

# The Intergenerational Transmission of Math Anxiety: The Role of the Quality of Parents' Math Homework Assistance

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## INTRODUCTION

**Math anxiety** triggers a negative emotional reaction to math or the idea of doing math (Hembree, 1990).

Math anxiety is common and has implications for math learning, but it is unclear how it develops (Meece, Wigfield, & Eccles, 1990).

- Maloney and colleagues (2015) found that when math-anxious parents help their children with math homework, children are more math-anxious and learn significantly less math.
- Math-anxious parents may use **unconstructive practices** when they help their children with math to reduce their own anxiety.
- For example, math-anxious parents may be **controlling**—issuing directives as commands about how to do each problem—because they feel it will yield a quick solution to the problem.
- Such assistance may lead children to feel pressure while creating confusion and negative affect in the child.
- Secondly, math-anxious parents may be **affectively negative** while helping, due to their frustrations, which their children can adopt.

*What kind of environment do math-anxious parents create while assisting with their children's math homework?*

## AIM

To investigate the parenting practices underlying the intergenerational transmission of math anxiety.

## Hypothesis

Math-anxious parents use unconstructive practices while assisting with homework that induces the development of math anxiety in children.

- Math-anxious parents will be more controlling (vs. autonomy supportive) when helping with math homework
- Their assistance will be more affectively negative (vs. positive)

## METHOD

### Participants

- 175 parents (81% mothers) and their children (55% boys) in the first or second grade
- 58% of parents were European American and 23% were Black
- 59% held a Bachelor's degree or more advanced degree

### Design

- Data was collected in 2 waves 3-5 months apart
- Before the visit, parents completed a survey reporting on their math anxiety and the type of assistance they give during their homework help
- Children reported on their math anxiety during the first and second lab visit

## METHOD

### Measures

#### Math Anxiety

- Child Math Anxiety : 6 items (1 = not nervous at all, 5 = very, very nervous)  
*"How do you feel when you are in math class and you don't understand something?"*
- Parent Math Anxiety : 16 items (1 = not at all anxious, 10 = very anxious)  
*"Reading a cash register receipt after you buy something"*

#### Parent Measures

- Control vs Autonomy-Support : 16 items (1 = never, 5 = very often)  
*"I insist my child do things my way when it comes to doing his/her math homework"*
- Negative vs Positive Affect : 12 items (1 = never, 5 = very often)  
*"Frustrated"*

## CONCLUSIONS

- When parents were more math-anxious, their children were also more math-anxious, replicating the findings of Maloney et al (2015)
- Math-anxious parents were more likely to be controlling when helping their children with their homework
- As a consequence, children developed heightened math anxiety over time

### Autonomy-Support

Math-anxious parents were not more likely to exhibit fewer autonomy-supportive behaviors. This parenting practice was not predictive of children's math anxiety.

- Math-anxious parents may give children too much independence because they don't want or do not know how to help.
- They may believe it's autonomy-supportive, when in fact children are not able to solve the problem on their own.

### Affect

Math-anxious parents were more likely to exhibit negatively affective behaviors and less positively affective behaviors. But, this parenting practice was not predictive of children's math anxiety.

- Math-anxious parents may be aware of their own negative feelings, however, children may not recognize these emotions to adopt these feelings themselves.

### Future Directions

Future research should investigate whether conversations about math in other domains, outside of math homework assistance impact children's math anxiety.

## RESULTS

