcomes (i.e. depression) in MS (Shnek, Foley, LaRocca, Smith, & Halper, 1995; Vargas & Arnett, 2013), and are likely related to the unpredictability and variability of MS. This may render individuals with MS the potential to feel as if they lack control over their illness, regardless of how well they cope with it.

Individuals with Chronic Fatigue Syndrome who have negative beliefs about their illness are more likely to disengage in stressful situations and such coping is associated with greater disability and poorer psychological well-being (Moss-Morris, Petrie, & Wienmann, 1996). In contrast, those who feel a sense of control over their illness are less likely to engage in avoidant-focused coping and actually more readily utilize problem-focused coping

(Heijmans, 1998). It is not known whether such feelings existed in our patients prior to their leaving the workforce or were a result of leaving. However, the finding that individuals who left work due to their MS reported more behavioral disengagement may reflect a propensity to disengage or feel a lack of sufficient control over the illness. Again, we cannot assign any sort of causality given the cross-sectional nature of the investigation, but the presence of behavioral disengagement is relevant to the impact that unemployment may have on the individual and may suggest ways to intervene prior to and/or following unemployment. In particular, interventions aimed at addressing perceived illness control, learned helplessness and overcoming the uncertainty associated with MS may be warranted.

The finding that unemployed women with MS reported substance use as a coping mechanism was illuminating. It is well established that coping and health-related behaviors are intricately related and collectively mitigate the impact of illness on overall quality of life and illness management. For instance, physical activity has been shown to result in improvements in fatigue, depression and overall quality of life in MS (Motl & Pilutti, 2012). It is postulated that greater attention be given to the role of health behaviors in MS; again, whether as a precursor or consequence of unemployment. Efforts to engage in positive health-related behaviors may be associated with greater management of one's disease, and reduced depression or fatigue, and, thus, result in an ability to maintain employment. Additionally, assessment of these behaviors *following* unemployment is crucial given the known detrimental health effects associated with being unemployed and changes in daily life and routine.

We also found that employed women described their work as being a positive event in their lives. In particular, job security was considered to be an uplift. After a Bonferroni correction, there also remained a trend (but still a medium effect size) for viewing fellow co-workers as an uplift. This latter finding supports the contention that individuals with MS perceive their work colleagues and support they may receive from them as a benefit. It would also appear that, in general, employed individuals perceive working as providing security and enjoyment. Whether or not the unemployed individuals in this sample felt similarly cannot be answered with the current data. Future studies that are prospective in nature will be better able to address this question.

In sum, the role of coping and perceived stress and support on employment status has been suggested for some time, but remains an understudied avenue of research when compared to other variables found to be associated with work status in MS. It is recommended that future research consider the direct impact that coping, stress and support have on unemployment in MS as well as the mediating/moderating effects that these factors may have on known factors associated with unemployment in MS (Pakenham, 1999).

There are limitations to this study. First, given its retrospective nature, it is difficult to determine whether these factors were 'predictive' in *determining* who will leave work. We also could not ascertain unemployed individuals' perspectives on work stress and support, as they were already out of the workforce. Future prospective and longitudinal studies assessing these variables as individuals make such decisions about whether to leave the work force is warranted. We also cannot assume that the measures utilized captured all possible elements of coping, work stress, social support, workplace features, accommodations, etc. which can also make a significant difference in one's ability to remain in the workforce. Future work that provides a broader based assessment using multiple measures would be advisable. Finally, in light of the findings the substance abuse was a differing means of coping, it should be

noted that we excluded any individuals with a significant substance use history, so results may be an underestimation. Despite these limitations, findings provide key information to health care providers as they assist patients in their future planning and may guide future research aimed at ameliorating the high rate of unemployment in MS.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- Arnett, P. A., Higginson, C. I., Voss, W. D., Randolph, J., & Grandey, A. A. (2002). Relationship between coping, depression, and cognitive dysfunction in multiple sclerosis. *The Clinical Neuropsychologist*, 16, 341–355.
- Bruce, J. M., & Arnett, P. A. (2005). Depressed MS patients exhibit affective memory biases during and after a list learning task that suppresses higher-order encoding strategies. *Journal of the International Neuropsychological Society*, 11, 514–521.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267–283.
- Chang, C. H., Nyenhios, D. L., Cella, D., Luchetta, T., Dineen, K., & Reder, A. T. (2003). Psychometric evaluation of the Chicago multiscale depression inventory in multiple sclerosis patients. *Multiple Sclerosis*, 9, 160–170.
- Gay, M. C., Vrignaud, P., Garitte, C., & Meunier, C. (2010). Predictors of depression in multiple sclerosis patients. *Acta Neurologica Scandinavica*, 121, 161–170.
- Hagell, P., Hoglund, A., Reimer, J., Eriksson, B., Knutsson, I., Widner, H., & Cella, D. (2006). Measuring fatigue in Parkinson's disease: A psychometric study of two brief generic fatigue questionnaires. *Journal of Pain and Symptom Management*, 32(5), 420–432.
- Heijmans, M. J. W. M. (1998). Coping and adaptive outcome in chronic fatigue syndrome. *Journal of Psychosomatic Research*, 45, 39–51.
- Johnson, K. L., Yorkston, K. M., Klasner, E. R., Kuehn, C. M., Johnson, E., & Amtmann, D. (2004). The cost and benefit of employment a qualitative study of experiences of persons with multiple sclerosis. *Archives of Physical Medicine & Rehabilitation*, 85, 201–209.
- Julian, L. J., Vella, L., Vollmer, T., Hadjimichael, O., & Mohr, D. (2008). Employment in multiple sclerosis: Exiting and re-entering the work force. *Journal of Neurology*, 255, 1354–1360.
- Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4(1), 1–39.
- Ketelaer, P. (1993). *Multiple sclerosis and employment: Synthesis report*. Brussels: Multiple Sclerosis Society.
- Kornblith, A. B., LaRocca, N. G., & Baum, H. M. (1986). Employment in individuals with multiple sclerosis. *International Journal of Rehabilitation Research*, 9, 155–166.
- Krupp, L. B., LaRocca, N. G., Muir-Nash, G., & Steinberg, G. (1989). The fatigue severity scale. Application to patients with multiple sclerosis and systemic lupus erythematosus. *Archives of Neurology*, 46, 1121–1123.
- Kurtzke, J. F. (1983). Rating neurological impairment in multiple sclerosis: An expanded disability status scale (EDSS). *Neurology*, 33, 1444–1452.
- LaRocca, N., Kalb, R., Kendall, P., & Scheinberg, L. (1982). The role of disease and demographics factors in the employment of patients with multiple sclerosis. *Archives of Neurology*, 39, 256.
- LaRocca, N., Kalb, R., Scheinberg, L., & Kendall, P. (1985). Factors associated with unemployment of patients with multiple sclerosis. *Journal of Chronic Diseases*, 38, 203–210.
- Lazarus, R. S., & Folkman, S. F. (1988). The impact of daily stress on health and mood: Psychological social resources as mediators. *Journal of Personality & Social Psychology*, 54, 486–495.

