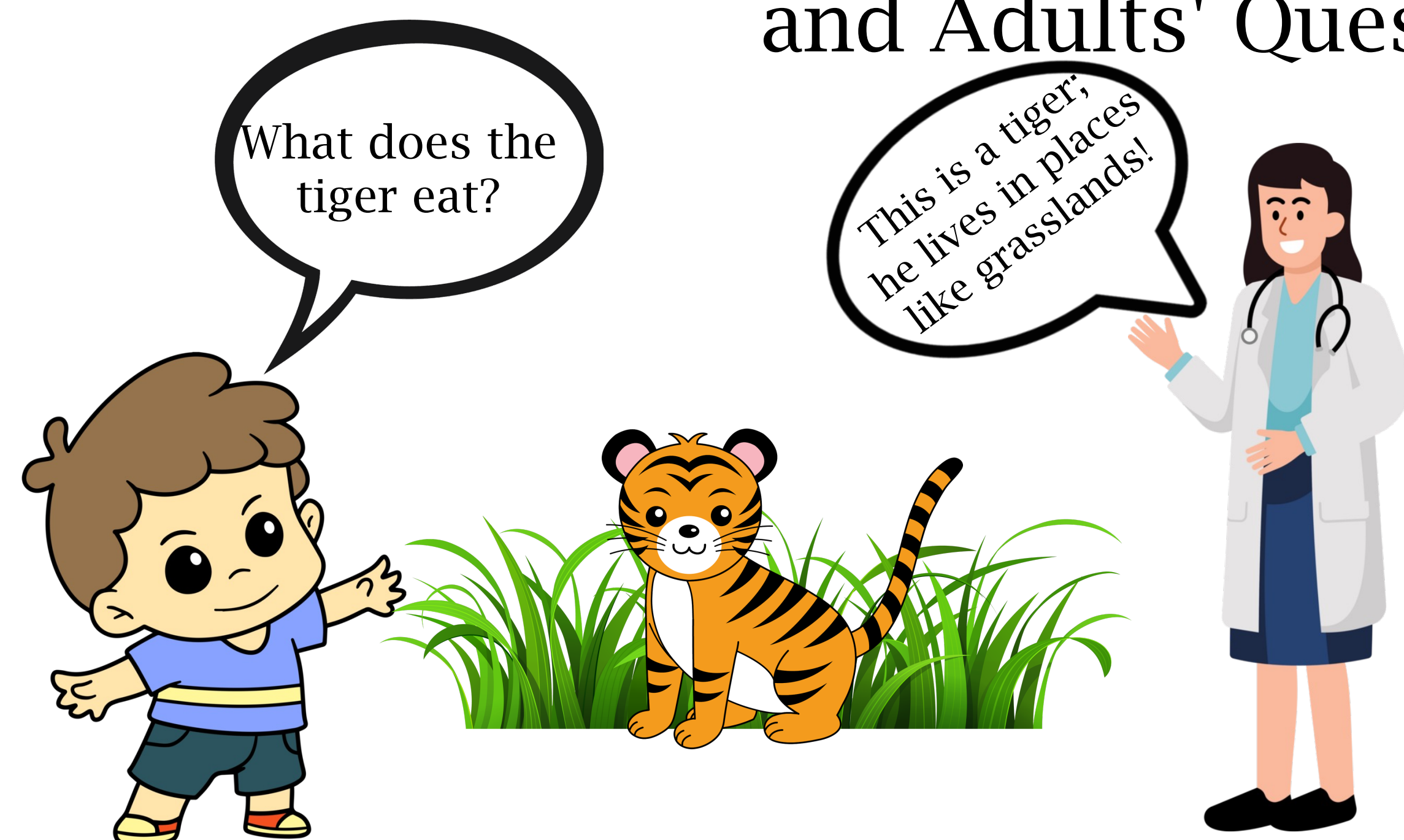


# Investigating How Overhypotheses Affect Children's And Adults' Question Asking

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## Do Overhypotheses Shape Children's and Adults' Question Asking?



An overhypothesis is a: "Type of inductive learning that allows learners to make inferences that take them beyond the limits of direct experience, leading to the creation of abstract knowledge" (Dewar & Xu, 2010, p. 1).

