

Study links poor early language skills to later behavior and attention problems

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A new Indiana University study has tracked the links between early language skills and subsequent behavior problems in young children. Poor language skills, the study suggests, limit the ability to control one's behavior, which in turn can lead to behavior problems such as ADHD and other disorders of inattention and hyperactivity.

"Young children use language in the form of private or self-directed speech as a tool that helps them control their behavior and guide their actions, especially in difficult situations," said Isaac Petersen of the clinical science program in the IU Department of Psychological and Brain Sciences. "Children who lack strong language skills, by contrast, are less able to regulate their behavior and ultimately more likely to develop [behavior problems](#)."

Early childhood development has increasingly become a focus for public policy—in debates over universal preschool, recognition of a "word gap" between rich and poor children, and new pediatric recommendations on reading to infants.

"Children's brains are most malleable earlier on, especially for language," said John Bates, professor in the Department of Psychological and Brain Sciences and co-author of the study. "Children are most likely to acquire skills in language and self-regulation early on. Many of the states are starting to focus on preschool, edging toward universal preschool. But early development specialists are not necessarily available. I would have programs more readily available to

families—and focused on children most at risk as early as possible."

The paper, "The Role of Language Ability and Self-Regulation in the Development of Inattentive-Hyperactive Behavior Problems," appears online this week in the journal *Development and Psychopathology*. It is also co-authored by Angela Staples, research assistant professor at the University of Virginia.

Many previous studies have shown a correlation between behavior problems and language skill. Children with behavior problems, particularly those with attention deficits and hyperactivity, such as in ADHD, often have poor language skills. Whether one of these problems precedes the other and directly causes it was until recently an open question.

In a longitudinal study published last year, Petersen, Bates and several others concluded that the arrow points decisively from poor [language ability](#) to later behavioral problems, rather than the reverse. The current study shows that it does this by way of self-regulation, a varied concept that includes physical, emotional, cognitive and behavioral control. Self-regulation is integral to children's capacity to adapt to social situations and to direct their actions toward future goals. The absence of self-regulation abilities is a key predictor and component of future behavior problems.

A number of studies have sought to explain the role of language in the development of self-regulation in terms of the cognitive and neurological mechanisms by which they are linked. This study traces the way they unfold over time and the role of self-regulation in this process.

To do this, Petersen, Bates, and Staples followed a group of 120 toddlers for a year, beginning when they were age 2 ½ and following up when they were 36 months and 42 months old. At each of these points they

tested the children's language skills and behavioral self-regulation, using tests for verbal comprehension and spoken vocabulary, as well as three tasks measuring self-regulating abilities. They also used parent and secondary caregiver assessments of behavioral problems. Their findings suggested that language skill predicted growth in self-regulation, and self-regulation, in turn, predicted behavioral adjustment.

The study lends renewed force to the argument that early childhood may offer a pathway for reducing social inequality. For what makes the "developmental cascade" from language to behavior particularly troubling, the researchers point out, is that children most at risk for a deficit in language ability, those from lower-income households, are often the least likely to get the services needed to remedy the problem.

Studies, for example, have shown a "word gap" between children of low income and those in affluent families, who hear 20 million more words by age 3 than their low-income counterparts. This gap results in less developed verbal and reading skills. If, as this study suggests, poor [language skills](#) lead to problems with self-regulation and behavior, this can in turn contribute to the less easily reversible and more costly social or academic problems in adolescence and later, adulthood.

Petersen said the study indicates that we could look more closely at language skill earlier on. But, he advises, "Don't expect all [children](#) to be at the same level early on. If their language is slow to develop and self-regulation is lacking, they are likely to catch up with proper supports.

"Among those who are slow, some could develop problems. If, by the age of 3½, a child is still lagging, it may be worth pursuing treatment for [language](#) and self-regulation skills—the earlier the better," Petersen said.

More information: "The role of language ability and self-regulation in the development of inattentive–hyperactive behavior problems." Isaac T.

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