

# Coping Strategies for Patients with Multiple Sclerosis, and Their Relation with the Personality Profile

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**Abstract:** The present work was the result of a research project to obtain the title of Master in Health Sciences at the Faculty of Medical Sciences of Santa Casa de São Paulo. Objective: To identify the coping strategies used by patients with SPMS, and their relation with the personality profile. Methods: This is a cross-sectional, descriptive, observational study with a quantitative approach. The sample consisted of 23 patients undergoing treatment at CATEM, ISCMSP. A Sociodemographic Form, the Factorial Personality Inventory II, and the Ways of Coping with Problems Scale were used. To analyze the results, we used descriptive and inferential analyses, and explored sociodemographic variables, personality characteristics, and coping resources with the use of statistical tests suitable for the study. Results: The results showed the predominance of females, aged 51 years, with an EDSS equal to 7.0 and in need of some type of support. Fantasy was the main coping resource used, with its components spirituality, religious beliefs, and faith. Aggressiveness was the main personality trait: it was not found to be an aspect related to activities having a hostile character, but rather to active tendencies towards the outside world and self-assertion; it might even be deemed constructive if we consider aggressiveness as a combative aspect, strictly related to survival. This inclination was confirmed as we went on to identify other relevant personality traits that are indicative of individuals who seek affection and external support, but also crave some degree of independence, autonomy, self-sufficiency, freedom, and dominance over their lives so that they can accomplish something with tenacity and perseverance as a way of personal satisfaction and overcoming limits. Conclusion: These findings make it evident that patients with SPMS can bring specific demands and needs in terms of a multidisciplinary therapeutic treatment.

**Keywords:** Multiple Sclerosis, Personality, Coping

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## 1. Introduction

Multiple Sclerosis (MS) is a disease of the Central Nervous System (CNS), in which damage to the myelin sheath occurs, i.e., demyelination. It has an inflammatory nature, and its etiology is unknown. In addition, it is characterized by progressive damage to the brain, cerebellum, brainstem, and spinal cord, interrupting or impairing nerve impulse transfer through the myelin sheath. It is identified by the formation of demyelinating lesions, termed sclerotic plaques, which are disseminated in the

CNS, more specifically in the white matter. It usually manifests itself in outbreaks accompanied by neurological symptoms such as sensory changes (paresthesia), motor changes (pareses and plegias), cerebellar changes, visual changes (diplopia, nystagmus), cognitive dysfunctions, changes in emotional response, among others. It usually appears in young adults, between the second and fourth decades of life. Although uncommon, it can also be seen in children and the elderly [1-3].

The manifestation of MS symptoms and outbreaks vary across patients, as does the manner the disease progresses. Its classification is divided into three types: Relapsing-Remitting

Multiple Sclerosis (RRMS), Primary Progressive Multiple Sclerosis (PPMS), Secondary Progressive Multiple Sclerosis (SPMS) [4-7].

In 2001, a new classification system was proposed: one including situations usually observed in clinical practice. This system subclassifies progressive secondary MS and progressive primary MS based on activity (active *versus* not active) and progression (with progression *versus* without progression) [8, 9].

The SPMS type is present in 15%–20% of MS forms, developing as a progression of RRMS. In up to 90% of cases, the clinical progression is in the form of RRMS, usually followed by a progressive secondary phase, characterized by the gradual accumulation of disabilities, with or without overlapping relapses (flare-ups). In recent years, there has been a growing consensus that RRMS and SPMS are not separate entities, but rather parts of one and the same pathogenic spectrum [10-13]. When diagnosing MS, the following medical criteria should be considered at the time of investigation: clinical evidence of an outbreak; evidence of inflammatory activity in the Central Nervous System by means of supplementary tests; presence of an Oligoclonal Band in the CSF (cerebrospinal fluid); and exclusion of other causes that might otherwise better explain the previous findings. Thus, the differential diagnosis and the exclusion of other pathologies are essential, with the neurologist being the most suitable professional for reaching a diagnosis [14, 15].

