



Cognitive Fatigue as a Moderator of the Relationship Between Depression and Visual Memory in MS



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Abstract

Purpose: Studies show that cognitive fatigue is common in people with multiple sclerosis (MS). It is unclear whether cognitive fatigue can have a moderating effect on the relationship between depression and visual memory. The present study examined the relationship between visual memory, cognitive fatigue, and depression specifically in MS.

Method: 117 individuals with MS who were recruited through the MS Center at Holy Name Medical Center in Teaneck, NJ were included in the study. A retrospective chart review was conducted of neuropsychological testing that included measures of cognitive fatigue, depression, and visual memory. A moderation analysis was conducted to determine the relationship between all three factors.

Results: : The FSMC cognitive subscale moderated the relationship between the HADS D Total Score and BVMT Total Score $b = -0.80$, 95% CI [-1.42, -0.17], $t = -2.51$, $p < .05$.

Conclusions: Cognitive fatigue moderates the relationship between depression and visual memory in MS. There is a significant negative linear relationship between depression and visual memory only at high levels of cognitive fatigue, and not at moderate or low levels.

Background

➤ Multiple Sclerosis (MS) is a neurodegenerative and inflammatory chronic disease of the central nervous system, characterized by substantial impacts on physical, cognitive, and psychological functioning.

➤ Previous research has found that depression negatively impacts visual memory, and that visual learning and memory is usually impaired in MS.

➤ Cognitive fatigue has been found to negatively impact performance on cognitive testing.

➤ This study looked at the relationship between visual memory and depression in MS, and determined how cognitive fatigue affects this relationship.

Methods

Procedures

➤ This research was conducted at the MS Center of Holy Name Medical Center in Teaneck, NJ.

➤ N=117 patients with clinically definite MS who had participated in neuropsychological testing were used in the analyses. .

Measures

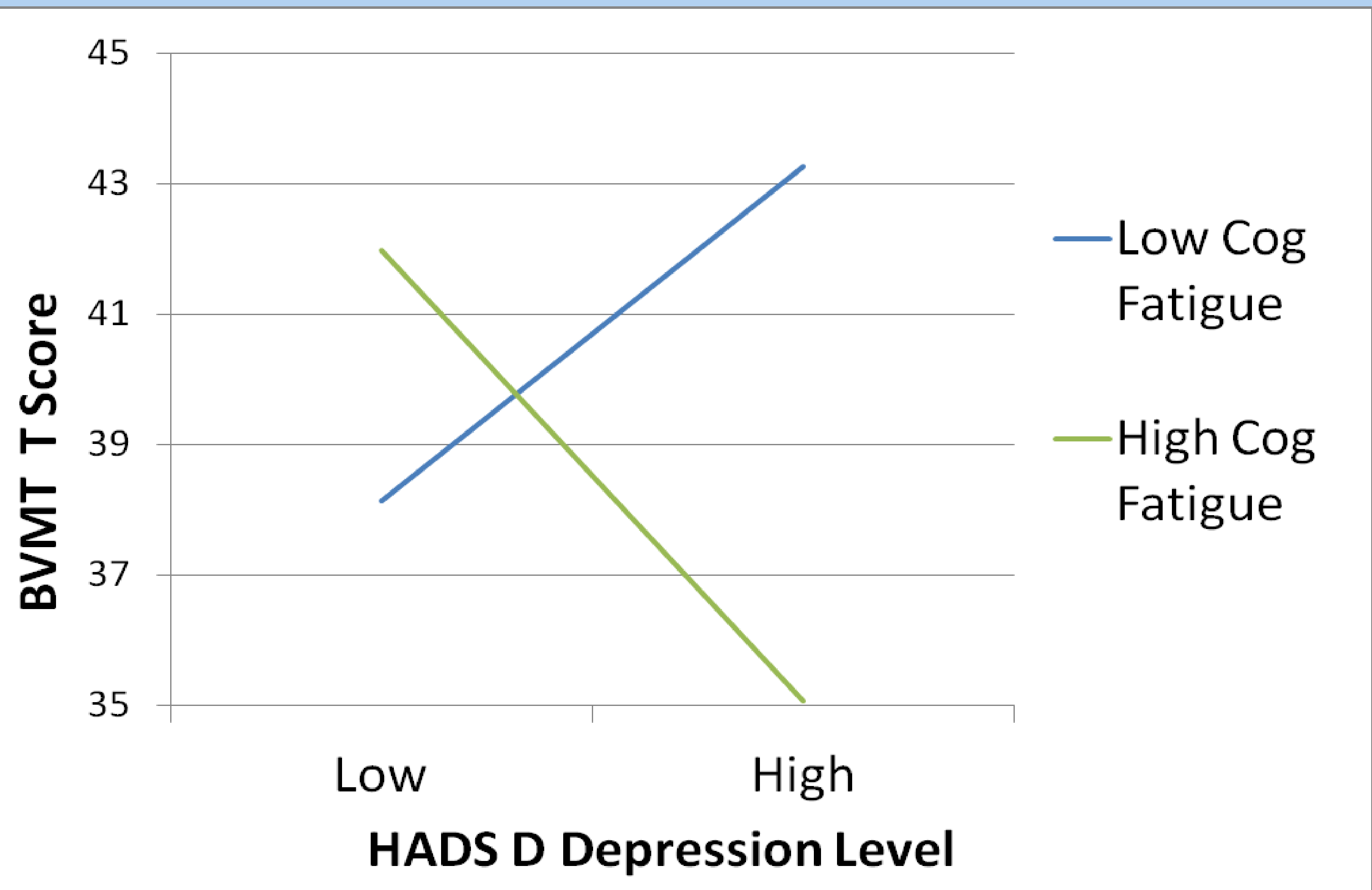
➤ From a longer battery, the Hospital Anxiety and Depression Scale depression subscale (HADS D) was selected to measure self-reported depressive symptoms.

➤ Cognitive fatigue was measured using The Fatigue Scale for Motor and Cognitive Functions (FSMC) cognitive subscale, a validated measure of cognitive fatigue in MS.

➤ Patients were also administered the Brief Visuospatial Memory Test-Revised (BVMT-R), a neuropsychological measure of visual learning and memory.

Results

Effect of Cognitive Fatigue on the Relationship Between Depression and Visual Memory



➤ A retrospective chart review was conducted of neuropsychological testing that included measures of cognitive fatigue, depression, and visual memory.

➤ A moderation analysis was conducted looking at the relationship between the HADS D and the BVMT with the FSMC cognitive subscale as a moderator.

➤ Field's Process Macro was used to conduct the moderation analysis. Gender, years of education, and level of disability were adjusted for in the analyses.

➤ The FSMC cognitive subscale moderated the relationship between the HADS D Total Score and BVMT Total Score. The interaction term was significant. $b = -0.80$, 95% CI [-1.42, -0.17], $t = -2.51$, $p < .05$.

Conclusions

➤ After adjusting for disability and demographic variables, cognitive fatigue moderated the relationship between depression and visual memory in MS.

➤ There was a significant negative linear relationship between depression and visual memory only at high levels of cognitive fatigue, and not at moderate or low levels.

➤ High levels of cognitive fatigue combined with low levels of depression, and low levels of fatigue combined with high levels of depression yielded higher visual memory scores.

Implications

➤ Symptoms of depression combined with cognitive fatigue may negatively impact visual memory.

➤ Fatigue without depression and depression without fatigue do not have the same negative impact on cognition as when both fatigue and depression are present. Further research is needed to replicate and determine possible mechanisms.

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