

The M in STEM: Parents' Support of Early Math Depends on Children's Gender

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Introduction

- Preschoolers' early math skills are predictive of their later math and broader academic achievement (e.g. Duncan et al., 2007).
- However, children enter kindergarten with disparate math skills (Elliott & Bachman, 2018), pointing to differences in their parental math input (e.g. Dearing et al., 2012).
- Parents' beliefs about math explain some of this variability in their math input (e.g. Missall et al., 2015). Some parents believe that math is unimportant for and uninteresting to their preschool children (Cannon & Gibbsburg, 2008), and believe that boys are better at math than girls (e.g. Belk, 2014).

Current Study

- The current study focused on magnitude comparison, the ability to compare the size of numbers.
- Magnitude comparison is considered the "core" of numerical development (Siegler, 2016), but parents provide magnitude comparison input infrequently (Ramani et al., 2015).

Questions

- Is there a gender difference in parents' belief about their child's magnitude comparison ability and the importance of it?
- Does the gender of the child influence parents' magnitude comparison input?

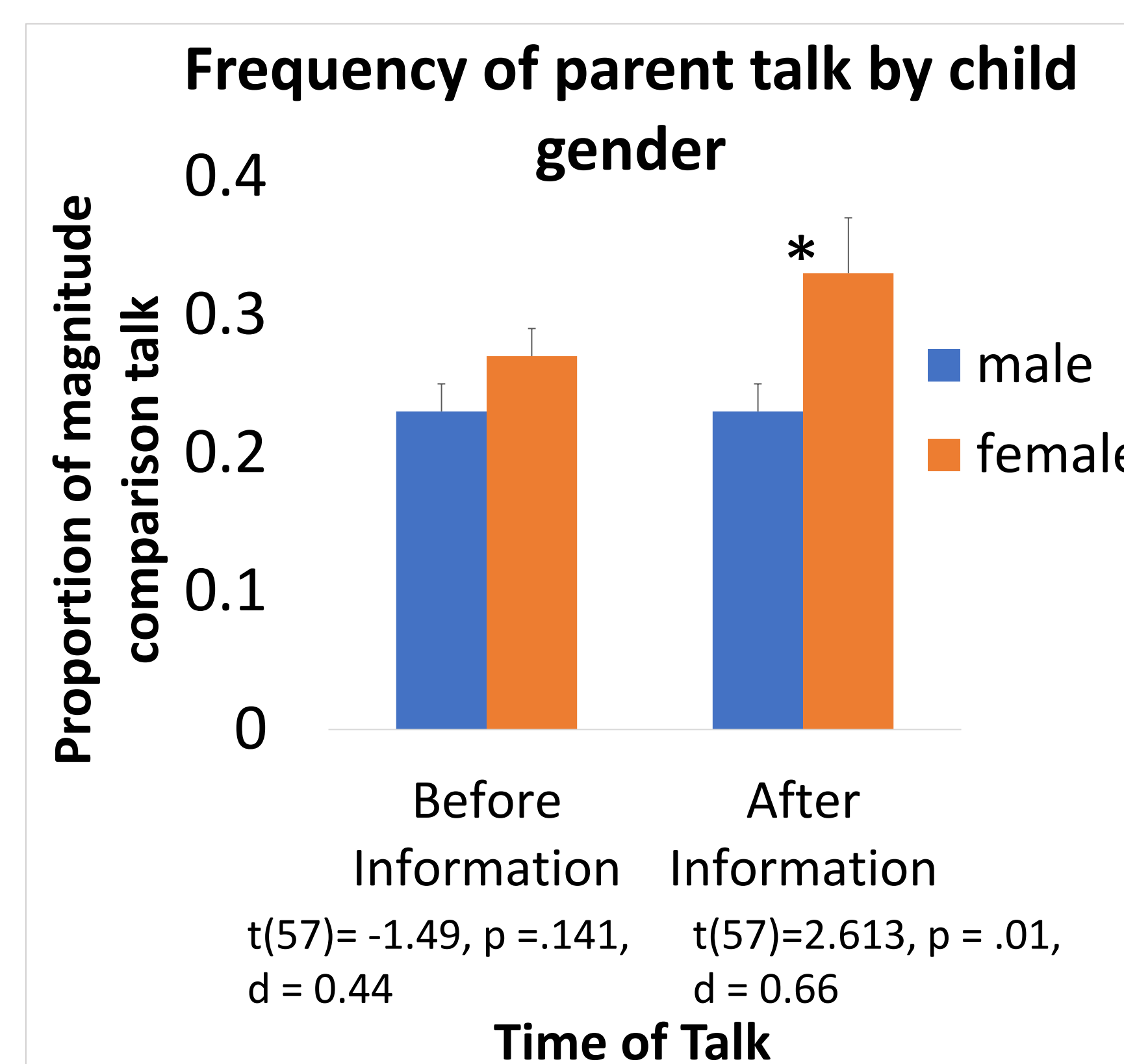
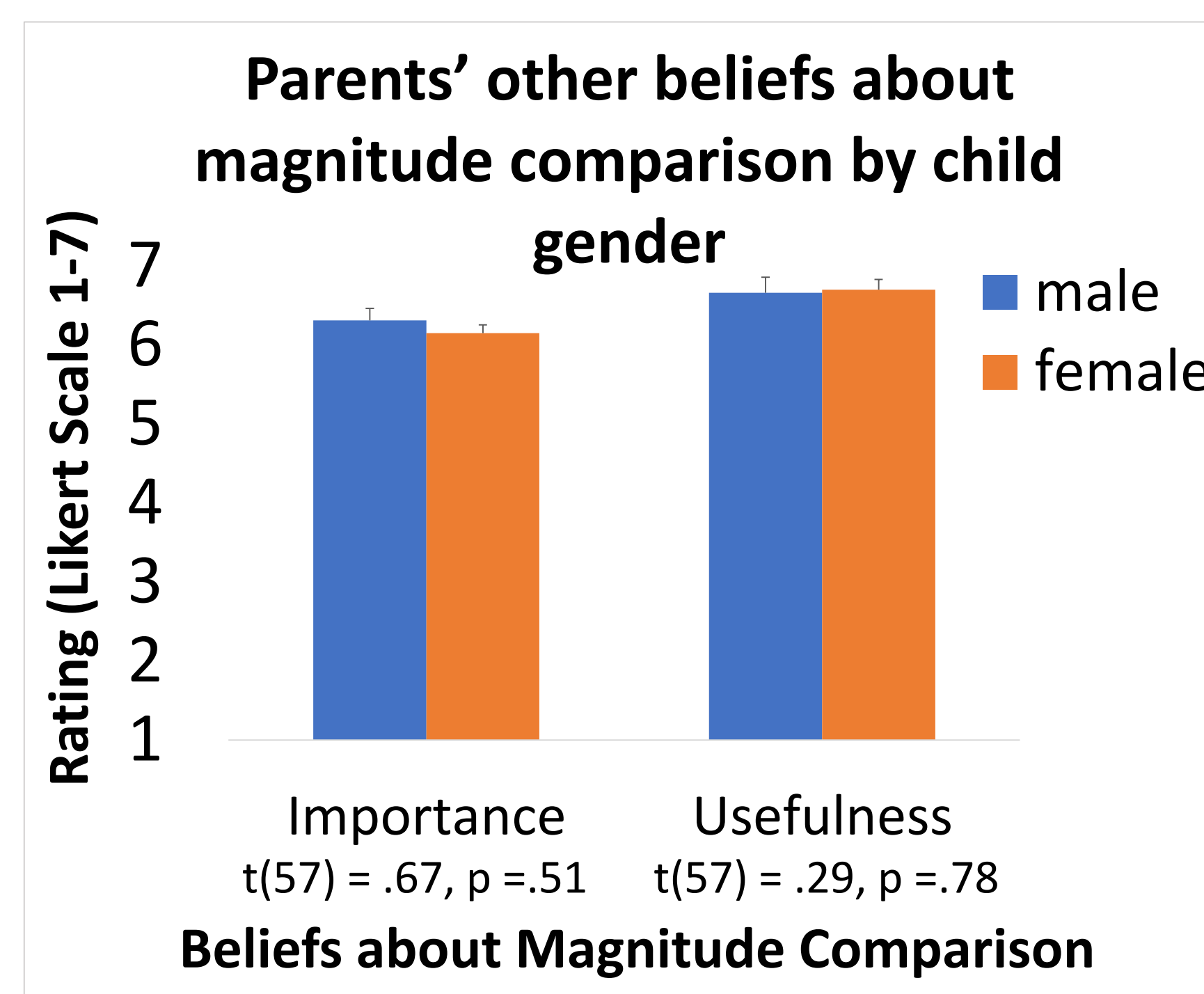
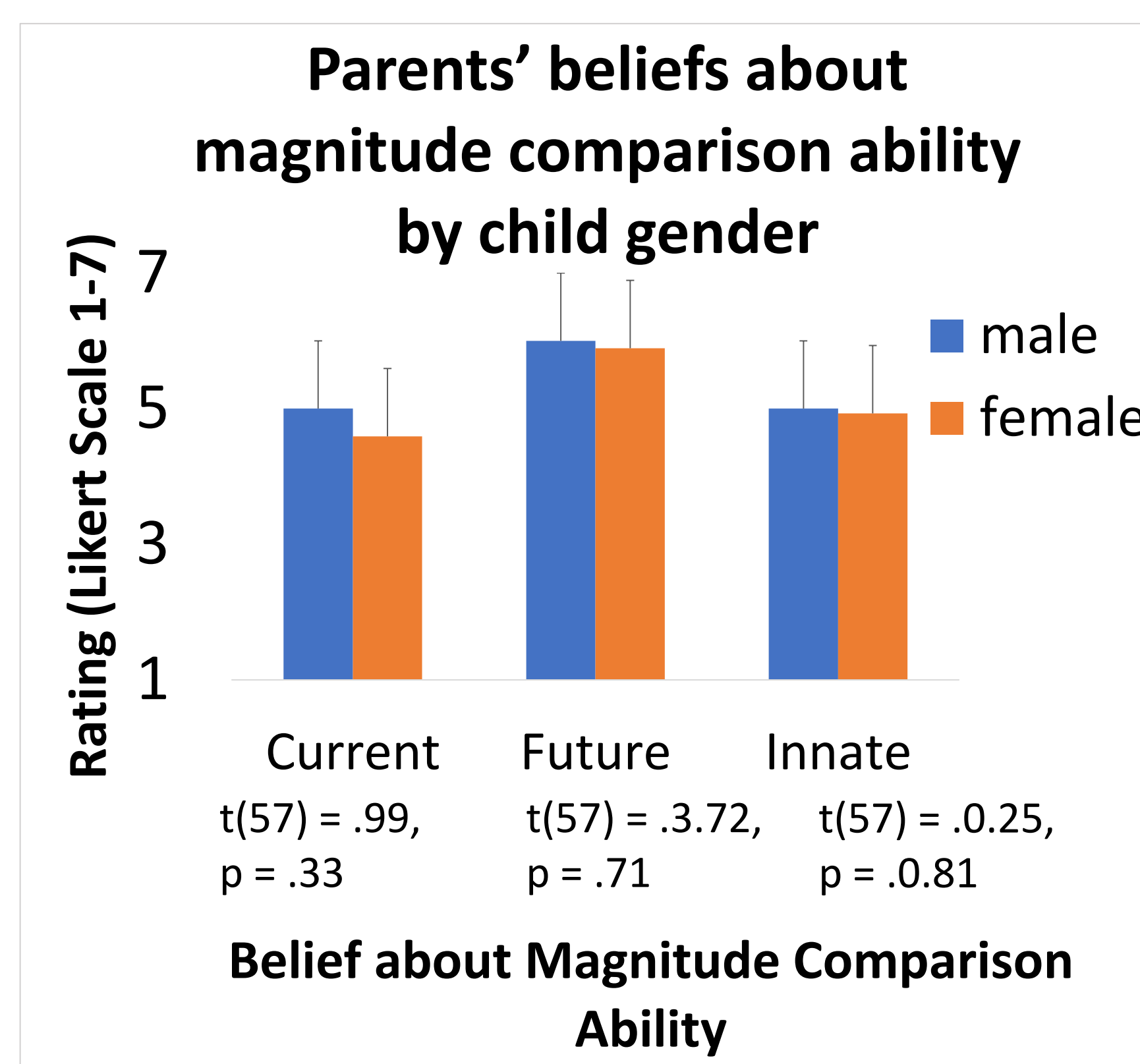
Participants

