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Title of the talk:

Probing the nature of deficits in math anxiety: Drawing connections between attention and numerical cognition

Abstract.

Learning arithmetic or mathematics is complicated for many people who have a persistent negative reaction to mathematics, a condition termed math anxiety. Our novel suggestion is that some of the cognitive traits that are associated with general anxiety, such as the tendency to display attentional bias toward negative information, are involved not only in general anxiety but also in math anxiety. We also suggest that math anxiety might be viewed as stimulus- and situation-specific anxiety.

In our studies we use a cognitive tool - the numerical dot probe task, which we previously developed and tested in samples of math anxious individuals. One of the significant benefits of this numerical dot probe task, is the fact that it is an implicit measure that assesses inaccessible cognitive structures or presentations that are processed automatically. This toolis based ona canonical experimental paradigm in the field of anxiety: the threat-related dot probe task. The data show that in math anxious participants, specific learnt number symbols s (e.g., "7", "3", or arithmetic facts such as 3x7=21) but not non-symbolic numerical information (e.g., groups of dots) are associated during development with unpleasent feelings, resulting in attentional bias towards symbolic numerical information in math anxiety. We suggest that this bias plays a central role in the development and maintenance of math anxiety and hence, attentional bias is a critical neurocognitive construct in the investigation of math anxiety.