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Resilience Among Older Adults with Multiple Sclerosis: Pattern and Correlates

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Abstract

Background

There is an increasing number of older adults with multiple sclerosis (MS) who present with significant challenges associated with aging in conjunction with a chronic, disabling disease. Resilience has been associated with healthy aging in the general population, yet there is limited research on resilience and its correlates among

older adults with MS. The current study investigated the difference in resilience between older adults with MS and demographically matched healthy controls. We then examined the associations between resilience and functional, symptomatic, socio-behavioral, and QOL outcomes, along with demographic and clinical characteristics, among only older adults with MS. Method: The sample included 40 older adults with MS and 40 sex and age matched healthy controls who completed measures of resilience and a battery of demographic, clinical, functional, symptomatic, socio-behavioral, and QOL outcomes.

Result

There were no differences between older adults with MS and healthy controls regarding overall resilience scores and resilience subscale scores. Resilience was significantly associated with neurological disability, depression, walking performance, self-efficacy, and purpose in life.

Conclusion

This study suggests that resilience in older adults with MS was comparable with healthy older adults, and positively associated with walking performance, self-efficacy, and purpose of life, and negatively associated with depression and neurological disability. We believe the time is ripe for developing and delivering interventions among those with lower resilience for improving resilience and associated secondary outcomes.

Introduction

Multiple sclerosis (MS) is an immune-mediated, neurodegenerative disease (Trapp and Nave, 2008) of white and gray matter tissue in the central nervous system (Filippi et al., 2018) with onset typically occurring during early adulthood (i.e., 3rd or 4th decade of life) (Niedziela et al., 2014). The life expectancy of persons with MS has increased substantially over the past 20+ years (Sanai et al., 2016; Lunde et al., 2017), yet it is still lower than that of the general population (Lunde et al., 2017; Cutter et al., 2015). The increase in life expectancy is explained, in part, by earlier introduction of disease-modifying treatments (DMTs) and a better understanding of the comorbidities often diagnosed in MS (Sanai et al., 2016; Lunde et al., 2017; Cutter et al., 2015; Chiaravalloti et al., 2020; Awad and Stüve, 2010). This portends a “greying” of the MS population. (Kingwell et al., 2015) Recent epidemiological data indicate that adults 55–64 years of age are the most prevalent group of men and women with MS in the United States, and those 65–74 years of age are the 2nd and 3rd most prevalent groups for men and women with MS, respectively (Wallin et al., 2019). This presents MS as a life-long disease wherein the effects of normal aging occur in conjunction with those of MS itself (Putnam, 2017).

The administration of DMTs is the primary approach for managing MS and slowing its progression over time. The currently approved DMTs target immunological signaling proteins (e.g., cytokines) or populations of immune cells (e.g., lymphocytes) for reducing disease activity and slowing disability progression (Rae-Grant et al., 2018). One noteworthy problem is that pivotal trials of DMTs have excluded persons with MS over 55 years of age (Vaughn et al., 2019). This is because relapses typically decline with age (NA Schwehr et al., 2020), and annualized relapse rate has been a primary outcome in the pivotal trials. The treatment effects may further diminish as persons with MS advance in age, and the prevalence of secondary progressive MS increases with advancing age (Sanai et al., 2016; Wallin et al., 2019; Vaughn et al., 2019). Older adults with MS have been prescribed DMTs less frequently than younger counterparts (Earla et al., 2020), and the benefits of DMTs may be less substantial among older adults with relapsing-remitting MS (NA Schwehr et al., 2020; NA Schwehr et al., 2020; Shirani et al., 2015). This may be explained, in part, by differing pharmacokinetics of DMTs between younger and older adults with MS (Awad and Stüve, 2010) or immunosenescence (Ostolaza Ibáñez et al., 2020), and collectively underscores the search for other factors associated with healthy aging in MS.

