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Contextual Factors Matter: The Role of Social Support in Work-Related Difficulties and Employment Status in Persons with Multiple Sclerosis

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Abstract: Background: People with Multiple Sclerosis (PwMS) have reported a higher unemployment rate compared to the general population. The complexity of environmental-contextual factors, such as structural and functional social support, may influence employment status (ES). Objectives: to study the relationship between perceived social support and ES, assess the effects of potential mediators, and analyze how these predictors influence components of ES, including absenteeism, work harassment, negative work events, and the use of accommodations. Material and Method: 90 PwMS were recruited. A single-visit assessment included: the Medical Outcomes Study Social Support Survey (MOS-SSS), the Buffalo Vocational Monitoring Survey, the Symbol Digit Modalities Test (SDMT), patient-reported outcomes measuring depression (Beck Depression Inventory-II (BDI-II) and fatigue (Fatigue Severity Scale), and the EDSS. Results: Sixty-three (70%) of PwMS were employed. Mediation analysis revealed the involvement of BDI-II and SDMT in the relationship between social support and ES. The functional social support of friends had a significant effect on absenteeism and NWEs. Total functional support was related to harassment, while family support had a significant effect on accommodations. Conclusion: These results show that structural and functional social support, in relation to the clinical variables of the disease, increase the probability of employment and a better quality of work.

Keywords: employment; social support; Buffalo Vocational Monitoring Survey; cognition; multiple sclerosis; Latin America

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1. Introduction

Employment is a vital aspect of people's identity, a source of economic and social status, and consequently, well-being. It is also a factor underlying health inequalities [1]. People with chronic diseases can experience significant impairment in work participation [2], including people with Multiple Sclerosis (PwMS) [3]. MS is a heterogeneous, inflammatory, demyelinating, and degenerative disease of the central nervous system, producing a variety of physical, cognitive, and behavioral symptoms that impact quality of life [4]. It is considered the leading cause of non-traumatic disability in young adults whose age of onset ranges between 20 and 40 years, making it a vital period for life project choices and work insertion [4,5]. PwMS have reported a higher unemployment rate compared to the general population and other groups with chronic illnesses [6]. In addition, those who

report the presence of negative work events (NWEs), such as reduced work hours or formal disciplinary measures, are more likely to lose their jobs [7]. These NWEs have also been linked to greater absenteeism [8] and increased use of job accommodations, highlighting the importance of monitoring the vocational status of PwMS to delay negative employment consequences. The relevance of sustaining employment lies not only in the evident economic benefit but also in the positive impact on self-esteem, social contact, and health [9].

Disease-related factors, such as physical disability, fatigue, depression, and cognitive impairment, have been widely shown to be associated with work difficulties and unemployment [10,11]. However, it is also important to consider less-studied environmental-contextual variables and their interaction with disease-related factors [12,13]. Among the environmental-contextual factors is social support [14], defined as the emotional and economic resources an individual receives from their environment to cope with stressful life events [15]. The social support network, made up of friends, family, co-workers, and institutions, allows people with a chronic disease to perceive the affection received as continuous and committed help capable of generating changes in the behavioral and emotional spheres that serve as a buffer against the negative effects of the disease [16,17]. Social support is a multidimensional concept that is generally conceptualized within two broad domains: quantitative-structural and qualitative-functional social support. Structural support refers to the existence and quantity of social networks, such as the number of friends one has, while functional support refers to the degree in which interpersonal relationships fulfill a given function [18]. Functional support is mainly divided into the provision of emotional (e.g., feeling loved and cared for), instrumental (e.g., financial support, access to food and clothing), and informational support (e.g., receiving advice to solve problems) [19].

