

the vagus nerve, has been thought to be a key mechanism in the effect of breathing on stress and mood. Most studies to date investigating the efficacy of breathing practices in stress reduction and mood improvement have lacked appropriate methodology, including adequate control groups, randomization, and cross-sectional designs. This single-blind, randomized, waitlist-controlled study investigated the feasibility of using a mobile application to train in resonance frequency breathing and its efficacy in reducing stress and improving cognitive functioning in a non-clinical sample of young adults with elevated stress.

Participants and Methods: 80 healthy young adults with elevated stress levels were recruited from the NY/NJ community and the Queens College undergraduate research subject pool. Inclusion criteria: ages 18-29, Perceived Stress Scale score >13. Exclusion criteria: regular (at least 3 times per week) practice of any form of meditation, yoga, or breathing exercise; severe medical or psychiatric disorder; active suicidal ideation; drug or alcohol abuse within the past year; use of medication with a known negative impact on cognition or autonomic nervous system (ANS) arousal. Participants were randomized to a waitlist control group or breathing group. Participants in the breathing group were instructed to complete 10-minute breathing sessions using the free mobile application "The Breathing App" twice a day for five days per week for four weeks. Cognitive assessments were administered over the phone (pre and post-treatment) and self-report measures were completed online due to quarantine restrictions.

Results: There were no significant main effects of group across any of the neuropsychological variables, including verbal memory, letter fluency, category fluency, cognitive flexibility, processing speed, basic attention span, and working memory. This indicated that breathing training did not significantly impact neuropsychological performance. Mediation analysis also demonstrated that breathing training did not indirectly lead to improvement in basic attention, processing speed, working memory, set-shifting, verbal fluency, category fluency, or cognitive flexibility, through its effects on stress reduction.

Conclusions: These results do not support literature suggesting that breathing at resonance frequency is associated with improved cognitive functioning such as greater cognitive flexibility, improved decision-making, stronger response

inhibition, faster processing speed, and increased working memory. Future study designs should consider implementing active control groups (e.g., mindfulness meditation) and differential dosages of the breathing treatment.

Categories: Cognitive Intervention/Rehabilitation

Keyword 1: teleneuropsychology

Keyword 2: treatment outcome

Keyword 3: chronic stress

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80 Looking Beyond Visual Functioning in the Rehabilitation of Visual Complaints in People with Multiple Sclerosis: Integrating Low Vision and Neuropsychological Rehabilitation

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Objective: The objective of the present study is to expand our understanding of visual complaints in people with multiple sclerosis (MS) with the aim of exploring potential rehabilitation approaches for treating visual complaints. Visual complaints are increasingly recognized as a core manifestation of MS. Up to 90% of people with MS report all kinds of visual complaints, such as blurry vision, double vision, being blinded by bright light, a reduced visual field and having trouble with depth perception. Since intact vision is quintessential to many activities of daily life, such as reading or car driving, these complaints affect independent participation to a great extent. The complaints cannot be fully explained by optical neuritis (a common symptom of MS) or other treatable visual or ophthalmological disorders. Moreover, there are no rehabilitation programs available for visual

complaints in people with MS. However, the complaints are not yet understood well enough to develop effective rehabilitation strategies to reduce the impact of the visual complaints.

Participants and Methods: Visual complaints were assessed using the Screening Visual Complaints questionnaire. 68 people with MS with visual complaints, and 37 with hardly any visual complaints received a standard visual function assessment and a neuropsychological assessment. Correlations between the visual complaints, visual functions and cognitive functions were calculated. In addition, correlations were calculated between several visual functions and a composite score of the neuropsychological assessment.

Results: Only some specific visual measures related to visual complaints, with small to moderate effect sizes. While most specific cognitive functions did not show correlations, measures indicative of overall cognitive capacity in people with MS (such as motor speed) consistently correlated with different kinds of visual complaints. Additionally, visual functions that related to visual complaints also correlated with the composite score for cognitive functioning.

Conclusions: Our study serendipitously showed that in developing or composing effective rehabilitation strategies for visual complaints, we should look beyond a person's visual functioning: first, the overall cognitive capacity should be taken into account. Second, visual functioning and cognitive functioning are closely related. These results indicate that visual complaints may be a result of a general decline of the visual and/or cognitive system as one. When treating these complaints, low vision rehabilitation and neuropsychological rehabilitation strategies may be combined. Strategies should not focus on specific visual or cognitive functions, but at making the visual world more easily accessible, or more easily visible, to reduce the impact on the visual system and cognitive capacity. Strategies could range from applying more contrast in the environment to psycho-education. Future research should focus on developing rehabilitation programs and assessing their effectiveness in people with MS or with other types of non-acquired brain injuries.

Categories: Cognitive Intervention/Rehabilitation

Keyword 1: multiple sclerosis

Keyword 2: cognitive rehabilitation

Keyword 3: cortical visual impairment

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81 Developing and Validating for Cognitive Screening Tools for Identifying and Intervening Dementia among Older Persons in Rural Uganda.

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Objective: The study aimed to develop, validate and field test the cognitive screening tool for use in outpatient departments within health facilities in Uganda.

Participants and Methods: In the rural eastern region of Uganda, twenty-three (23) purposively selected health facilities and administered a scientifically derived cognitive screening tools to all eligible older persons. We conducted an inter-rater reliability in all the health facilities using three raters. Diagnosis of dementia (DSM-IV) was classified as a major cognitive impairment and was quality checked by psychiatrist who were blinded to results of the screening assessment.

Results: The area under the receiver operating characterizes (AUROC) curve in health facilities was 0.912. The inter-rater reliability was good (Intra-class correlation coefficient of 0.692 to 0.734). the predictive accuracy of the tool to discriminate between dementia and other cognitive impairment was 0.892. In regression modal, the cognitive screening tool, didn't appear to be biased by age.

Conclusions: The cognitive screening tool if performed well among the older persons, can be proved useful for screening dementia in other developing countries.

Categories: Cognitive Intervention/Rehabilitation

Keyword 1: aging disorders

Keyword 2: cognitive screening