

Effect of disease duration on personality type in multiple sclerosis patients and healthy individual

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Abstract

Background: Multiple sclerosis may have profound emotional consequences. The relation between psychological and physical factors could lead patients toward unforeseen disease. This study focuses on multiple sclerosis (MS) disease duration on personality type A and B in relation to individuals' behaviors. **Materials and Methods:** This descriptive-analytical study was conducted in Isfahan Alzahra hospital in 2013. Three hundred MS patients and 100 healthy individuals were determined. The distributed questionnaires related to MS patients and considering the descriptive statistics such as demographic variables. Data were analyzed by SPSS software (version 18) based on Chi-square test and independent T-test.

Results: Disease duration varied between 1 to 38 years: 30% (1-4 years), 38% (5-10 years), 20% (10-20 years), and 12% (more than 20 years). Significant relationship was observed between disease duration and tendency to type A (higher stress). This relation was positive and significant in Relapsing Remitting MS patients; but negative correlation was seen in Secondary Progressive MS patients. These patients tended to type B (lower stress) when disease duration increased.

Conclusions: Individuals with disease duration of one year and less than one year tend to type A personality, while patients with increment of disease duration have tendency to type B.

Key Words: Disease duration, personality type, relapsing remitting multiple sclerosis, secondary progressive multiple sclerosis

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INTRODUCTION

Multiple sclerosis (MS) is characterized as a chronic autoimmune disease that affects myelinated axons by

destroying the myelin in white matter of the central nervous system, and this procedure cause problems in nervous connections and results in cognitive disorders and emotional changes in the patients. This disease involves women more frequently than men, and the average age of onset of MS is 30 years. MS initiation occurs generally earlier in women than it does in men.^[1,2] MS symptoms vary individually and unpredictably and may be different around the nations.^[3,4] The signs of MS disease in some patients are unpredictable and fluctuated, sometimes with relapsing or progressive phase that could lead to

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different disabilities.^[5] The prevalence of MS differs greatly around the nations and correlates with hereditary, environmental and demographic factors.

Regarding the great prevalence of MS in Isfahan/Iran,^[4] this province could be considered as the area with the maximum incidence of MS in the Asia and Oceania.^[4] In adults, throughout the existence of neurological disorders, the personality remains the same; but it might be modified in the course of the disorder. Although many studies have been performed about cognitive functions related to MS, there are only a few records in the case of personality. In fact, MS patients are faced with a serious disorder that could affect their daily situations and life. Previous publications suggested that ambiguous interference between psychological and physical factors could lead patients toward unpredictable symptoms.

The theory describes Type B individuals as a contrast to those with Type A personalities. People with Type B personality by definition generally live at a lower stress level and typically work steadily, enjoying achievement but not becoming stressed when they do not achieve. When faced with competition, they do not mind losing and either enjoy the game or back down. They may be creative and enjoy exploring ideas and concepts. They are often reflective, thinking about the outer and inner worlds. The most important of these factors are related to the type A behavior, for which only a small number of researches exists. The items related to type A behavior can be counted as dictatorship, agitation, ambition, having high energy, competitiveness, anxiety, rashness and aggression. For the first time, this pattern was described by two cardiologists, Friedman and Rosenman.^[6-9] Based on clinical observations, they reported that patients with heart disease exhibited more stress, alertness, and aggression in comparison with normal subjects.^[10] To attain their targets and plans with the greatest progression in the minimum time, individuals with type A behavior form constant and repeated odd actions and refuse to accept their condition. Within diverse stages of work, they show anxiety and thrill. A combination of right and left hemispheric power consists their performance. They are rigid, devastated, undeniable, and aggressive wherever assessed. On the other hand, researchers are always in a hurry to reach the results and are not enough patients within interpersonal relationship.^[11] Due to sympathetic nerves stimulation, the pressure on other vital organs could be augmented, also mental and emotional health has important effects on physical health. A previous study reported that, in response to pressure, neurotransmitters and immune system are in a close correlation. In fact, a person can be

put in a regular condition of fight-or-flight response because of a permanent pressure.^[12,13] There are reports and observations about augmented stress and anxiety in MS patients.^[14,15] In the phase of pressure, it is relatively possible that we do not observe the symptoms, but an attack and deterioration can be detected later. At this stage, the body's response to the stress hormones production sounds to return to the normal phase. Several studies have reported that an increasing sign of delayed response to stress existed among MS patients.^[13] A previous publication reported that MS patients could also be affected by psychological features such as individuality style or reappearance of signs.^[13] Although the type A behavior could be a significant aspect distressing the central nervous system, this peculiarity in MS patients has been rarely investigated. Considering the psychological characteristics of MS patients, it is expected that type A behavior could be seen more frequently in this population. Previous publications reported that there is a significant correlation between type A and type B behaviors in MS patients. They reported the prevalence of 63% for type A behavior and 37% for type B among MS patients, respectively.^[16] The aim of this study was to evaluate the effect of disease duration on personality type in relapsing - remitting (RR) and secondary progressive (SP) MS patients considering variables of gender, age, and disability.