Employment and social support may be related [12]. In women with MS, family support, including the opportunity to delegate household tasks and receive help with childcare and understanding from family members, has been linked to job retention and better work–life balance [20]. It has also been observed that employed PwMS report greater perceived social support [21,22], although the influence of other variables that may be relevant to this relationship remains to be studied. In people with other chronic illnesses, receiving advice, encouragement, and motivation from friends and family, as well as feeling understood, is associated with a higher likelihood of returning to work after a sickness absence [23]. Therefore, being employed can provide meaningful social networks for the person with a chronic illness that provide contention at the workplace, while social support outside work can also influence the individual's behavior related to their ability to maintain work role functioning, including the implementation of reasonable workplace adjustments. However, there is little research on this relationship in PwMS, which can provide insights into the complex network of individual and contextual variables that shape employment status (ES) and actual work experience [7,14]. More information is needed to elucidate the specific dimensions of social support that could influence work participation and thus be considered in healthcare [23].

Therefore, the aims were (i) to study the relationship between perceived social support, in its functional and structural dimension, and the ES of PwMS, including the exploration of other variables that could be relevant in the relationship between support and ES, (ii) to analyze the influence of perceived social support on three work-related difficulties: absenteeism, workplace harassment, and NWEs, and (iii) to study the relationship between social support and the use of job accommodations.

2. Material and Methods

2.1. Participants

The sample consisted of 90 PwMS, who were recruited from 2 MS clinics in Buenos Aires, Argentina, through an incidental strategy of non-probabilistic sampling. All the subjects who attended their neurological consultations and met the inclusion criteria were invited to participate in the study. Inclusion criteria were: (1) age $\geq$ 18 years up to 60, and (2) MS diagnosis according to the 2018 revisions of McDonald criteria [24], including any

of the 3 clinical forms of the disease (Relapsing Remitting (RRMS), Primary-Progressive (PPMS), or Secondary Progressive (SPMS). Exclusion criteria included: (1) severe visual or hearing impairment, (2) medical history that may affect cognition or personality, such as a psychiatric or neurological disease other than MS, (3) history of alcohol or drug abuse, (4) uncontrolled systemic disease, (5) history of relapses or corticoids administration within four weeks preceding the study and (6) those who were students, homemakers, or volunteers were excluded from the groups.

All participants provided written informed consent before participating in study procedures approved by the Commission for the evaluation of responsible conduct in research of the Faculty of Psychology by the University of Buenos Aires.

2.2. Measures

2.2.1. Social Support

The Argentine adaptation of the Medical Outcomes Study Social Support Survey (MOS-SSS) [18] by Rodriguez Espíndola and Enrique [19] was implemented to assess perceived social support. The MOS-SSS is a brief, multidimensional survey that explores the structural components (e.g., social network size) and functional dimensions of social support. It is composed of 20 items ranging from 1 (never) to 5 (always) on a Likert scale. The first item asks about the social network size that the person can rely on, which asks the number of friends (MOS Friends) and number of family members (MOS Family). The remaining items explore 3 social support dimensions: emotional/informational support (i.e., information the patient can use to anticipate and face problems, such as suggestions and advice), affective support (i.e., true expressions of affection, love, or empathy), and instrumental support (i.e., access to material resources such as financial assistance, food, and clothing). From the three dimensions, a global index score (Total MOS) is obtained. A higher score on the MOS-SSS represents greater perceived social support.

2.2.2. Vocational Survey

PwMS were assessed using the Buffalo Vocational Monitoring Survey (BVMS) [25], adapted in Argentina [26]. This survey asks respondents a variety of questions about demographics, disease status, job type, work duties, income, hours worked per week, disclosure of disease status, NWEs, and workplace accommodations. Participants are asked to indicate Yes or No if they experienced the following NWEs: (a) decreased work hours, (b) verbal criticism or reprimands, (c) removal of job responsibilities, (d) formal discipline, (e) mandated work support or retraining, (f) being asked to work extra hours to complete a task that would normally be performed more quickly, and (g) any other type of reprimand or negative work event other than the ones previously mentioned. Participants are also asked if they have been absent from work due to a disabling condition in the last three months and if they have experienced harassment or unfair treatment. Finally, respondents select the accommodations they use at work to facilitate their performance from a list of 38 items.

