Medical Xpress

'How much does it hurt?' For preschoolers, cognitive development can limit ability to rate pain

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"Rate your pain on a scale of zero to ten"—for most adults and older children, it's a simple concept. But preschool-aged children generally lack the cognitive skills needed to make reliable pain ratings, according to an article in *Pain*, the official publication of the International Association for the Study of Pain (IASP).

"Using a scale to estimate and report pain intensity is a complex mental process and is often challenging for children under the age of five or six," write Jenny Yun-Chen Chan of University of Minnesota-Twin Cities and Carl L. von Baeyer of University of Manitoba, Winnipeg. They discuss cognitive (intellectual) development issues affecting children's ability to rate their pain, and discuss modifications for more developmentally appropriate pain assessments in the preschool age group.

For Kids Under Five, Pain Intensity Ratings Aren't So Simple

Asking patients to rate pain intensity is a routine part of everyday healthcare, and in research evaluating the impact of pain and the effectiveness of pain treatments. But in both settings, pain ratings are less often obtained in preschool-aged children.

That's because children younger than five may "report their pain in

idiosyncratic ways that appear inappropriate for the context," Chan and von Baeyer write. Factors like memory of pain and knowledge of magnitude and symbolic processing limit preschoolers' ability to make pain self-assessments.

Words used to describe pain—such as "ow" or "hurt"—emerge as early as 18 months of age, and toddlers can point to a part of their body that hurts. By three years, most children have basic pain vocabulary. But it's not until age five that most children can "accurately describe concrete causes, perceptions, and intensity of pain," according to the authors.

That partly reflects the cognitive process of "explicit memory," which is influenced by language ability and social interactions. For example, children look to their parents to assess whether a painful event is trivial or threatening. Past pain experience also plays a role—preschoolers who have undergone surgery make pain intensity ratings more similar to those of older children.

"Knowledge of magnitude"—especially the understanding of magnitude relations—is also important for pain ratings. Two- and three-year-olds can compare and label two objects but they may have trouble with intermediate rankings, especially in unfamiliar situations.

Young children are sometimes asked to use symbols to denote their pain—for example, pointing to pictures of faces or using poker chips as "pieces of hurt." But for two- and three-year-olds, it may be difficult to distinguish between the object itself and the hurt it is supposed to represent. As with numerical scales, the typical five-year-old has the skills to use these alternative tools while most three-year-olds do not.

Chan and von Baeyer propose some modifications for simplifying self-report pain scales for preschoolers, based on cognitive developmental research—for example, using tools with no more than three response

options and considering the child's past pain experiences. The authors also note that pain intensity ratings are just one method for assessing one aspect of pain. They add, "Thus it is important, perhaps especially so with young children, to incorporate multiple methods, such as observation and parent report, and to assess multiple aspects of pain to better understand patients' experience and provide appropriate treatment."

More information: Jenny Yun-Chen Chan et al. Cognitive developmental influences on the ability of preschool-age children to self-report their pain intensity, *PAIN* (2015). DOI: 10.1097/j.pain.0000000000000476

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