- Matud, P. M. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37, 1401–1415.
- McCabe, M. (2006). A longitudinal study of coping strategies and quality of life among people with multiple sclerosis. *Journal of Clinical Psychology in Medical Settings*, 13, 369–379.
- McFadden, E., Horton, M. C., Ford, H. L., Gilworth, G., McFadden, M., & Tennant, A. (2012). Screening for the risk of job loss in multiple sclerosis (MS): Development of an MS-specific Work Instability Scale (MS-WIS). *Multiple Sclerosis Journal*, 18(6), 862–870.
- Mohr, D. C., Kart, S. L., Julian, L., Cox, D., & Pelletier, D. (2004). Association between stressful life events and exacerbation in multiple sclerosis: A meta analysis. *British Medical Journal*, 328(7442), 731.
- Morrow, S. A., Drake, A., Zivadinov, R., Munschauer, F., Weinstock-Guttman, B., & Benedict, R. H. (2010). Predicting loss of employment over three years in multiple sclerosis: Clinically meaningful cognitive decline. *Clinical Neuropsychology*, 7, 1–15.
- Moss-Morris, R., Petrie, K. J., & Wienmann, J. (1996). Functioning in chronic fatigue syndrome: Do illness perceptions play a regulatory role? *British Journal of Health Psychology*, 1, 15–25.
- Motl, R. W., & Pilutti, L. A. (2012). The benefits of exercise training in multiple sclerosis. *Nature Reviews Neurology*, 8, 487–497.
- Nyenhuis, D. L., Luchetta, T., Yamamoto, C., Terrien, A., Bernardin, L., Rao, S. M., & Garron, D. C. (1998). The development, standardization, and initial validation of the chicago multiscale depression inventory. *Journal of Personality Assessment*, 70, 386–401.
- O' Connor, R. J., Cano, S. J., Ramio I Torrenta, L., Thompson, A. J., & Playford, E. D. (2005). Factors influencing work retention for people with multiple sclerosis. *Journal of Neurology*, 252, 892–896.
- Pakenham, K. (1999). Adjustment to multiple sclerosis: Application of a stress and coping model. *Health Psychology*, 18, 383–392.
- Pompeii, L. A., Moon, S. D., & McCrory, D. C. (2005). Measures of physical and cognitive function and work status among individuals with multiple sclerosis: A review of the literature. *Journal of Occupational Rehabilitation*, 15, 69–84.
- Rabinowitz, A. R., & Arnett, P. A. (2009). A longitudinal analysis of cognitive dysfunction, coping, and depression in multiple sclerosis. *Neuropsychology*, 23(5), 581–591.
- Shnek, Z. M., Foley, F. W., LaRocca, N. G., Smith, C. R., & Halpern, J. (1995). Psychological predictors of depression in multiple sclerosis. *Journal of Neurological Rehabilitation*, 9, 15–23.
- Simmons, R. D., Tribe, K. L., & McDonald, E. A. (2010). Living with multiple sclerosis: Longitudinal changes in employment and the importance of symptom management. *Journal of Neurology*, 257, 926–936.
- Smith, A. (1973). *Symbol digit modalities test manual*. Western Psychological Services, published in the United States of America.
- Smith, M. M., & Arnett, P. A. (2005). Factors related to employment status changes in individuals with multiple sclerosis. *Multiple Sclerosis*, 11, 602–609.
- Solari, A., Amato, M. P., Bergamaschi, R., Logroscino, G., Citterio, A., Boichichio, D., & Filippini, G. (1993). Accuracy of self-assessment of the minimal record of disability in patients with multiple sclerosis. *Acta Neurologica Scandinavica*, 87, 43–46.
- Spielberger, C. D. (1989). *State-trait anxiety inventory: Bibliography* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Spielberger, C. D., & Gorsuch, R. L. (1983). *Manual for the state-trait anxiety inventory (form Y) ("Self-evaluation questionnaire")*. Palo Alto, CA: Consulting Psychologists Press.
- Strober, L. B., Christodoulou, C., Benedict, R. H., Westervelt, H., Scherl, W., Weinstock-Guttman, ..., Krupp, L. B. (2012). Unemployment in multiple sclerosis: The contribution of personality and disease. *Multiple Sclerosis Journal*, 18, 647–653.
- Vargas, G., & Arnett, P. A. (2013). Attributional style and depression in multiple sclerosis. *International Journal of MS Care*, 15, 81–89.