Resilience, defined as the human capacity for positive adaptation in the face of significant adversity (Reivich et al., 2011), is one factor that may be important for healthy aging with MS. Resilience describes an individual's ability to achieve, retain, or regain a level of physical or emotional health after illness or loss (Resnick and Inguito, 2011), and is associated with a range of factors in the general population (Cosco et al., 2016) and MS. Resilience in MS has been associated with function (e.g., walking performance (Kasser and Zia, 2020; Klineova et al., 2020) and cognition (Klineova et al., 2020; Gromisch et al., 2018)), symptoms (e.g., depression (Sadeghi Bahmani et al., 2016)), socio-behavioral (e.g., physical activity (Gromisch et al., 2018; Ploughman et al., 2020) and social support (Ploughman et al., 2020; Black R and Dorstyn, 2015)), and quality of life (QOL) outcomes (Gromisch et al., 2018; Silverman et al., 2017; Shamshiri et al., 2016). Resilience in MS further has been associated with demographic factors such as age (Gromisch et al., 2018; Ovaska-Stafford et al., 2021) and education (Gromisch et al., 2018), as well as disease duration (Gromisch et al., 2018) and disability as clinical factors (Gromisch et al., 2018; Sadeghi Bahmani et al., 2018).

There is increasing interest in resilience among older adults with MS (Ploughman et al., 2020; Silverman et al., 2017; Alschuler et al., 2018; Ploughman et al., 2012; Ploughman et al., 2017; Silverman et al., 2015). For example, one study demonstrated that older females with MS reported higher resiliency than males with MS. (Ploughman et al., 2017) Other studies demonstrated that resilience is positively associated with physical health (Silverman et al., 2015) and physical activity (Ploughman et al., 2020), and negatively correlated with fatigue (Silverman et al., 2017), depression (Alschuler et al., 2018), anxiety (Ploughman et al., 2020) and financial strain (Ploughman et al., 2020) in older adults with MS. One qualitative study indicated that having a purposeful life is a main facilitator of resiliency for older adults with MS (Silverman et al., 2017). To date, we are unaware of research comparing resilience between older adults with MS and age- and sex-matched healthy controls (HCs), and there are few comprehensive examinations of demographic, clinical, functional, symptomatic, socio-behavioral, and QOL outcomes as correlates of resilience in older adults with MS.

The current study examined resilience and its correlates in older adults with MS. We first examined the effect of MS on resilience by comparing levels of resilience between older adults with MS and age- and sex-matched HCs, and hypothesized that older adults with MS would have lower resilience scores based on the combined effects of MS and aging (Ploughman et al., 2020; Alschuler et al., 2018). We then investigated correlates of resilience among the older adults with MS, and focused on associations between resilience and functional, symptomatic, socio-behavioral, and QOL outcomes, along with demographic and clinical characteristics; this was based on previous research in MS and the general population (Cosco et al., 2016; Kasser and Zia, 2020; Klineova et al., 2020; Gromisch et al., 2018; Sadeghi Bahmani et al., 2016; Ploughman et al., 2020; Black R and Dorstyn, 2015; Silverman et al., 2017).

Section snippets

Participants

This study is a secondary analysis of data from a sample of 40 ambulatory older adults with MS and 40 demographically matched (i.e., age and sex) HCs aged 60 years and older (Bollaert et al., 2017). The participants with MS were recruited from three sources: a database of previous research volunteers, a mailing list of persons with MS in the Midwestern United States, and a research advertisement posted on the website of the National Multiple Sclerosis Society. The healthy controls were

Demographic and clinical characteristics

The demographic and clinical characteristics of the samples are provided in Table 1. There were no statistically significant differences in age, sex, BMI, marital status, employment, or income between samples of older adults with MS and HCs. There was a statistically significant difference in years of education, such that fewer older

adults with MS graduated from college/university compared with HCs. The MS sample primarily consisted of older adults with RRMS (67.5%) with moderate disability

Discussion

The present study examined resilience among older adults with MS compared with age- and sex-matched HCs, and further examined a comprehensive set of variables as correlates of resilience in older adults with MS. The key outcomes of the present study were the lack of significant differences in overall resilience scores, and subscales (i.e. existential aloneness, meaningfulness, equanimity, perseverance and, self-reliance) scores, between age and sex-matched samples of older adults with MS and

Conclusions

Overall, the current results suggest that older adults with MS have similar levels of resilience when compared with age and sex-matched HCs. Resilience in older adults with MS is positively associated with walking performance, self-efficacy, and purpose of life, and negatively associated with depression and neurological disability. We believe the time is ripe for developing and delivering interventions among those with lower resilience for improving resilience and associated secondary outcomes.

Credit author statement

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DSB, Design and leading the project, literature review, writing, reviewing, revising and editing the manuscript
AK, literature review, writing and commenting on the draft
RB, Writing and submitting the proposal, data gathering and data analysis, writing and commenting on the draft
RWM, Study design, data analysis, writing, reviewing, revising and editing the manuscript

Declaration of Competing Interest

All authors declare no conflicts of interest.

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