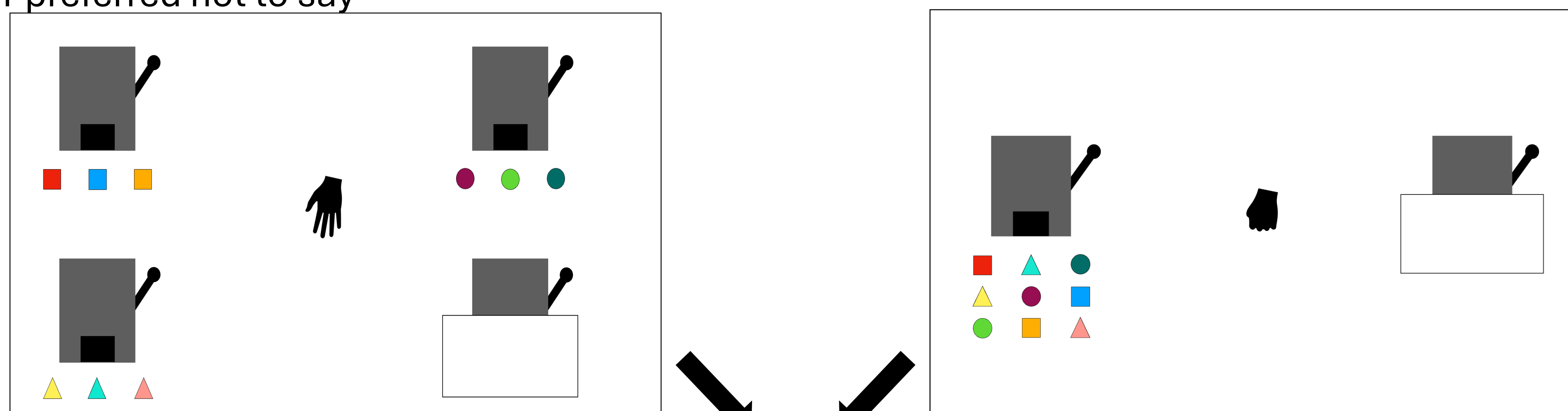
- **Example:** different animals eat different foods and live in different places.
- Does this guide children's questions about new animals?

**Hypothesis:** Learning a new overhypothesis will affect what questions children and adults ask about new objects

## Methods:

**Children's Study:** N = 137 children ages 4 to 7 ; 64 females, 72 males, and 1 other

**Adults' Study:** N = 123 adults ages 18 to 76 (mean = 43.9) ; 62 females, 58 males, 2 non-binary, 1 preferred not to say



### Overhypothesis Condition:

- Viewed toys produced by different machines
- Shown an unfamiliar toy from a final machine
- Randomly assigned to either a color or shape condition

