



A survey study comparing young adults with MS and healthy controls on self-esteem, self-efficacy, mood and quality of life



Michele Messmer Uccelli *, Silvia Traversa, Michela Ponzio

Italian Multiple Sclerosis Society & Research Foundation, Via Operai 40, Genoa, Italy

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ABSTRACT

Background: Studies have shown that people with multiple sclerosis (MS) report low levels of self-efficacy and self-esteem, high levels of anxiety and depression and reduced quality of life. The study aims to assess self-esteem, self-efficacy, mood and quality of life in young adults with MS and to compare them to a healthy control group.

Methods: The age range for inclusion in the study was between 18 and 35 years of age for both groups. Subjects with MS were recruited through the Italian MS Society. Healthy controls were recruited through social media and from a university undergraduate program. Subjects completed an anonymous online questionnaire combining various scales. Group differences on demographic data were assessed using parametric and non-parametric tests. Analyses of covariance (ANCOVA) were performed to evaluate differences between the two groups on scales of self-perception, mood and quality of life, adjusting for potentially confounding factors.

Results: Eighty-nine subjects with MS and 109 HC were included in the analysis. ANCOVA failed to demonstrate statistically significant differences between groups on self-esteem ($F = 0.11, p = 0.743$), self-efficacy ($F = 2.22, p = 0.138$), mood (anxiety $F = 0.03, p = 0.855$; depression $F = 0.06, p = 0.812$) and quality of life ($F = 0.08, p = 0.772$).

Conclusions: This study demonstrated that young adults with MS and healthy controls have similar levels of self-esteem and self-efficacy and that they do not differ significantly on measures of mood and quality of life, as previously reported.

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1. Introduction

Multiple sclerosis (MS) is one of the most common neurological diseases in young adults and involves inflammatory demyelination and axonal loss in the central nervous system. MS typically manifests between 20 and 40 years of age and can lead to significant disability in some cases. The disease course is unpredictable. Although it is not currently curable, the landscape of MS has changed significantly in the last decades due in part to relatively effective disease modifying therapies [1].

Self-esteem is an evaluation of one's self that appears to be at risk in people with MS. It is defined as a judgment of one's self-worth and is often based on important life domains such as psychological and physical health [2]. In studies comparing subjects with MS to the general population, people with MS have consistently reported lower levels of self-esteem [3,4]. Further, MS appears to have a less negative impact on quality of life in individuals with higher self-esteem [5]. Low self-esteem may be a predictor of reduced quality of life in MS [6].

Self-efficacy is also an aspect that appears to be relevant for people with MS. It is the belief that one can successfully cope with challenging conditions or situations [7]. It may play a role in a person's adjustment to the uncertainty of MS and its symptoms [8]. Self-efficacy positively correlates with self-management and is related to quality of life [6,9,10]. Lower levels of self-efficacy have been correlated with higher levels of anxiety in individuals with MS [11].

In case-control studies using self-report scales, the prevalence of anxiety in subjects with MS is higher than in healthy controls [12,13]. In a systematic review, Marrie et al. performed a sensitivity analysis in which the prevalence of anxiety was limited to results from questionnaires and found a summary estimate of 25.5% [14].

In studies using self-report scales, depression has been consistently reported to be more prevalent in subjects with MS than in controls, with a mean prevalence among these studies of 33.7% [15–20]. Symptoms of anxiety are reported to be more common than those of depression in MS [21,22]. Approximately half of patients with depression present with concomitant anxiety [11,23,24].

The individuals who have self-selected to associate with the MS Society in recent years give the impression of being particularly positive and active in facing the challenges of MS, more so than was the case in the past. Anecdotally, this is partly due to more choices, more

* Corresponding author at: Italian Multiple Sclerosis Society, Via Operai, 40, Genoa 16145, Italy.

E-mail addresses: michele.messmer@aism.it (M. Messmer Uccelli), silvia.traversa@aism.it (S. Traversa), michele.ponzio@aism.it (M. Ponzio).

accessible information and greater opportunities for peer contact. This apparent shift in approach was the basis for the study.

The aim of the study was to assess self-esteem, self-efficacy, mood and quality of life in a group of young adults with MS (18–35 years of age) and to compare them to a healthy control group (HC).

2. Materials and methods

2.1. Subjects

The age range for inclusion in the study was between 18 and 35 years of age for both groups. Subjects with MS were recruited through a national MS Society website and blog and through an MS Society experience-sharing event for young adults. Healthy controls (HC) were recruited through social media and from a university undergraduate program.

2.2. Data collection instrument

Subjects in both groups completed an anonymous online questionnaire combining various scales validated in Italian described below. The questionnaire was accessible through the survey software SurveyMonkey™. The survey period was from December 15, 2014 to March 15, 2015. Participants consented to participate after reading information about the study and what participation would entail and by clicking on the option “proceed with the questionnaire”. The study received ethical approval from the Ethics Committee of the Region of Liguria, Italy (P.R.108REG2015).

Both groups provided demographic information. Subjects with MS provided disease-related information including number of years of illness and self-rated level of neurological disability.

