

Keyword 2: neuropsychological assessment

Keyword 3: executive functions

Correspondence: James E Harness MA, Neuropsychological Services PC, Midwestern University jharness@neuropsych1.com

73 Processing Speed in Migraine With and Without Aura: A Meta-Analysis

Jasmin H Pizer¹, Stephen L Aita², Melissa A Myers¹, Nanako A Hawley¹, Vasilios C Ikonomou¹, Kyle M Brasil¹, Katherine A Hernandez³, Erika C Pettway⁴, Benjamin D Hill¹
¹University of South Alabama Clinical & Counseling Psychology, Mobile, AL, USA. ²VA Maine Healthcare System, Chelsea, ME, USA. ³Ochsner Health Center, Baton Rouge, LA, USA. ⁴Boston University Alzheimer's Disease Research Center (ADRC), Boston, MA, USA

Objective: Migraine refers to recurrent, unilateral headache attacks, lasting 4-72 hours, that have a pulsating quality and can occur with or without aura. Aura is a symptom, usually preceding the onset of a migraine, where there is an experience of gradually spreading focal neurological symptoms which typically last less than one hour. A meta-analysis was conducted which quantitatively synthesized literature documenting performance on clinical measures of processing speed (PS) in individuals with migraine with (MwA) and without aura (MwoA).

Participants and Methods: Data for this study came from a larger study that compared overall neuropsychological functioning in primary headache disorders (PHD) and healthy controls (HC). We searched OneSearch and PubMed using a uniform search-strategy to locate original research comparing cognition between PHD and HC. Analyses were modeled under random effects. Hedge's *g* was used as a bias-corrected estimate of effect size. We assessed between-study heterogeneity using Cochran's *Q* and *I*². Egger's regression test was used to assess publication bias (i.e., the association between standard error and effect size). High heterogeneity in effects was analyzed for possible moderating variables using meta-regression and sub-group analyses.

Results: The initial search interval spanned inception–May 2021 and yielded 6692 results. Twelve studies met inclusion criteria, included clinical measures of PS, and included

PHD subgroups with MwA and/or MwoA (MwA *n* = 279, MwoA *n* = 655, HC *n* = 2159). MwA demonstrated moderately worse performance in PS overall when compared to HC (*k* = 7, *g* = -0.41, *p* = 0.028). MwoA also demonstrated worse performance in PS overall when compared to HC but the effect size was small (*k* = 12, *g* = -0.21, *p* = 0.006). Heterogeneity of MwoA studies was low (*Q* = 15.12, *I*² = 21.19) while heterogeneity of MwA studies was high (*Q* = 21.91, *I*² = 72.61). Meta-regressions of MwA studies indicated clinical age and disease duration to be related to effect sizes such that studies with older clinical participants and longer disease durations yielded greater (negative) differences. Egger's regression intercept noted a possible association effect size and standard error for MwA articles (*t* = 3.60, *p* = 0.02) and MwoA articles (*t* = 5.21, *p* < 0.005). Trim-and-fill procedure estimated 0 MwA studies to be missing due to publication bias (adjusted *g* = -0.41, *p* = 0.028) while 7 MwoA studies were estimated to be missing due to publication bias (adjusted *g* = -0.03, *Q* = 34.79).

Conclusions: Individuals with migraine demonstrated worse performances on tests of PS compared to controls. Effect sizes were generally moderate in strength for MwA while effect sizes were generally small in strength for MwoA. This quantitative summary confirmed that individuals with migraine experience slowed processing speed in general and this effect is magnified when aura is a presenting symptom.

Categories: Medical/Neurological Disorders/Other (Adult)

Keyword 1: neuropsychological assessment

Keyword 2: neurocognition

Keyword 3: information processing speed

Correspondence: Jasmin H. Pizer, University of South Alabama Clinical & Counseling Psychology, jhp2021@jagmail.southalabama.edu

74 The Impact of Motoric Dysfunction on Neuropsychological Test Performance Within an Electrical Injury Sample

Maximillian A Obolsky^{1,2}, Humza Khan¹, Zachary J Resch¹, Jessica L Paxton², Jason R Soble¹, Joseph W Fink³, Neil H Pliskin¹

¹University of Illinois-Chicago, Chicago, IL, USA.

