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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 Pizer[1], Stephen L Aita[2], Melissa A Myers[1], Nanako A Hawley[1], Vasilios C Ikonomou[1], Kyle M Brasil[1], Katherine A Hernandez[3], Erika C Pettway[4], Benjamin D Hill[1]
[1]University of South Alabama Clinical & Counseling Psychology, Mobile, AL, USA. [2]VA Maine Healthcare System, Chelsea, ME, USA. [3]Ochsner Health Center, Baton Rouge, LA, USA. [4]Boston 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)
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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 Khan[1], Zachary J Resch[1], Jessica L Paxton[2], Jason R Soble[1], Joseph W Fink[3], Neil H Pliskin[1]

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