2.2.3. Neuro-Performance Measure

The only cognitive measure administered was the Symbol Digit Modalities Test (SDMT) [27,28] given its known sensitivity to MS-related cognitive impairment and proven ability to predict employment status in MS [29,30]. In the SDMT, the subject is presented with a page headed by a key that pairs single digits (1 to 9) with nine symbols. The rows below contain only the symbols, and the subject's task is to report orally the correct number that should be placed in the empty spaces. After completing the first ten items using the reference key, the subjects are timed to determine how many responses they can give in 90 s.

2.2.4. Patient-Reported Outcomes

Depression symptoms were screened using the Beck Depression Inventory-II (BDI-II) [31], locally adapted and validated by Brenlla and Rodriguez [32]. The BDI-II is a 21-item

self-report questionnaire with a 4-point Likert scale that targets subjects' feelings and perceptions in the previous 2 weeks. A higher score indicates greater depressive symptoms.

Fatigue symptoms were quantified by the Argentine version of the Fatigue Severity Scale (FSS) [33,34], a self-report scale composed of 9 items, each presenting possible answers of increasing intensity on a 1- to 7-point Likert scale. A PwMS's answers are to reflect how they felt during the previous 2 weeks, with a higher score indicating greater fatigue symptoms.

2.2.5. Disability

Global disability was assessed using the Expanded Disability Status Scale (EDSS), the most widely used disability scale in MS [35]. The EDSS is based on measures of impairment in 8 functional systems: visual, sensory, pyramidal, cerebellar, brainstem, bowel and bladder, cerebral, and others. Scoring consists of 20 "half-points" that produce a total score that ranges from 0 to 10 points.

2.3. Data Analysis

PwMS were classified as employed if they had a paid job, both full-time and part-time, and as employees or self-employed; or unemployed if they were unemployed because they could not find work or were unable to work. Some of them received disability benefits, and others did not. In all cases, we excluded those who were retired due to age, homemakers, and students.

Data analysis was carried out in the R programming language 4.0.2 and the RStudio environment [36]. Descriptive analyses were performed for all included variables. Differences in demographic factors, levels of perceived social support, work characteristics, SDMT, depression, fatigue, and EDSS between employed and unemployed PwMS were calculated with chi square and *t*-tests. Cohen's d was calculated for comparing the effect size of *t*-test results. Based on Cohen [37], the effect sizes are the following: small (0.20), medium (0.50), and large (0.80). Generalized linear models were built with the lme4 package 1.1-27.1 [38] to analyze the relationship between MOS-SSS scores and job outcomes. For ES (dichotomously categorized as either "employed" or "unemployed"), two GLMs with binomial distribution and logit link were created, including the MOS total score as a predictor. Each model incorporated an additional variable separately (BDI-II and SDMT total raw score) to analyze their potential mediation effect. Mediation was analyzed following the traditional Baron and Kenny's [39] method and with bootstrapping (ACME estimation via quasi-Bayesian approximation) using the mediation package 4.5.0 [40], which is considered the preferred method as it has fewer assumptions and is more adequate for small samples [41]. The additional GLMs for absenteeism, NWEs, harassment, and accommodations were modeled with a binomial distribution and logit link function, while the last one employed a quasipoisson distribution (instead of a traditional poisson distribution, due to overdispersion). The use of GLMs was considered appropriate since the IVs consisted of either dichotomous (absenteeism, harassment, negative events) or count (accommodations) variables while allowing for multiple predictors. Odd Ratios for the logit models were estimated with the parameters package [42], based on standardized coefficients, to facilitate determining relative importance as predictors are continuous variables on different scales.