In addition to these criteria, several instruments have been developed for assessing clinical severity, functional deficits, and the effectiveness of therapeutic interventions in MS. One of the most popular and used instruments is the *Expanded Disability Status Scale* (EDSS) developed by Kurtzke [16], a neurological and functional disability measurement scale for MS for monitoring disease course, severity of neurological impairment, and the patient's degree of disability [17, 18].

MS has no cure and hence, considering its inflammatory nature as its current known pathological basis, treatments seek to control its progression and symptoms, which can be thus categorized: drugs for treating exacerbations/outbreaks; disease-modifying drugs (DMDs); and symptomatic drugs [19], in addition to psychomotor rehabilitation, which involves a multidisciplinary team.

Early initiation of treatment with DMDs is associated with a reduced number of outbreaks and stabilized symptoms of MS [20].

In a multidisciplinary view, treatment has become more complex and encompasses several other professionals with the aim of adhering to treatment and improving the patients' quality of life, as well as enhancing their coping resources whilst considering individual functional limitations and psychosocial aspects, which calls for the involvement of their social and family support network. Therefore, a multidisciplinary approach is required when offering comprehensive care involving the interdisciplinary knowledge of the participating professionals.

MS usually affects young adults. From the time the patient starts being tested for the presence of the disease up to the

time it is diagnosed, and subsequent treatment commences, its clinical manifestations, course, and the disabilities it may cause remain all unpredictable. This has a great emotional impact and psychological distress on both patients and their family members. These characteristics can cause disabilities and impairments that will influence the patients' quality of life to a degree that depends on each individual's personal and social conditions [21]. In this sense, personality traits are important components in health-related behaviors, since they are directly associated with the way people experience their emotions. Personality factors are related to both health-promoting behaviors and those that can contribute to the development of diseases [22]. Therefore, they can interfere in both positive results (since they reinforce the individual's potentialities and drive their behaviors) and negative results (regarding the aspects of lack of prevention and non-adherence to the treatment of diseases) [23-25].

As part of their personality traits, some individuals have internal attributes enabling them to act positively when coping with the disease, demonstrate resilience, and repurposing their lives, thereby making for a new outlook and new values [26]. It is in this manner that personality factors, which act since one's childhood, can influence the way one reacts to adverse situations involving damage, threat, or challenge, as is the case of a chronic disease, such as Multiple Sclerosis.

When an automatic response is not available, cognitive, and behavioral efforts, which are coping strategies, to deal with unfavorable situations are thus associated with the individual's personality traits [27].

The concept of personality was developed by Psychology based on different approaches and theories; for this reason, the definition becomes a complex one. We can define it as a dynamic system, a whole made up of many elements, which can be perceived and studied mainly through behavior. It has stability, persistence, repetition, but also plasticity and changes over time due to the individual's experiences [28]. In one's personality, there is a dynamic organization of psychophysical systems, i.e., of the relationships between subjective sensations and physical stimuli (mind and body) in the individual, which determines one's unique characteristic behaviors and thoughts [29].

Personality is inherent to each individual and is composed of peculiar traits. It undergoes a development process, is built throughout a lifetime, and dynamically integrates vital functions. It is fluid, flexible and manifests itself through behaviors [28, 30].

Accordingly, behavior can be construed as being variable in each individual. Still, there are constant aspects to it, which are the personality traits [23]. According to Allport [29], the trait is the basic unit of personality and plays a preponderant role. The traits evolve over time according to the experiences lived by the individual and can be changed as the individual learns new ways to adapt to the world. It is conceptualized as a generalized and focused neuropsychic system that has the ability to make various stimuli functionally equivalent and to initiate and drive coherent

forms of adaptive and expressive behaviors.

Coping concerns the manner the individual behaves when faced with danger or something threatening while using a total of responses from their interactions and mutual influence between them and their environment. It is therefore a broad concept, a set of procedures employed that identify the manner the individual deals with their demands, both internal and external, exceeding their resources or possibilities, with the objective of increasing, creating or maintaining their perception of personal control over chronic or acute stress [31, 32].

