



## The roles of fatigue, depression, and Big Five Personality traits in males with and without multiple sclerosis disease

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### ABSTRACT

The purpose of this research was to examine the role of fatigue, depression, and personality traits in males with and without multiple sclerosis (MS) and to investigate the influence of age and the numbers of years of education on these constructs. Participants were 30 males with MS and 30 males without MS from Shiraz City, Iran, who were selected following a sampling method. The Fatigue Severity Scale (FSS), the Beck Depression Inventory (BDI), the NEO Personality Inventory-Revised (NEO PI-R), and a demographic questionnaire were applied. Resulting data showed that patients with MS had significantly higher fatigue, depression, and neuroticism compared to control group. Resulting data showed that patients without MS had higher levels of extraversion, openness to experience, agreeableness and conscientiousness compared with patients with MS. There was no significant effect for age and the numbers of years of education on fatigue and depression, nor on the Big Five personality traits.

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### El papel de la fatiga, la depresión y los cinco grandes rasgos de personalidad en varones con enfermedad de esclerosis múltiple y sin ella

#### RESUMEN

El objeto de esta investigación ha sido analizar el papel de la fatiga, la depresión y los rasgos de personalidad en varones con y sin esclerosis múltiple (EM), así como investigar la influencia de la edad y los años de educación en tales constructos. Participaron 30 varones con EM y otros 30 sin ella, elegidos en la ciudad de Shiraz, Irán, de acuerdo a un método de muestreo. Se aplicó la Escala de Gravedad de la Fatiga (FSS), el Inventario de Depresión de Beck (BDI), el Inventario de Personalidad NEO – Revisado (NEO-PI-R) y un cuestionario demográfico. Los datos mostraron que los pacientes que tenían EM tenían significativamente mayor fatiga, depresión y neuroticismo en comparación con el grupo control. Los datos de los pacientes sin MS mostraban que tenían mayor nivel de extraversión, apertura a la experiencia, afabilidad y responsabilidad en comparación con los pacientes que tenían EM. No hubo efecto significativo de la edad y el número de años de educación en la fatiga, la depresión o los cinco grandes rasgos de personalidad.

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#### Palabras clave:

Esclerosis múltiple

Fatiga

Depresión

Cinco grandes

Edad

Nivel educativo

Multiple Sclerosis (MS) is an idiopathic inflammatory disease that affects approximately about 2.5 million people in the world. The MS prevalence rate was 35.5/100 000 in Iran (Etemadifar, Janghorbani, Shaygannejad, & Ashtari, 2006). The female to male ratio of MS was 2.18. Between 2006 and 2009, the incidence rates increased 2.4 and 2.7 times in women and men, respectively (Moghtadri, Rakhshanizadeh, & Shahraki-Ibrahimi, 2012). Common symptoms in MS include: optic and emotional disturbances, loss of balance and coordination,

spasticity, sensory disturbances, bladder and bowel incontinence, pain, weakness, and fatigue (Goldenberg, 2012; Sherwood, 2001). The immune system attacks the myelin sheath surrounding myelinated nerve fibers that results in scar tissue, which gives the disorder the name “sclerosis” (Sherwood, 2001).

Initially, the stress coping model was used to explain how MS could increase the risk of mental disorders and personality changes (Lazarus & Folkman, 1984; Pakenham, 1999). The stress coping model suggests that negative outcomes of harmful appraisals are only evident at higher levels of stress. The application of effective coping styles toward threats may reduce some negative effects of harmful appraisals in most situations (Finney, Mitchell, Cronkite, & Moos, 1984).

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Two major etiological suppositions were behind the susceptibility to this disease and its exacerbations: a genetic predisposition and, on the other hand, environmental risk factors (Ackerman et al., 2002; Haines et al., 2003; Goldenberg, 2012). MS has some comorbidity with psychological disorders like conversion and mood disorders and, taken together, may cause cognitive impairment in about 45-65% of patients (American Psychiatric Association, 2004; Bobholz & Rao, 2003; Prakash, Snook, Lewis, Motl, & Kramer, 2008).

### Fatigue, Depression and MS

When reviewing literature about this subject, it can be concluded that there is substantial variability in psychological symptoms such as fatigue and depression among patients with MS. It is known that between 76% and 97% of patients with MS complain of fatigue; this symptom has a significant impact on their quality of life and the ability to carry out their daily routine (Groth, 2011; Metz, 1998; Mollaoglu & Üstün, 2009; Schwartz, Coulthard-Morris, & Zeng, 1996). Many studies showed a higher rate of depression symptoms in patients with MS compared to healthy individuals (Fitzgerald, Cooper, Boninger, & Rentschler, 2001; Fruehwald, Loeffler-Stastka, Eher, Saletu, & Baumhackle, 2001; Merkelback, Sittinger, & Koenig, 2002). Patients with MS have higher levels of depression and mood distress when they are coping with significant issues in their life (Arnett, Barwick, & Beene, 2008; Fruehwald et al., 2001; Kang, Chen, & Lin, 2010; Patten, 2009; Schiffer, 2009; Siegert & Abernethy, 2005). There is a significant correlation between the lesion load/location of MS and the severity of depression (Feinstein, Roy, Lobaugh, O'Conner, & Black, 2004). Also, research indicated that Beck Depression Inventory (BDI) was positively related with total lesion volume, lesion volume in multiple discrete areas, and neuropsychological functioning in patients with MS (Wallin, Wilken, Turner, Williams, & Kane, 2006).