3. Results

3.1. Sample Description and Job Characteristics

Table 1 illustrates the descriptive analysis of the final sample (n = 90) and its division between employed and unemployed PwMS. In terms of ES, 70% of participants (n = 63) were employed. In comparison with unemployed PwMS, they had a higher level of education, better SDMT scores, and fewer depressive symptoms. Conversely, there were no significant differences in age, years of evolution, fatigue, or disability (EDSS).

Table 1. Demographic, clinical, cognitive and self-reported data of people with Multiple Sclerosis.

Variable	PwMS *n* = 90	Employed Group *n* = 63	Unemployed Group *n* = 27	Employed vs. Unemployed	
	Mean (SD)	Mean (SD)	Mean (SD)	*p*-value	Effect size
Age (years)	39.66 (10.09)	39.17 (10.06)	40.78 (10.52)	0.493	-
Education (years)	13.70 (2.84)	14.25 (2.62)	12.41 (2.96)	**0.004**	*d* = 0.65
Female, % (*n*)	60% (54)	60.3% (38)	59.3% (16)	0.915	-
Disease evolution (years)	10.19 (7.35)	09.38 (7.63)	12.08 (6.39)	0.125	-
EDSS	2.57 (1.83)	2.36 (1.87)	3.01 (1.69)	0.126	-
FSS	4.01 (1.83)	3.88 (1.70)	4.32 (2.12)	0.306	-
BDI II	13.87 (10.18)	11.97 (8.80)	18.22 (11.86)	**0.018**	*d* = 0.61
SDMT	47.58 (14.43)	52.23 (12.98)	36.93 (11.83)	**<0.001**	*d* = 1.06
Perceived social support:					
MOS Friends	4.56 (3.97)	4.89 (4.31)	3.78 (2.97)	0.226	-
MOS Family	4.90 (4.19)	5.06 (4.55)	4.52 (3.27)	0.575	-
Total MOS	87.27 (17.87)	90.15 (17.96)	80.55 (16.03)	**0.019**	*d* = 0.54
Emotional/informational support	40.24 (8.19)	41.79 (8.06)	36.62 (7.46)	**0.006**	*d* = 0.63
Affective Support	21.38 (4.14)	22.07 (3.84)	19.77 (4.29)	**0.014**	*d* = 0.56
Instrumental Support	16.13 (4.29)	16.33 (4.38)	15.66 (4.14)	0.503	-
Clinical Forms:					
Relapsing-Remitting, % (*n*)	93.3% (84)	93.7% (59)	92.6% (25)		
Secondary-Progressive, % (*n*)	1.1% (1)	0% (0)	3.7% (1)	0.276	-
Primary-Progressive, % (*n*)	5.6% (5)	6.3% (4)	3.7% (1)		

Notes: *MS:* Multiple Sclerosis; *EDSS:* Expanded Disability Status Scale (Median: 2; Range (0–7.5); *BDI II:* Beck Depression Inventory II—raw score; *FSS:* Fatigue Severity Scale—raw score; *SDMT:* Symbol Digit Modalities Test—total raw score; *MOS Friends:* number of friends—raw score; *MOS Family:* number of family—raw score; *MOS Total*: global index of MOS-SSS—raw score; *SD*: Standard Deviation. Independent sample *t*-tests and chi-square tests were utilized to investigate differences in numerical and categorical variables between employed and unemployed PwMS. Significant differences are in bold. For the effect size, Cohen's *d* was calculated.

3.2. Mediating Role of Clinical Variables in the Relationship between Social Support and ES

Considering there were differences in perceived social support, SDMT total raw score, symptoms of depression (BDI-II), and years of education between ES groups and recognizing the potential associations among these variables, we decided to explore potential mediation effects. Both SDMT and symptoms of depression were significantly associated with support, while education was not (Table 2). As MOS total is mostly composed of the two functional support measures (with expected very high correlations) and similar associations with the other measures, we selected this measure for further analysis.

Table 2. Correlations between relevant measures for Employment Status.