Accordingly, the concept of coping is associated with a set of cognitive and conduct efforts aimed at controlling, reducing, or tolerating internal or external demands threatening the individual. This conception tries to strike coping as an existing process between person and environment, meaning that this management will depend on personal, environmental and social characteristics, i.e., it is not just an individual and isolated process, but rather a contextual interaction involving individual-environment [33].

From a cognitive perspective, Lazarus and Folkman [33] have proposed a model that divides coping into two functional categories: problem-focused coping and emotion-focused coping, which will depend on the individual repertoire and experiences reinforced during the individual's life [31, 32].

Coping styles are related to personality traits and influence the extent of the coping strategies selected, while strategies refer to cognitive or behavioral actions directed towards the course of a particular stress episode [34].

According to Carver and Connor-Smith [35], individuals develop habitual ways of dealing with stress and these coping styles can influence their reactions in new situations. The individual can use their coping styles to a greater or lesser extent when faced with a specific series of stressful circumstances and situations.

Unlike coping styles linked to the individual's dispositional factors, coping strategies have been linked to situational factors and can be used in various situations during the stages of a stressful event. There is great variability in individual reactions, which reflect actions, behaviors or thoughts used to deal with a stressor.

In modifiable situations, problem-focused coping tends to be employed, whereas emotion-focused coping tends to be more used in unalterable situations, for instance, in chronic patients, with an incurable disease. More recently, a third coping strategy was presented, one which focuses on interpersonal relationships, in which the individual seeks support from people to resolve the stressful situation [34].

Faced with the diagnosis of a chronic disease, the individuals find themselves losing their illusions, abandoning their life projects, and having to find a way to face the disease in a more realistic way. This, in turn, will influence their attitude towards becoming ill. The individual starts to experience a mix of grieving and fighting. Grieving is everything a person does when faced with loss as they try to endure it, while fighting is everything a person does when confronted with a limitation as they try to overcome it.

Therefore, coping is a human strategy for dealing with changes and will depend on the individual's own ability to fight, their environment and the characteristics of their disease [36, 37].

In an analysis of coping from the perspective of disease, the situation is considered a stressful event in which individuals start to use their abilities (physical and psychological) for trying to manage the aversive circumstance according to the specificities of the stressing source. The medical aspects encompass clinical events, diagnoses, prognoses, type and course of treatment, and the course of actions proposed by the health care team. Sociocultural aspects concern available resources, attitudes, stigma, meaning of the disease, and social support, such as that received from family, friends, and groups. Finally, personal variables are related to the patient, such as personality traits, their ability to deal with borderline situations, their previous coping experiences with other diseases, their moral and religious values, and beliefs. These aspects usually are also present in their family: since they constitute an interdependent system, influences are mutually exerted and the ways of dealing with whatever situation in this context therefore characterize their relationships [38].

Thus, the contribution from this study is relevant, not only for better understanding the coping resources that a patient with Secondary Progressive Multiple Sclerosis uses over the course of their disease, but also in association with their personality traits. It is also expected to shed some light on individual strengths and weaknesses in this group of patients, clarify their emotional experiences when facing their illness, and provide health professionals with knowledge on how to develop more effective intervention strategies, which might contribute towards greater adherence to treatment and better quality of life.

## 2. Methods

This study aimed to (i) identify coping strategies used by patients with Secondary Progressive MS and the relationship with their personality profile at the Multiple Sclerosis Care and Treatment Center (*Centro de Atendimento e Tratamento de Esclerose Múltipla*, whose acronym in Portuguese is *CATEM*), at *Irmandade Santa Casa de Misericórdia de São Paulo (ISC MSP)*; (ii) to characterize sociodemographically patients with MS; and (iii) to relate coping strategies with sociodemographic characteristics and MS patient's personality profile. This is a cross-sectional, descriptive, observational study with a quantitative approach. As a descriptive study, it aims only to inform on the presence of a phenomenon in quantitative terms and, because it is also observational, there are no direct interventions with the research participants. Accordingly, even though it does lead to the formulation of hypotheses, there is no testing of them, and hence there is no need for a control group for comparing results. After screening 522 medical records, the sample was made up of 23 patients with Secondary Progressive MS undergoing treatment at *CATEM*. These patients, aged over

18 years, were not in the screening process, regardless of the amount time elapsed since diagnosis and had preserved psychic functions. The instruments used were: A Sociodemographic Form, prepared by the investigator, the Factorial Personality Inventory II (FPI II), and the Ways of Coping with Problems Scale (WCPS).