- Participants were 59 dyads including a 3- to 5-year-old child (54% male) and a parent (75% female).
- Parents were mostly White (78% White, 10% Black, 3% Asian or Pacific Islander; 9% Biracial).
- Parents were highly educated (96% of mothers and 93% of fathers continued their education after high school).

Method

- Dyads participated in a twenty-minute, videotaped play session during which they played two card games for approximately five minutes before and after receiving information about magnitude comparison.
- Parents' talk during play was coded in 10-second intervals for symbolic and non-symbolic magnitude comparison input.
- Parents completed a survey on their beliefs about their child's magnitude comparison and other academic skills as well as the importance and usefulness of the skills before and a week after participating in the play session.
- They rated their beliefs on a 7-point Likert scale (1 = not good at all or not very important/useful; 7 = very good or very important/useful).

Results



Results

- There were no significant differences in parents' beliefs about their child's magnitude comparison ability.
- Similarly, there was no difference in parent's belief about the importance or usefulness of their child's magnitude comparison skills.
- Finally, although there was initially no significant difference between the frequency of the input provided by parents of girls and parents of boys, parents of girls provided significantly more magnitude comparison input than parents of boys after receiving information about magnitude comparison.

Discussion

- The non-significant findings about gender differences in parents' beliefs about magnitude comparison suggest that factors other than math-gender stereotypes among parents explain variability in the math input that they provide their preschoolers.
- Previous research demonstrated math gender stereotypes were present among parents of older children than the current study (Belk, 2014), so it may be that parents develop these beliefs as their children age beyond preschool.
- The significant difference in the input provided by parents of girls and boys after receiving related information suggest that teachers might need to be intentional about telling parents that all children (regardless of their gender) can benefit from math support at home and about making them aware of possible gender biases (Eccles, 2005).
- Finally, the current study highlights the need for more research on the factors that explain the variability in parents' support of children's early math knowledge and how parents' math-related beliefs about their children change across formal schooling.

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