MATERIALS AND METHODS

This descriptive-analytical study was conducted in Isfahan Alzahra hospital in 2013. The study population was MS patients (MS was diagnosed by a neurologist) and also there was a control group. Using the Kokaran sampling formula and according to previous studies, 300 samples were determined. After collecting the questionnaires related to MS patients and considering the descriptive statistics such as demographic variables, 100 questionnaires were distributed and collected from a age and sex matched control group. (Inclusion: Patients with a definite diagnosis of Multiple Sclerosis by the neurologist of project advisor/Exclusion: Types of PP MS, PR MS). The number of men and women selected similar in both groups of patients and control.

The data were collected by using the Rosenman-Friedman questionnaire about personality type. The questionnaire had two parts; demographic and disease information part that included sex, age, MS type, date of disease commencement and drug history and the main part which consisted of 25 questions for personality type determination. Exclusion criteria for this study were history of antianxiety and sedative drugs consumption.

The gathered data was analyzed with the aid of SPSS software version 16. T-Test, Chi-square, One-Way and Two-Way ANOVA and Phi Correlation were used in order to examine the relationship between variables and answer to research questions.

RESULTS

Out of 400 distributed questionnaires, 300 were MS Patients (75%) and 100 were individuals in control group (25%). The type of MS disease in 300 studied patients was categories as RR 62%, PP 5%, and SP 33%. There were 300 women (75%) and 100 men (25%). Patients were between 16 to 68 years old; 3% (15-20 years old), 59% (20-35 years old), 31% (35-50 years old), and 7% (more than 50-year old).

Disease duration varied between 1 to 38 years: 30% (1-4 years), 38% (5-10 years), 20% (10-20 years), and 12% (more than 20 years).

Statistical test showed that differences between patients and controls in the case of personality types percents are significant ($P = 0.042 < 0.05$).

Also there was a significant difference between males and females concerning personality type ($P < 0.05$).

Personality type averages in female is significantly higher than male indeed tendency to type A in female is more than male ($P = 0.038 < 0.05$).

Also when disease duration increased, tendency to type A rose among patients. On the other side disease duration and tendency to type A have significant relationship. This relation was positive and significant in RRMS patients; but negative correlation was seen in SPMS patients. These patients tended to type B when disease duration increased. In patients with disease duration of 1 year and less than 1 year, no tendency to type A was seen. The older age has also been more tendencies to type B, as well.

DISCUSSION AND CONCLUSION

The main goal of this study was the evaluation of the effect of disease duration on personality type among MS patients. Of total population studied, 30.8% were of personality type A and 37.6% were of type B behavior. Despite other studies, patients showed more type B behavior pattern with higher EDSS scores. MS is one of the most disabling neurological disorders which affect a large number of people every year. In the past 100 years, studies have shown that stress could be one of the potential factors in the commencement and progression of MS. Previous publications reported stress as one of the frustrating factors among MS

patients.^[17,18] Additionally, strong evidence shows that stress and other psychological factors could affect functions of the immune system. Anxiety and chronic anxiety disorders are also common in MS patients.^[19] Based on previous study which carried out on few MS patients (one of the limitation of that study), observed that 65% were of personality type A and 35% were of type B behavior [Table 1, Figure 1]. In contrast to this research, our data demonstrated personality can change based on life circumstances.^[20] Current study on more MS population verified personality type could be affected by disease duration in MS patients. Moreover, since we are the first study which evaluated the correlation among disease duration and personality change in MS patients, there is no similar study to compare our study to others, but it seems that disease condition could influence on patient personality. Excessive stress and anxiety could be caused by patients' concerns for treatment fees, marriage, future of his or her children, reduced performance, disease obsession, low communication and social skills, and fright of deteriorating.^[21] Also, part of it could be due to personality traits such as having a type A personality. People with Type A behavior pattern reported more stress, nervousness, and anxiety; and these manifestations could make MS symptoms worse. In another point of view, an increase in Type A behavior as a result of the increased severity of disabilities could be considered as a coping response to the conditions created by stress. MS can affect many areas of performance and leads patients to incapability. Education and employment status, familial and sexual function, daily activities, and

Table 1: Type A and type B personalities among MS patients and control group

Sample Personality type	Patient	Control
Type A	30.8%	47.4%
Middle	31.6%	28.6%
Type B	37.6%	24%
Total population	300	100

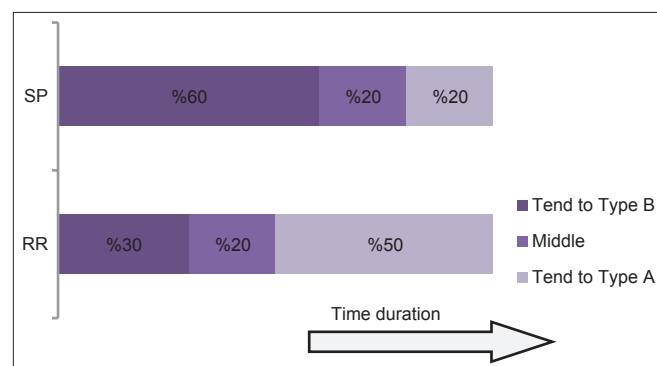


Figure 1: Personality type changes of MS patients considering disease duration

friends could also be affected by the disease.^[22] And developing disorder and augmented disability have wide destroying effects on patients' sense of life, community, and social functions.^[22] In addition, feeling ambiguity because of lack of control on daily health and imprecise future increases.^[23] When a person is faced with a situation wherein he has no control over himself, he or she needs to increase the effort to maintain or obtain control.^[14] The results of this study showed that type of personality may be affected under disease duration effect. Overall, it could be concluded that individuals with disease duration of 1 year and less than 1 year tend to type A personality, while patients with increment of disease duration have tendency to type B.