The project was firstly submitted for appraisal by the Scientific Commissions for Psychology Services at ISCMSP and CATEM and then sent to the ISCMSP Human Research Ethics Committee, registered under number 003821/2018. Following its approval, data collection started.

For statistical analysis, we used the IBM-SPSS database *Statistics* version 24 and R version 3.6.3 for obtaining the scores. Initially, by using descriptive statistics, an exploratory analysis was performed in order to verify the central tendency and dispersion measures of sociodemographic data, WCPS and FPI. This procedure also resulted in the descriptive analysis of absolute and relative frequencies. Subsequently, inferential analyses were carried out, exploring each of the sociodemographic variables relevant to the study in relation to the variables of coping resources and personality traits contained in the WCPS and FPI instruments. The aim was to check their distribution and either confirm or refute evidence found in the descriptive analysis. The tests used were: Mann-Whitney, Kruskal-Wallis when comparing the WCPS and FPI scores, Analysis of Variance (ANOVA) used in order to verify whether there are differences between the means from the WCPS scores (response variable) in relation to the personality factors from the FPI (predictor

variable), Spearman's correlation coefficient for studying the correlation between the scores from the WCPS variables and the FPI scores, for a more detailed presentation of the relationship between these variables, Spearman's correlation coefficient was used for assessing the correlation between WCPS and IFP scores with age. A one-dimensional scatterplot chart was also used. The significance level was set at  $p \leq 0.05$  for all tests.

### 3. Results

Most individuals were females (87.0%), with an average age of 51 years, retired (87.0%), born in the State of São Paulo (87.0%), residing in São Paulo's capital city (87.0%), without a psychiatric history (82.6%), and with no chronic diseases prior to being diagnosed with MS (87.0%). Nineteen individuals (82.6%) needed some kind of support, such as a wheelchair, walking cane, walker, or crutches, with the wheelchair being the most used resource by individuals (60.9%). Seven individuals (30.40%) had an EDSS equal to 7.0, and 47.80% of the participants had been diagnosed between 21 and 30 years prior.

Approximately half of these individuals were married or were in a stable relationship (47.8%), with a family income of 2–4 minimum wages (47.8%).

Only 8 individuals (34.8%) had completed high school, whereas 4 (17.4%) had completed higher education.

The data can be viewed on the Table 1.

**Table 1.** Sociodemographic data distribution. (Santa Casa de São Paulo, 2020).

Variables	Specifications	n	Percentage
Sex (n=23)	male	3	13.00%
	female	20	87.00%
Age (years) (n=23)	mean	51.3	
	median	55	
	standard deviation	10.9	
	under 31–40 years old	3	13.00%
Age group (n=23)	41–50 years old	7	30.40%
	51–60 years old	10	43.50%
	above 60 years old	3	13.00%
	less than or equal to one minimum wage	5	21.70%
Family monthly income (n=23)	2–4 minimum wages	11	47.80%
	5–7 minimum wages	5	21.70%
	8–10 minimum wages	2	8.70%
	more than 10 minimum wages	-	-
Place of birth (n=23)	São Paulo	20	87.00%
	Other States	3	13.00%
Place of residence (n=23)	São Paulo - capital city	20	87.00%
	São Paulo - countryside	1	4.30%
	São Paulo - seaside	1	4.30%
	Greater São Paulo area	1	4.30%
Marital status (n=23)	Other States	-	-
	single	8	34.80%
	married/civil partnership (Brazilian “relaçãoestável”)	11	47.80%
	separated/divorced	3	13.00%
Level of education (n=23)	widowed	1	4.30%
	illiterate	-	-
	unfinished elementary school	3	13.00%
	finished elementary school	1	4.30%
	finished secondary school	1	4.30%
	finished secondary school	8	34.80%

