

Testing Explanations for Why Math Anxiety Predicts Poor Math Performance

Ian Lyons

Georgetown University, Washington, District of Columbia, United States

Cynthia Fioriti

Georgetown University, Washington, District of Columbia, United States

Erika Ikeda

Georgetown University, Washington, District of Columbia, United States

Lucas Miller

Georgetown University, Washington, District of Columbia, United States

Michael Slipenkyj

Georgetown University, Washington, District of Columbia, United States

Abstract

Math anxiety (MA) reliably predicts poor math performance (MP). Several theoretical mechanisms have been proposed to explain this relation, and numerous interventions have been designed to mitigate it. However, it is unclear whether these hypothesized mechanisms are distinct from one another, and thus it is also unclear whether different interventions target distinct or overlapping mechanisms. We developed indices for the four leading candidate mechanisms in the literature and used a competing mediation framework to test their unique and combined explanatory capacity. Combined, they accounted for 64% of the MA-MP relation, and 3 of 4 candidates provided unique explanatory capacity. While on the whole the current literature seems to have the right of it, our results also indicate there is not a single, unifying key to unlocking the MA-MP relation, and there is unlikely to be a single ‘magic bullet’ intervention. Further theoretical and practical implications are discussed.