### Personality Traits and MS

Personality reflects the pattern of thoughts, feelings, and actions that are relatively stable over the time and across the situations (McCrae & Costa, 1990). These authors conceptualized a personality model with five dimensions that include: neuroticism, extraversion, openness, agreeableness, and conscientiousness. This *Big Five* model of personality has been applied in order to establish the role of personality traits in healthy and abnormal populations (Costa, Somerfield, & McCrae, 1996). For example, it is known that higher levels of neuroticism are associated with maladaptive coping strategies in patients with psychological disorders or physical diseases (Penley & Tomaka, 2002; Tallefer, Kirmayer, Robbins, & Lasry, 2003), while extraversion has been associated with higher problem-focused coping which is also related to positive adjustment in general (Watson & Hubbard, 1996).

Pakenham (1999) indicated that *Big Five* perspective of personality might help to understand personality changes in patients with MS. The *Big Five* model suggests that the greater the use of severe emotions and emotion-focused coping style in patients with MS, the more increases the risk of mental disorders and disease-related changes in personality (Benedict et al., 2009; Pakenham, 1999).

Patients with MS have higher neuroticism levels and, on the other hand, they have lower levels of empathy, agreeableness, and conscientiousness in comparison to healthy individuals (Benedict, Priore, Miller, Munschauer, & Jacobs, 2001). Additionally, several studies indicate that there is a relationship between personality changes and the affective and cognitive impairments in patients with MS (Benedict et al., 2001; Finger, 1998). So, quality of life in patients with MS is influenced by their mental health and the disease-related changes in personality traits (Joy & Johnston, 2001).

### Coping Styles in Men with MS

The stress coping theory and the *Big Five* perspective of personality traits suggest that the MS has a major negative impact on mental health and personality. The use of rational thoughts, prosocial behaviors, and problem-focused coping style in patients with MS is associated with a better social adjustment (Lazarus & Folkman, 1984; Pakenham, 1999).

According to the stress coping theory and the *Big Five* model of personality and contextual and relational theories in men's health (Addis & Mahalik, 2003; Courtenay, 2000; Lazarus & Folkman, 1984; McCrae & Costa, 1990), it seems that chronic physical diseases may influence both mental health and personality in patients with MS. In addition, Benedict et al. (2009) suggest that the *Big Five* perspective is a good theory for investigating disease-related personality changes in patients with MS. Men probably cope more negatively with MS due to their impaired coping and appraisals in such situation may increase their fatigue, their depression levels, and also may increase changes in their personality. MS may influence fatigue and depression levels because of their limited social resources, the increment of psychosocial stressors, and the application of an emotional coping style. MS may alter men's personality dimensions in different ways. It seems that men with MS have higher neuroticism levels and lower extraversion levels because they are more involved with negative patterns of emotionality and have a lack of social support and poor social engagement. Therefore, some men with MS might adapt themselves quickly to the new life, whereas others are trapped in the stage of disbelief and continue being highly fatigued and depressed for a long time after the diagnosis; and this chronic psychic distress may result in an adverse personality change. Fatigue, depression, and personality changes might be a result of MS disease process itself. Also, both contextual and relational theories predict that men's health issues may be influenced by their age and educational status (Addis & Mahalik, 2003; Courtenay, 2000). Age and educational level may influence fatigue, depression and personality traits in men with MS. However, there are no direct studies about the role of age and education status in fatigue, depression, and personality among patients with MS.

### Gender Issues in Men's Health

According to both contextual and relational theories in health-related issues, males are more vulnerable to suffering many diseases and risky behaviors than females because they adopt beliefs and behaviors that increase their risk and are less likely to engage in behaviors that are linked with a good health (Addis & Mahalik, 2003; Courtenay, 2000). These theories explain the role of gender in men's health from socialization and social constructionist perspectives. So, men's health-related issues such as other social roles are examples of demonstrating how masculine they are in general. These theories predict that men's health behaviors will be used in daily interactions in the social structuring of gender and power. Also, both contextual and relational theories suggest that social issues in men's health are often markers of masculinity and instruments which men use in the negotiation of social power and status. These theories explain how some cultural factors such as ethnicity, economic status, and educational level may influence the kind of masculinity that men construct and, taken together, may contribute to health issues differences in different cultures.

Similarly, Gavin, and George (2007) showed that MS is influenced by the environment at a macro-environmental level. Men tend to take a passive role in maintaining their health in this culture, being this pattern particularly common in males with low social status. Alternatively, the incidence of disease in men may be the result of the social disadvantaged environment and the unequal social justice for

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