Variables	Specifications	n	Percentage
Occupational status (n=23)	unfinished higher education	3	13.00%
	finished higher education	4	17.40%
	incomplete graduate course	-	-
	complete graduate course	3	13.00%
	formally employed	-	-
	informally employed	-	-
	unemployed	1	4.30%
	retired	20	87.00%
	housewife/househusband/others	2	8.70%
	wheelchair	14	60.90%
Need for support (n=23)	walking stick	2	8.70%
	walker	2	8.70%
	crutches	1	4.30%
	no support	4	17.40%
Psychiatric history (n=23)	yes	4	17.40%
	no	19	82.60%
History of previous chronic diseases at the time MS was diagnosed (n=23)	yes	3	13.00%
	no	20	87.00%
EDSS	6.0	5	21.70%
	6.5	4	17.40%
	7.0	7	30.40%
	7.5	1	4.30%
	8.0	3	13.00%
	8.5	1	4.30%
	9.0	2	8.70%
	less than or equal to 10 years	2	8.70%
Time elapsed since diagnosis	between 11 and 20 years	7	30.40%
	between 21 and 30 years	11	47.80%
	more than 30 years	3	13.00%

Source: Departamento de Neurologia (Neurology Department) – CATEM / Santa Casa de São Paulo.

The patients' standard profile was that of a female individual born in São Paulo's capital city, with a mean age of 51 years, married, unfinished higher education, retired, with a monthly income of around three minimum wages, in need of a wheelchair, with an EDSS of 7.0 and having been diagnosed with MS more than 20 years prior.

When assessing patients' responses with regard to a previous history of psychiatric illnesses, only those who reported having received a diagnosis of and undergoing a specialized treatment for a mental disorder during the course

of the illness were considered. Only 4 patients responded that they had had a previous psychiatric history accompanied by a confirmed diagnosis. However, we must take into account that anxiety and depression are often present in these patients and have emotional repercussions, mainly due to functional losses, therefore reflecting on their quality of life.

As to the individuals' responses to the WCPS instrument, most of them reported using Fantasy as the main coping resource, as can be seen in Table 2.

**Table 2.** Summary measures for the WCPS domain. (Santa Casa de São Paulo, 2020).

	n	Mean	Median	Minimum	Maximum	Standard deviation
Fantasy	23	4	4	2	5	0.9

Source: Departamento de Neurologia (Neurology Department) – CATEM / Santa Casa de São Paulo.

In view of the individuals' responses to the FPI instrument, we found that most of them rely on Aggressiveness, Autonomy/Independence, and Affection/Cuddling as their main personality trait and also have a Need for Control and Opposition, according to the data below in Table 3.

In analyzing the WCPS results by sex, it was found that females used Fantasy as their main coping resource, as shown below in Table 4. In contrast, males used Problem as their main coping resource.

**Table 3.** Summary measures for the WCPS domain. (Santa Casa de São Paulo, 2020).

	n	Mean	Median	Minimum	Maximum	Standard deviation
Affection/Cuddling	23	63.3	70	5	95	33.4
Aggressiveness	23	81.1	85	15	95	22.6
Autonomy/Independence	23	70.7	85	5	95	31.2
Need for Control and Opposition	23	61.5	65	5	95	31.9

Source: Departamento de Neurologia (Neurology Department) – CATEM / Santa Casa de São Paulo.

**Table 4.** WCPS results by sex. (Santa Casa de São Paulo, 2020).

		Sum of Squares	df	Mean Square	F	Sig.
Fantasy	Across Groups	3.139	1	3.139	5.142	.034
	In the Groups	12.822	21	.611		
	Total	15.961	22			
	Mean	N	Standard deviation			
Female	4.10	20	0.755			

Source: Departamento de Neurologia (Neurology Department) – CATEM / Santa Casa de São Paulo.

When comparing the individuals' coping resources with their EDSS scores, Emotion was the most present coping resource in individuals with an EDSS of 8.0.

Individuals having an income between five and seven minimum wages were found to have Affection/Cuddling as their main personality trait.

When comparing the individuals' occupational status with their personality traits, retirees, unlike others, obtained significant results at Exhibition.