Variable	1	2	3	4	5
1. Education					
2. SDMT	0.34 ** [0.14, 0.51]				
3. BDI2	−0.18 [−0.37, 0.03]	−0.42 ** [−0.58, −0.23]			
4. MOS total	0.06 [−0.15, 0.27]	0.24 * [0.04, 0.43]	−0.34 ** [−0.51, −0.14]		
5. Emotional/ informational Support	0.11 [−0.10, 0.31]	0.32 ** [0.12, 0.49]	−0.35 ** [−0.52, −0.16]	0.90 ** [0.86, 0.94]	
6. Affective Support	0.2 [−0.00, 0.40]	0.30 ** [0.10, 0.48]	−0.36 ** [−0.53, −0.16]	0.86 ** [0.79, 0.90]	0.83 ** [0.75, 0.88]

Note. Values in square brackets indicate the 95% confidence interval. * indicates $p < 0.05$. ** indicates $p < 0.01$.

For SDMT, when including both dependent variables (support and SDMT) in the model, the effect of support on ES is no longer significant (*OR* = 1.46, 95% CI [0.87, 2.51], $p = 0.16$), while the effect of SDMT remains (*OR* = 4.03, 95% CI [2.09, 8.98], $p < 0.001$), suggesting mediation (Figure 1). Moreover, a test of indirect effects based on bootstrapping (ACME estimation via quasi-Bayesian approximation) with 1000 iterations estimated a significant average causal mediation effect ($p < 0.05$).

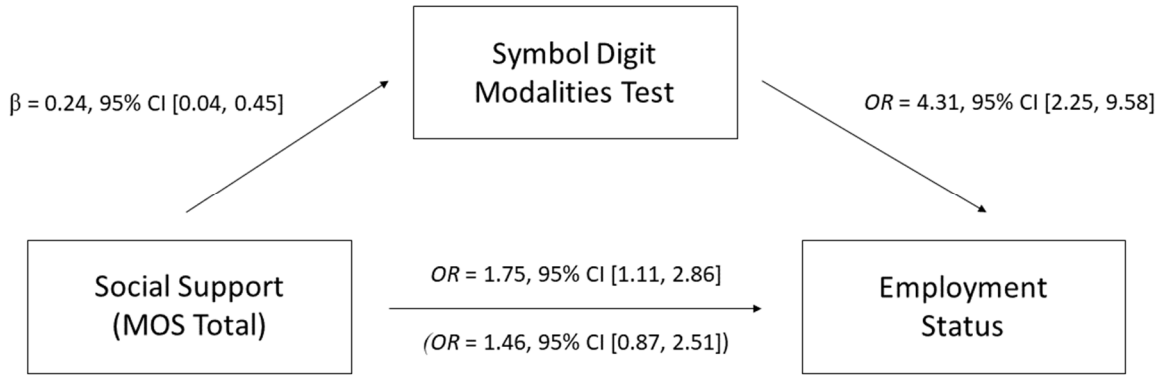

Figure 1. Mediation of SDMT in the effect of social support on ES.

Similarly for symptoms of depression, when including both variables in the model, the effect of support on ES was no longer significant (*OR* = 1.55, 95% CI [0.95, 2.64], $p = 0.09$), while the effect of symptoms of depression remained (*OR* = 0.61, 95% CI [0.37, 0.99], $p < 0.05$), suggesting mediation (Figure 2). The test of indirect effects also estimated a significant average causal mediation effect ($p < 0.05$).

