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Young girls' spatial and arithmetic performance: the mediating role of maternal supportive interactions during joint spatial problem solving.

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Summary: The present study addresses girls' (6–7-year-olds; $N = 162$) early spatial and arithmetic skills within the context of learning environments provided by their mothers. The study was designed to determine the relationship between maternal supportive interactions on a joint origami spatial problem-solving task and their first grade daughters' spatial and arithmetic skills. During home visits the mothers and daughters were videotaped jointly solving origami tasks with maternal supportive interactions assessed through ratings of maternal stimulation of cognitive development and maternal quality of assistance; the girls were separately assessed in school on spatial and arithmetic skills. Using structural equation modeling, the main findings were (1) maternal supportive interactions on a mother-child origami task mediated the relation between mothers' spatial skills/educational level and their daughters' spatial skills and (2) their daughters' spatial skills in turn mediated the relation between quality of maternal supportive spatial interactions and the daughters' arithmetic achievement. The present findings indicate the importance of early maternal supportive interactions relating to spatial problem solving for girls' spatial and arithmetic achievement. Furthermore, all pathways linking girls' home environments and arithmetic skills were mediated through the girls' spatial skills, suggesting that for young girls, development of early spatial skills may be important for effective arithmetic learning.

Classification: F32 G22 C32 C62

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