Study limitations

Lack of patients' information of before to developing MS was one of the main limitations of this study. This limitation can be proposed for policy makers' health care on database of personal health.

REFERENCES

- Ebers GC. The natural history of MS. In: Paty DW, Ebers GC, editors. Multiple Sclerosis. Philadelphia: F. A. Davis; 1998. p. 427-519.
- Etemadifar M, Abtahi SH. Multiple sclerosis in Isfahan, Iran: Past, present and future. *Int J Prev Med* 2012;3:301-2.
- Tennant A. Epidemiology of neurologically disabling disorders. *Handb Clin Neurol* 2013;110:77-92.
- Etemadifar M, Maghzi AH. Sharp increase in the incidence and prevalence of multiple sclerosis in Isfahan, Iran. *Mult Scler* 2011;17:1022-7.
- Harel Y, Barak Y, Achiron A. Dysregulation of affect in multiple sclerosis: New phenomenological approach. *Psychiatry Clin Neurosci* 2007;61:94-8.
- Friedman M, Rosenman RH. Type A Behavior and Your Heart. New York, NY: Alfred A Knopf; 1974. p. 78-85.
- Friedman M, Ulmer D. Treating type A Behavior-And Your Heart. New York: Knopf; 1984. p. 102-116.
- Anderson NB, Williams RB Jr, Lane JD, Haney T, Simpson S, Houseworth SJ. Type A behavior, family history of hypertension, and cardiovascular responsivity among black women. *Health Psychol* 1986;5:393-406.
- Rosenman RH, Friedman M. Neurogenic factors in pathogenesis of coronary heart disease. *Med Clin North Am* 1974;58:269-79.
- Ikeda A, Iso H, Kawachi I, Inoue M, Tsugane S; JPHC Study Group. Type A behavior and risk of coronary heart disease: The JPHC Study. *Int J Epidemiol* 2008;37:1395-405.
- Shaw WS, Dimsdale JE, Patterson TL. Stress and life events measures. In: Rush AJ, editor. *Handbook of Psychiatric Measures*. Washington DC: American Psychiatric Association; 2000. p. 221-39.
- Byrne DG. Type A behavior, anxiety and neuroticism: Reconceptualizing the pathophysiological paths and boundaries of coronary-prone behaviour. *Stress Med* 1996;12:227-38.
- Shaygannejad V, Sadr-Ameli M. *Successful Life with Multiple Sclerosis*. Iran: Vajiran, Mashhad; 2010. p. 68-94.
- Korostil M, Feinstein A. Anxiety disorders and their clinical correlates in multiple sclerosis patients. *J Mult Scler* 2007;13:67-72.
- Khorvash F, Askari G, Vesal S, Mehrbod N, Ghasemi H, Fatehizade M, *et al.* Investigating the anxiety level in iranian medical residents in 2010-2011. *Int J Prev Med* 2013;4(Suppl 2):S318-22.
- Smith TW, MacKenzie J. Personality and risk of physical illness. *Annu Rev Clin Psychol* 2006;2:435-67.
- Ganji H. *Psychological Tests*. Iran: Tehran, S Alavan Publications; 2007. p. 68-73.
- Goodin DS, Ebers GC, Johnson KP, Rodriguez M, Sibley WA, Wolinsky JS. The relationship of MS to physical trauma and psychological stress: Report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology* 1999;52:1737-45.
- Ackerman KD, Stover A, Heyman R, Anderson BP, Houck PR, Frank E, *et al.* 2002 Robert Ader New Investigator award. Relationship of cardiovascular reactivity, stressful life events, and multiple sclerosis disease activity. *Brain Behav Immun* 2003;17:141-51.
- Torrente F, Pose M, Gleichgerrcht E, Torralva T, López P, Cetkovich-Bakmas M, *et al.* Personality changes in dementia: Are they disease specific and universal? *Alzheimer Dis Assoc Disord* 2014;28:261-8.
- Bruce JM, Arnett P. Clinical correlates of generalized worry in multiple sclerosis. *J Clin Exp Neuropsychol* 2009;31:698-705.
- Thomas PW¹, Thomas S, Hillier C, Galvin K, Baker R. Psychological interventions for multiple sclerosis. *Cochrane Database Syst Rev* 2006;25:CD004431.
- Mullins LL, Cote MP, Fuemmeler BF, Jean VM, Beatty WW, Paul RH. Illness intrusiveness, uncertainty, and distress in individuals with multiple sclerosis. *Rehabil Psychol* 2001;46:139-53.

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