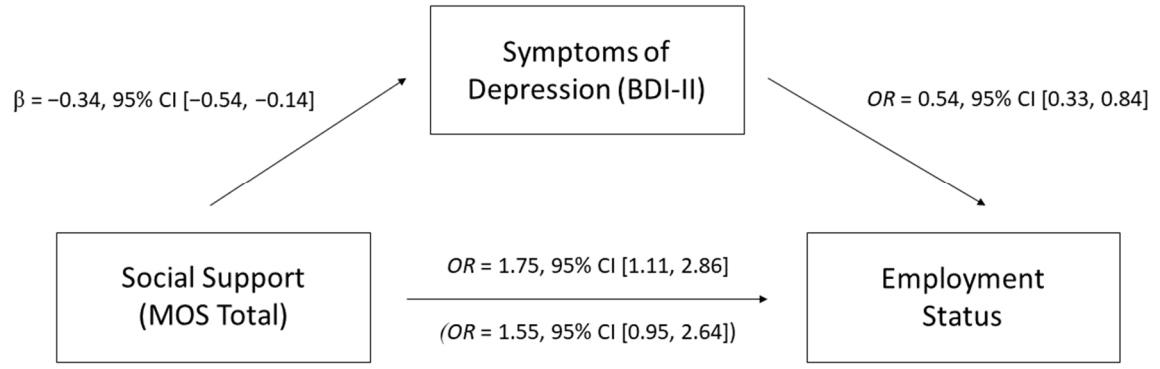

Figure 2. Mediation of symptoms of depression in the effect of social support on ES.

3.3. Social Support and Absenteeism, Harassment and NWEs

Generalized linear models (binomial distribution, logit link) were built to examine the relationship between perceived social support and the probability of being absent at least a day at work and of experiencing NWEs and harassment. Both structural dimensions (number of friends and family) were considered predictors. In terms of functional dimensions, only the total score was included. For missed days, MOS friends had a significant effect (*OR* = 0.10, 95% CI [0.01, 0.64], $p < 0.05$), while MOS family (*OR* = 1.90, 95% CI [0.72, 5.29], $p = 0.17$) and MOS total did not (*OR* = 0.53, 95% CI [0.20, 1.40], $p = 0.19$); the deviance difference for the model against the null model was significant (χ^2 (3) = 10.23, $p < 0.05$). In the case of NWEs, MOS total had a significant effect (*OR* = 0.45, 95% CI [0.19, 0.97], $p < 0.05$), while MOS family (*OR* = 1.84, 95% CI [0.75, 4.59], $p = 0.17$) and MOS friends did not (*OR* = 0.25, 95% CI [0.05, 0.90], $p = 0.07$); and deviance difference (χ^2 (1) = 6.89, $p < 0.01$).

As for harassment, there was a significant effect of MOS total (*OR* = 0.34, 95% CI [0.10, 0.93], $p < 0.05$), with no effect of MOS family (*OR* = 1.03, 95% CI [0.12, 3.92], $p = 0.97$)

or MOS friends (*OR* = 0.95, 95% CI [0.19, 2.33], $p = 0.93$); however, the deviance difference for the model was not significant (χ^2 (3) = 6.90, $p = 0.07$). While variance inflation factor (VIF) values were not high, which does not suggest multicollinearity, these measures are moderately correlated with each other, so we explored univariate models. In this case, MOS total had a significant effect (*OR* = 0.34, 95% CI [0.10, 0.93], $p < 0.05$) and deviance difference (χ^2 (3) = 6.90, $p = 0.07$).

3.4. Social Support and Accommodations

A generalized linear model (quasi-Poisson distribution) was constructed to test the effect of perceived social support (MOS total, MOS friends, MOS family) on the number of accommodations. A quasi-Poisson distribution was selected instead of a Poisson distribution due to overdispersion. None of the predictors had a significant effect. However, when analyzing univariate models, there was a significant effect of MOSfamily (B = 0.044, 95% CI [0.004, 0.079], $p < 0.05$), but no significant effect was found for MOSfriends (B = 0.011, 95% CI [−0.001, 0.024], $p = 0.09$) or MOStotal (B = 0.012, 95% CI [−0.039, 0.056], $p = 0.62$) or deviance difference (χ^2 (1) = 18.50, $p < 0.05$).