Regarding the history of chronic diseases prior to the diagnosis of Secondary Progressive MS, it was found that the personality factor Assistance was predominant in individuals who had a history of chronic diseases.

When comparing EDSS scores with the personality traits of individuals, those who had an EDSS equal to 8.0 showed significant results in Aggressiveness, which suggested it was their main personality trait.

Individuals who received a diagnosis 11 to 20 years prior showed Intraception, Performance, Persistence, and Needs for Organization as their main personality traits.

In crossing the FPI personality factor scores with the WCPS scores, statistically significant results were found only

in individuals having Assistance personality traits, Need for Organization, or who use Fantasy as their main coping resource. Individuals who have a Need for Organization also use a Social coping resource. When Affiliation and Persistence personality factors predominated, Problem was the main coping resource used by individuals. Individuals who have Dominance, Exhibition, and Order as their predominant personality factors use Emotion as their main coping resource.

When comparing FPI and WCPS scores, there was a statistically significant correlation between: Affection/Cuddling x Fantasy, Affection/Cuddling x Social, Deference x Social, Change x Social, and Affective Needs x Social, i.e. the personality traits Affection/Cuddling, Deference, and Change scored high in Social as the main coping resource; nevertheless, Affection/Cuddling also had relevance when coupled with Fantasy. Individuals with Affective Needs also had higher scores in Social. Finally, Emotion and Problem had no statistically significant association with any personality traits, as can be seen below in Table 5.

**Table 5.** Spearman's correlation coefficient between FPI and WCPS. (Santa Casa de São Paulo, 2020).

	Spearman's correlation coefficient	p
Affection/Cuddling x Fantasy	.468	0.024
Affection/Cuddling x Social	.404	0.056
Deference x Social	.401	0.058
Change x Social	.563	0.005
Affective Needs x Social	.476	0.022

Source: Departamento de Neurologia (Neurology Department) – CATEM / Santa Casa de São Paulo.

Finally, individuals aged 41–50 years old were found to score higher in the following personality traits: Intraception, Dominance, and Exhibition.

## 4. Discussion

This study started off with the sociodemographic characterization of 23 participants. Along such process, the data found corroborated data published in the literature with regard to sex, with females being predominant and who became ill within the age range indicated by previous studies. Data from previous studies regarding EDSS were also confirmed, such as the involved motor limitations that result in the need of a support.

Due to the time elapsed since diagnosis and their physical limitations, most participants were retired. Given these

limitations, nineteen participants needed some kind of support such as a wheelchair, walking cane, walker, or crutches, with the wheelchair being the most used support resource, as reflected by an EDSS of 7.0 and reportedly published in the literature with regard to SPMS type [39].

The main coping resource for managing stressful situations in the course of MS these individuals rely on are based on spirituality, religious beliefs, and faith, i.e., ideas contained in the component Fantasy.

In terms of personality traits, these patients have Aggressiveness as their main attribute, in an active attempt towards the outside world to affirm themselves, as a combative aspect, related to survival. This is especially true for those who use Emotion as their main coping resource aiming to regulate their emotional state when facing stressful events; they have high average score in the EDSS, which

indicates important and significant limitations.

Then Autonomy/Independence was the second most common personality trait among the participants in this study, who had a feeling of freedom, resistance to opposition, difficulties in performing tasks imposed by authorities, and appreciation of independence [40]. We might entertain the idea here of how much the participants tend to desire such autonomy, considering how dependent these individuals are since they have so many physical limitations that make them dependent on other people.

At the same time, they seek the Affection/Cuddling, the third most common personality trait among the participants, which explains the need for seeking support and protection and the desire to have their wishes and needs met by people with whom they aspire to have a good affective bond, in addition to being loved and consoled and receiving guidance [40]. These results seem to be indicative of emotionally fragile individuals, due to the physical, psychological, and social repercussions of SPMS, who demand attention and permanent care and who crave support and affective assistance from those around them.

When comparing the individuals' coping resources with their EDSS scores, Emotion was the most present coping resource in individuals whose average EDSS is 8.0. In other words, the greater the limitation and functional and neurological disability, the greater the tendency to use Emotion as the main coping resource. These individuals use dysfunctional coping strategies for deflecting or avoiding the problem in order to relieve tension through various behaviors and emotional responses [35, 41].

