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Citation: Taylor, D. J., Jones, P. R., Smith, N. D., Binns, A. M. & Crabb, D. P. (2018). Measuring real-time anxiety during simulated mobility scenarios in people with non-neovascular age-related macular degeneration (AMD). Paper presented at the ARVO 2018, 3 May - 29 Apr 2018, Honolulu, Hawaii.

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Taylor et al ARVO 2018 Abstract

Title: Measuring real-time anxiety during simulated mobility scenarios in people with non-neovascular age-related macular degeneration (AMD)

Purpose: A prospective case-control study was conducted in order to assess anxiety during real-world mobility scenarios in people with non-neovascular (dry) AMD of varying severity using a novel computer-based test.

Methods: Participants (aged ≥ 60 years) were required to have dry AMD in their better-seeing eye, no other diseases or medication that could affect visual function, and binocular logMAR visual acuity (VA) 0.7 or better (AMD groups), or no AMD in either eye, and binocular VA 0.3 or better (controls). Participants were classified (Ferris et al., 2013) as having no AMD (n=3), early AMD (n=5), intermediate AMD (n=7) and geographic atrophy (n = 15 [GA]). Participants were shown a series of point-of-view computer-based movies during which they moved through real-world scenarios. While watching the movie, participants pressed on a button during scenes which would cause them anxiety or discomfort. Pressure on the button was recorded throughout the test and this was used as the outcome measure. The test generates a pressure trace aligned with timepoints throughout the movies to estimate anxiety at each moment. This can be derived such that it is an average from a group of participants. Bootstrapping was used to compute confidence intervals for responses by groups based on AMD severity around these traces and the traces were examined to discover specific events which caused greatest difference in button pressure between groups.

Results: Participants with intermediate AMD or GA recorded a greater button pressure, on average, than those with early AMD and without AMD (Kruskal-Wallis test, $p = 0.04$). Four events involving navigating stairs and three involving mobility under low luminance elicited greatest differences in button pressure between groups ($p < 0.001$).

Conclusions: People with intermediate or advanced dry AMD are likely to experience higher levels of concern and/or anxiety during mobility tasks. Results from this study have the potential to be useful in patient management and in education about real-world impact of dry AMD. The test highlights areas of specific concern to patients, has the potential to be used in other eye diseases, and as a patient-based outcome measure for interventions relating to mobility.