4. Discussion

Identifying psychosocial factors that promote employment for PwMS is warranted; therefore, in this study, the aim was to analyze the associations between an environmental-contextual factor, social support, ES, work-related difficulties, and work accommodations. Within work-related difficulties, we considered absenteeism, harassment, and NWEs.

A key finding was that MOS Total, emotional/informational support, and affective support significantly differed between employed and unemployed PwMS, with an estimated effect size between medium and large. Employed PwMS showed greater social support, and their scores were similar to those reported by healthy control subjects [43]. Emotional/informational support may be particularly important for ES because it refers to advice and information received from the social environment that helps PwMS solve and anticipate problems, which may be about work. This advice can also come from the work environment, both from coworkers and supervisors. Affective support, which refers to demonstrations of care and empathy, can be relevant to ES as it can function as a buffer against stressful events generated by work pressures. No differences were found in instrumental or structural support, both from family and friends. In an Argentine study with a sample of 195 PwMS using the same questionnaire, differences in MOS Total were also found between employed and unemployed PwMS [21]. Thus, a relationship between decreased social support and unemployment is observed [22].

When conducting statistical models, it was considered relevant to incorporate education, depression, and SDMT, as they also showed differences between employed and unemployed PwMS groups and were reported in the previous literature as relevant to ES [10,11,26,44]. In the mediation model that includes MOS Total, ES, and SDMT, social support ceases to be significant, so SDMT mediates the relationship between MOS Total and ES. Processing speed is a function that is affected in a high percentage of PwMS and has been shown to predict ES and health-related quality of life (HRQoL) [43–45]. It is also to affect other functions, such as memory and executive functions [46]. On the other hand, a correlation was found between processing speed and MOS Total, emotional/informational support, and instrumental support. However, the relationship between processing speed and social support is understudied. There is research with the same instruments that found that patients with slow processing speeds had weaker social relations in terms of quality [47]. PwMS with cognitive impairment have also shown higher rates of unemployment and reduced social contacts [48], which aligns with the relationships between SDMT, social support, and ES found in our study.

Regarding the model of Total MOS, ES, and depression, the same pattern occurs as with the previous model: social support ceases to be significant for ES, indicating that depression mediates the relation between social support and ES. Depression is one of

the most prevalent comorbidities in MS; in our sample, 40% (n = 36) of PwMS exhibit depressive symptoms according to the BDI-II; in the case of unemployed PwMS, the figure rises to 55.6% (n = 15), while in employed individuals, it decreases to 33.3% (n = 21). Depressive symptoms have previously been associated with worse employment outcomes in cross-sectional and longitudinal studies [11,26]. In an Argentine study [23], depression was a variable that differentiated PwMS with stable employment from those at risk of job loss. We also found a relationship between depression and social support in its qualitative dimension, similar to other studies reporting that individuals with depression perceive limited social support and that reduced social support is a predictor of depression [49,50]. In our study, social support was significant for employment until depression was included, which underlines the importance of studying this variable in PwMS and incorporating it into models when examining both employment and other self-reported questionnaires, in particular perceived social support, as they may be influenced by the presence of depressive symptoms [50].

On objective 2, it was found that social support received from friends was a predictor of absenteeism and the total number of NWEs. A greater social network of friends was associated with a lower probability of being absent for at least one day of work and experiencing NWEs. NWEs have been reported as an important barrier to employment. PwMS who lost their jobs were more likely to report NWEs immediately before unemployment compared to PwMS who maintained employment, showing that NWEs may act as an indicator of an increased risk of job loss in the short and medium term [7]. No studies were found that analyze the relationship between social support, NWEs, and absenteeism. However, in a study on a sample of women with fibromyalgia, also considered a chronic disabling disease that primarily affects women, it was found that social support from friends and family outside of work was found to serve as an environmental promoter for sustainable work [51]. Having people to spend time with and share enjoyable activities is likely to have positive effects on the ability to work. In a longitudinal study, the frequency of social/lifestyle activities at baseline explained most of the variance in the ES of PwMS after 10 years [52]. The high level of variance explained indicates that a variable representing activity and participation in private life may represent an important aspect of understanding working life in PwMS. The frequency of social/lifestyle activities can be understood as having an important bearing on work–life balance.