²Roosevelt University, Chicago, IL, USA.

³University of Chicago, Chicago, IL, USA

Objective: Victims of electrical injury (EI) often experience injuries to the peripheral nervous system and neuromuscular damage that may diminish motor function, such as flexibility/dexterity. These difficulties may continue after rehabilitation due to the reorganization of muscle afferent projections during peripheral nerve regeneration. Therefore, understanding how patients with a history of thermal burn injuries perform on motoric measures is necessary to explain the impact neuromuscular damage has on both motor and non-motor tests of cognition. However, no studies have examined the impact of motor functioning on cognition in patients who experienced thermal and electrical injuries compared to an electrical shock injury. This study explored the impact of motor dysfunction and psychiatric distress measured by depression severity on psychomotor speed and executive test performances among EI patients with and without thermal burn injuries.

Participants and Methods: This cross-sectional study consisted of EI patients undergoing an outpatient neuropsychological evaluation, including tests of motor dexterity (Grooved Pegboard [GP]), psychomotor speed (Wechsler Adult Intelligence Scale-IV Coding, Trail Making Test [TMT] Part A), and executive functioning (Stroop Color and Word Test [SCWT] Color-Word trial, TMT Part B). The sample was 83% male and 17% female, 88% White, 3% Black, 5% Hispanic, and 2% other race/ethnicity, with a mean age of 43.9 years (SD=11.36), mean education of 12.9 years (SD=2.05), and mean depression severity of 20.05 (SD=12.59) on the Beck Depression Inventory-II (BDI-II). Exclusion criteria were: 1) injury history of moderate-to-severe head trauma, 2) >2 performance validity test failures, and 3) any amputation of the upper extremity. Regression analyses included GP T-Scores for dominant hand and BDI-II total score as independent variables and neuropsychological normative test data as dependent variables.

Results: Among validly performing patients with EI ($n=86$), regression analyses revealed GP performance accounted for significant variance ($R^2 = .153-.169$) on all neuropsychological measures. Among EI patients with burn injuries ($n=50$), regression analyses revealed GP

performance accounted for significant variance ($R^2 = .197-.266$) on all neuropsychological measures. Among EI patients without burn injuries ($n=36$), analyses revealed that neither GP performance nor BDI-II severity accounted for significant variance across the neurocognitive tests ($R^2 = .056-.142$).

Furthermore, among EI patients with burn injuries and the total sample, regression analyses revealed depression severity negatively predicted GP performance ($R^2 = .099-.13$), however, in patients without burn injuries, depression did not predict GP performance ($R^2 = .052$).

Conclusions: Overall, results showed that GP performance is a significant predictor of neurocognitive performance on both motor and non-motor measures in EI patients with burn injuries. Therefore, among EI patients with burn injuries, GP performance may have potential utility as an early indicator of injury severity, considering that it predicts neuropsychological test performance on measures of psychomotor speed and executive functioning. Lastly, depression predicted GP performance within the burn injury sample illustrating that psychological distress may negatively impact motor functionality.

Categories: Medical/Neurological Disorders/Other (Adult)

Keyword 1: electrical injury

Keyword 2: executive functions

Keyword 3: motor speed

Correspondence: Maximillian A. Obolsky, University of Illinois-Chicago, mobolsky@mail.roosevelt.edu

75 Neuropsychological performance in vestibular migraine: Preliminary findings from a meta-analysis

Nanako A Hawley¹, Jasmin H Pizer¹, Stephen L Aita², Melissa A Myers¹, Vasilios C Ikonomou¹, Kyle B Brasil¹, Katherine A Hernandez¹, Erika C Pettway³, Benjamin D Hill¹

¹University of South Alabama, Mobile, Alabama, USA. ²VA Maine Healthcare System, Calais, Maine, USA. ³Boston University, Boston, MA, USA