2.2.1. Scales

Neurological disability was measured using the Patient Determined Disease Steps scale (PDDS), a single item, self-reported measure of impairment on a scale from 0 normal to 8 bedridden [25].

The Hospital Anxiety and Depression Scale (HADS) is a well-established instrument for identifying anxiety and depressive symptoms [26]. The HADS has been validated in Italian and for use in MS [23,27]. There are 7 questions for anxiety and 7 for depression. Subjects choose one response from the four provided and each answer corresponds to a score from 0 to 3. Possible total scores range from 0 to 21 for both anxiety and depression. Based on norms, 0–7 is normal, 8–10 is borderline abnormal and 11–21 is abnormal.

The WHO-Five Well-being Index (WHO-5) is a 5-item scale that reflects the presence and absence of well-being related to quality of life and is available in a number of languages, including Italian through the World Health Organization [28]. It has been used previously in MS [29]. The raw score is calculated by totalling the numbers indicated for each of the five answers. Scores range from 0 to 25, 0 representing worst possible and 25 best possible quality of life.

The Rosenberg Self-esteem Scale (RSS) has 10-items each rated on a 4-point scale ranging from 3 (strongly agree) to 0 (strongly disagree) [2]. The RSS has been validated in Italian and has been previously used in MS [5,10,30]. After 4 items are reversed, item scores are summed. The possible range is from 0 to 30 and a higher score indicates more positive self-esteem.

The General Self-Efficacy Scale is a 10-item scale in which each item is rated from 1 (not at all) to 4 (exactly true) [31]. The total score from 10 to 40 results from summing the items. A higher score indicates a higher sense of self-efficacy. It has been validated in Italian and previously used in MS [10,32].

3. Statistical analysis

Statistical descriptive tests including means, standard deviations (SD) and percentages were used to describe the characteristics of the sample. Group differences on demographic data were assessed using parametric and non-parametric tests for independent samples. Analyses of covariance (ANCOVA) were performed to evaluate differences between the two groups on clinical scales of self-esteem, self-efficacy, mood and quality of life, adjusting for potentially confounding factors.

To detect abnormal values, cut-offs reported in the literature were applied. A HADS score of ≥ 8 for anxiety or depression was considered indicative of the probable presence of a mood disorder [23]. A WHO-5 score of < 13 indicated poor quality of life and a RSS score of < 15 indicated low self-esteem. For self-efficacy the sample was dichotomized based on the median score and subjects with scores falling below the median were considered to have low self-efficacy.

The difference in critical values of the scales between groups was tested using logistic regression models, adjusting for potentially confounding factors. A bivariate correlation analysis, using Pearson's correlation (r), was performed to assess the strength of the relationship between scales. A p -value of < 0.05 was considered statistically significant. Analyses were performed using Stata (version 11.0).

4. Results

Eighty-nine subjects with MS and 109 HC were included in the analysis. The two groups were homogeneous for gender and educational level, while the mean age was higher in the MS group [24.2 (2.8) vs 22.1 (2.7), $p < 0.001$]. Subsequent analyses were adjusted for age. Table 1 provides demographic data for both groups. In the MS group, mean illness duration was 5.3 years (SD 3.2) and the mean PDDS score was 1.4 (SD 1.6).

ANCOVA failed to demonstrate statistically significant differences between groups on self-esteem ($F = 0.11$, $p = 0.743$), self-efficacy ($F = 2.22$, $p = 0.138$), mood (anxiety $F = 0.03$, $p = 0.855$; depression $F = 0.06$, $p = 0.812$) and quality of life ($F = 0.08$, $p = 0.772$) (Fig. 1).

In the MS group, 59.6% and 20.2% of subjects reported clinically significant symptoms of anxiety and depression, compared to 68.8% and 11.0% in the HC group, respectively, but the differences between groups were not statistically relevant (OR = 0.73, $p = 0.322$ and OR = 2.28, $p = 0.058$, respectively). When analysed as concomitant symptoms (19.1% in MS vs 9.2% in HC) there was a significant difference between groups (OR = 2.48, $p = 0.048$). Critical values of low self-esteem (OR = 1.61, $p = 0.248$), self-efficacy (OR = 0.82, $p = 0.523$) and quality of life (OR = 1.06, $p = 0.849$), did not differ between groups.

Results of the correlation analyses of the groups are shown in Table 2. In the MS group positive correlations were found between quality of life and self-esteem and self-efficacy and between anxiety and

Table 1
Demographic data for subjects with MS and the healthy control group.

	MS (n = 89)	HC (n = 109)	p-value
Mean age in years (range, SD)	24.2 (18–35, 2.8)	22.1 (18–31, 2.7)	<0.0001
Gender (%)			
Female	75 (84.3)	94 (86.2)	0.697
Male	14 (15.7)	15 (13.8)	
Educational level (%)			
High school	72 (78.9)	85 (78)	0.134
University	17 (19.1)	24 (22)	
Living situation (%)			
Family of origin	66 (74.2)	92 (84.4)	0.074
Other (conjugal family, alone)	23 (25.8)	17 (15.6)	
Illness duration in years (mean, SD)	5.3 (3.2)	–	
PDDS score (mean, SD)	1.4 (1.6)	–	

SD = standard deviation.

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