### Control Condition:

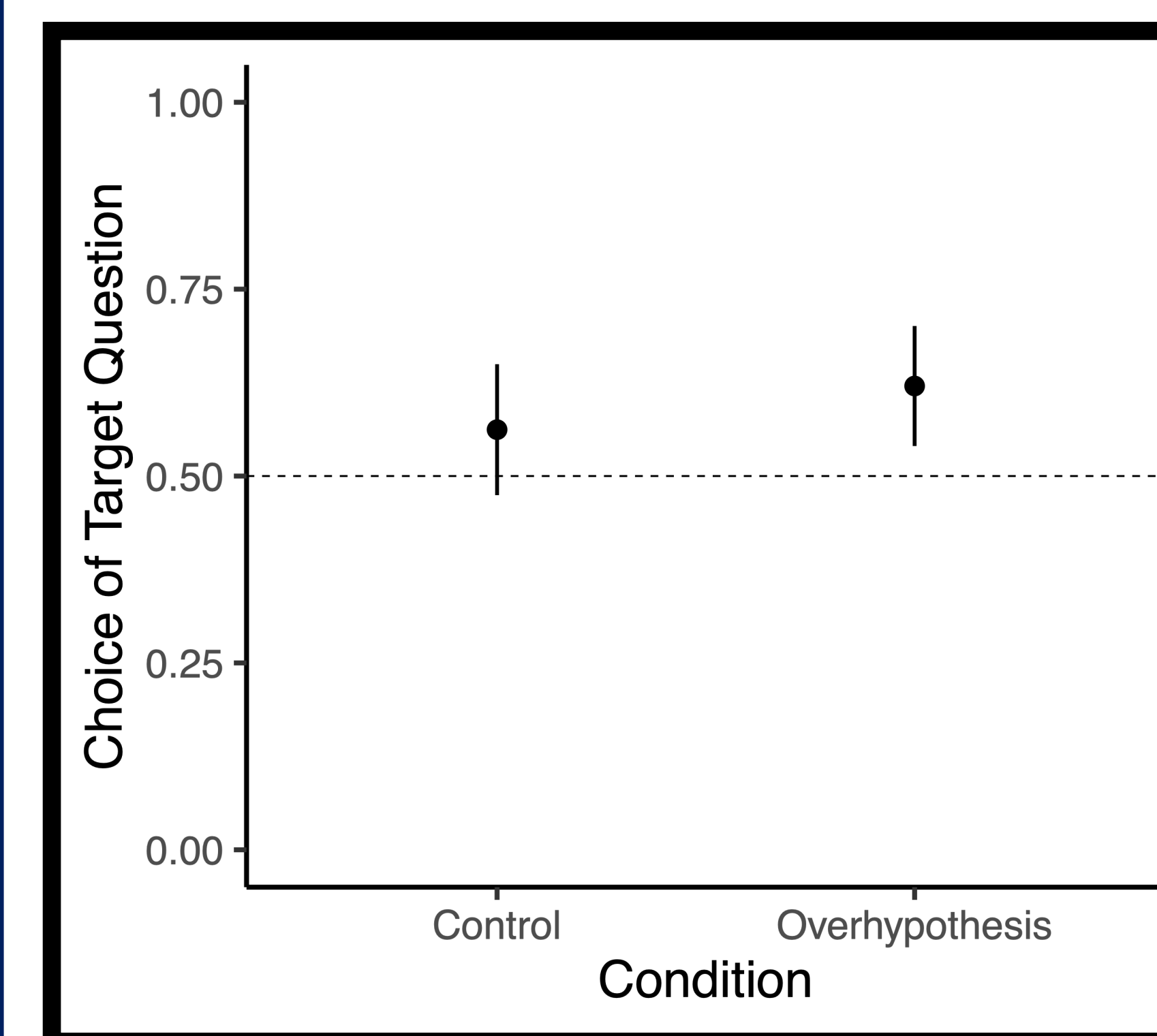
- Viewed toys of varying colors and shapes from a single machine
- Objects matched to color or shape condition, but no consistent pattern (no overhypothesis)

### Question Asking:

- Participants in both conditions could ask up to three questions about the toy
- Then shown two questions (supposedly from other children), and asked to choose which they preferred

**Prediction:** Children and adults will ask and prefer questions about the target property (color or shape) in the overhypothesis condition, more so than the control condition.