We also found that Total MOS was a predictor of harassment, so we infer that workplaces of PwMS who perceive harassment or unfair treatment are less supportive regarding the illness. For many, the workplace provides a significant level of social support; it is a place where friendships and camaraderie can be developed and provides identity and a sense of belonging. Thus, social participation associated with work may serve as a buffer and may be beneficial for individuals with MS.

Finally, in relation to objective 3, in a univariate regression, it was found that support from family was associated with the use of accommodations. Job accommodations are considered reasonable adjustments in the workplace or strategies related to professional retraining and vocational rehabilitation and are associated with greater chances of retaining an occupation. Some common accommodations are adopting flexible hours, working from home, and using memory aids [26]. In this sample, among the most frequent accommodations are flexible hours (n = 32, 57.14%), which are often useful for managing work responsibilities based on symptoms, and the use of memory aids (n = 29, 51.78%), which serve to compensate for cognitive difficulties. In a previous study, they found that family support was related to modifications in daily activities [45]. It is likely that adaptations made at home, encouraged and facilitated by the family, can also be implemented in the workplace. This finding may reflect disability, functional restrictions, or other limitations due to the disease.

In conclusion, these results support the existing evidence of the importance of social support and social connections for mood disturbance, cognition, and particularly for employment. Concerning ES, the analyses suggest that there is mediation between the

variables, i.e., that social support might affect ES indirectly through processing speed and depression. It is possible that this environmental resource has a positive effect on depressive symptoms, which in turn have a positive effect on ES. It may also be likely that an enriched social environment promotes better cognition, which improves ES. These hypotheses should be tested in future studies. For the other occupational outcomes, social support seems to be more relevant. Based on these data, we highlight the importance of studying the intersection of individuals and environmental-contextual factors to understand how these variables interact and generate consequences for an individual's occupational performance [14,20].

These findings have implications for clinical and rehabilitation practice. First, our finding that processing speed and depression directly influence ES suggests that cognitive training interventions [53] and effective treatments for depression [50] can be utilized to improve these MS symptoms and, in consequence, reduce their negative influence on job outcomes. Furthermore, social support may act as a facilitator of employment through the other two variables. These results underscore the importance of social support in the design of effective vocational interventions that involve direct interaction with the person's social environment and can improve PwMS' job outcomes. In vocational rehabilitation, social support can potentially be increased by training PwMS on making clear and active requests for help from the social environment and to better communicate social support needs, including providing suggestions on how help could be provided [14]. Also, both family members and friends can be included in educational programs that can help improve their management of issues and complications related to the disease [54]. The importance of health specialists considering social support in clinical settings is emphasized, as it is a significant resource available to PwMS to cope with the challenges of daily life, as well as the close relationship between social support and depression.

Within the limitations, the current study has a cross-sectional design; no causality can be inferred from the reported correlations. Moreover, the low prevalence of MS in Argentina and the scarce socioeconomic resources limits the possibility of obtaining a larger sample size, and this must be taken into account when making conclusions. Also, the lack of comparison groups of healthy controls or patients with other conditions limits the generalizability of the results. Another limitation is that we use data collected from Patient Reported Outcomes (PRO) that are valuable but also subjective, and the scarce literature on the topic creates difficulties in comparing our results. Lastly, in this study, a survey assessing social support outside of work was used. It would be important to conduct further research with questionnaires that provide information about social support within the workplace from supervisors and coworkers. Strengths include the use of BVMS, which is a less subjective measure as it requires reporting on observable events. Furthermore, we consider that, due to the limited literature on the topic, these findings provide valuable data in the field that can be used as a hypothesis to be tested in future studies that verify these results with causal research designs and larger samples of PwMS.

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