When comparing the occupational status with FPI results, retirees had Exhibition as their main personality trait, i.e. these participants had a high degree of vanity, expressing a desire to impress others by dramatizing the situation; they like to be heard, seen, fascinate people and even shock them [40]. The personality factor Assistance was predominant in participants who had a history of chronic diseases prior to receiving a diagnosis of SPMS, revealing individuals with a great wish for and feeling of pity, compassion, and tenderness [40].

When evaluating the personality factors in relation to the time elapsed since illness onset, the findings indicate that participants 11–20 years after being diagnosed feature Intracception, Performance, Persistence, and Need for Organization. Such individuals have a need and wish to accomplish something in life while relying on their own autonomy and personal efforts to perform whatever work or task that brings about self-accomplishment and self-fulfillment of an achievement reached by using their own efforts and resources, even in the face of limitations imposed by the disease.

In linking personality traits with coping resources, the findings show that participants featuring Assistance and Need for Organization use Fantasy as a coping strategy, i.e. these individuals tend to show a wish to help others and, at the same time, to repay with affection, gratitude and compassion for the help received from other people, being dedicated to

the goals they define throughout life, even when facing difficulties, cultivating feelings of hope and faith as a way of dealing with adversity [40, 42]. Individuals with Need for Organization also tend to use Social coping responses when faced with adversity, that is, they seek support from people in their environment for the resolution of stressful situations, they tend to keep a relationship with other people to obtain emotional relief, and they look for further information about their condition while adopting an active attitude to solve and relieve emotional distress [42, 43].

When the personality factors Affiliation and Persistence predominated, Problem was the main coping resource used by individuals. In this way, we could identify individuals with goodwill, love, and loyalty, showing behaviors of intense dedication to carry out the proposed task, regardless of physical and mental efforts, which are associated with a response focused on the Problem. In this modality, the individual uses efforts to act on the situation that originally gave rise to stress, trying to change it, in an attempt to change the problem existing in the relationship between the person and the environment that is causing the tension [40, 42]. Thus, we can think of individuals who, when faced with so many limitations, tend to surpass their limits as a manner to change their current situation.

The participants who have Dominance, Exhibition and Order as predominant personality factors use Emotion as their main coping resource. They are characterized by their self-confidence, desire to control others and remain in charge, showing vanity in an attempt to be seen, heard and to impress. They also tend to be organized in their daily activities or when performing a task. They are individuals who make an effort to regulate their emotional state in the face of stressful events. These coping efforts are directed at somatic level and/or at the level of feelings with the aim of changing the individual's emotional state so as to reduce the unpleasant physical sensation due to stress [40, 42].

When correlating the IFP and WCPS scores, there was found statistical significance between the traits Affection/Cuddling, Deference, Change and Affective Needs and Social strategy as the main coping resource. In other words, individuals who seek support, protection, and attachment from the environment they are inserted in respect and admire people who have a significant role in life. Since they feel a need for changes to break from routine, they tend to use social resources and help others as a way of coping with the adversities encountered throughout life, especially in the face of the disease. The participants who presented the Affection/Cuddling as a personality trait, i.e. those who seek support and protection from others, also use the strategy Fantasy and tend to tap into their coping resources at the level of feelings in order to alleviate their suffering [40, 42].

## 5. Conclusion

The findings point to the evidence that patients with PMMS can bring unique demands and needs in terms of

multidisciplinary therapeutic treatment. From communication with health professionals, assistance in decision-making processes, adherence to treatment, to the purely clinical side with the management of symptoms and outbreaks. Considering the impact of individual personality factors and the coping resources that these individuals use throughout their illness trajectory, it will enable a much more comprehensive understanding of their psychic functioning. In this way, unique therapeutic strategies can be defined that, taking these aspects into account, give more specific attention to this population that suffers, not only with the motor limitations, but also with the cognitive and emotional limitations that the disease generates in their lives

## Declaration of Conflict of Interest

All the authors do not have any possible conflicts of interest.

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