## Children:

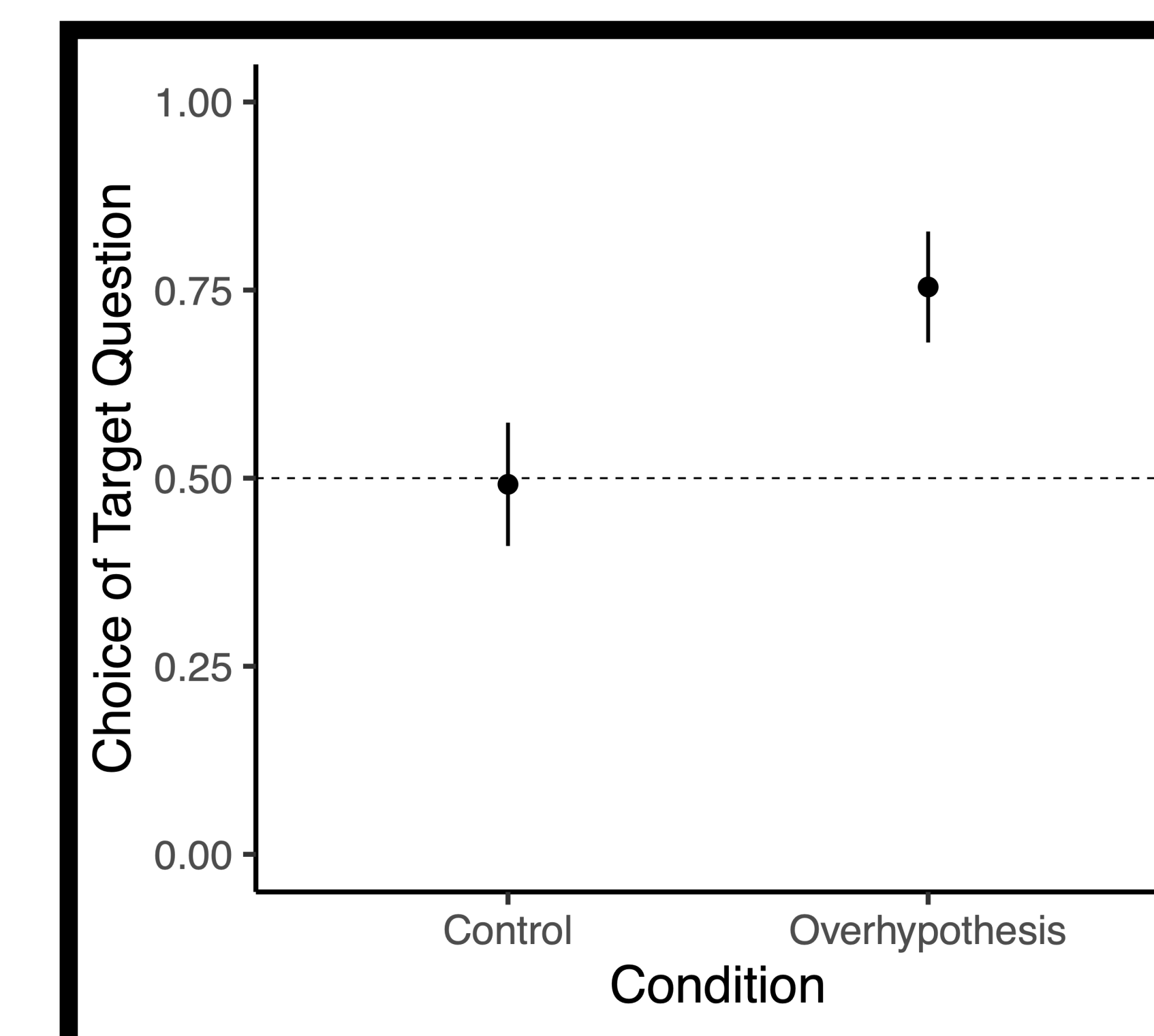


Between conditions:  $p = 0.39$   
Overhypothesis condition to 50%:  $p < .001$   
Control condition to 50%:  $p = 0.15$

- Adults used overhypotheses to guide question-asking more strongly than children
- Both adults and children chose overhypothesis-consistent questions more than chance (>50%)

## Results:

## Adults:



Between conditions:  $p < .001$   
Overhypothesis condition to 50%:  $p < .001$   
Control condition to 50%:  $p = 0.86$

## Discussion:

- Children's performance suggests some understanding of overhypotheses, though they may not consistently use them to guide their questions. This aligns with findings from Dewar and Xu (2010), indicating that even children as young as 9-months-old can learn overhypotheses.
- Adults' larger condition differences may reflect greater experience with pattern recognition.
- Future research should include a broader age range to better understand when the ability to use overhypotheses in question-asking develops.

## References:

- Dewar, K. M., & Xu, F. (2010). Induction, overhypothesis, and the origin of abstract knowledge: Evidence from 9-month-old infants. *Psychological Science*, 21(12), 1871-1877.
- Greif, M. L., Kemler Nelson, D. G., Keil, F. C., & Gutierrez, F. (2006). What do children want to know about animals and artifacts? Domain-specific requests for information. *Psychological Science*, 17(6), 455-459.