

Fear and Disgust Toward Arthropods in Children and Adults

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RESEARCH QUESTION

Will children or adults visiting the World of the Insect exhibit at the Cincinnati Zoo show more negative reactions toward arthropods?

Prediction: Adults will show more negative reactions toward arthropods.

INTRODUCTION

- Insects, arachnids, and other arthropods are integral parts of almost every ecosystem, but they are also a great source of fear and disgust for many people.
- With the exception of certain blood-eating organisms (e.g. mosquitoes, ticks, bed bugs, etc.), the arthropods many people worry about harming them have no reason to seek us out (Vetter & Visscher, 1998).
- Most human-arthropod conflicts arise when one of these organisms is accidentally squished or swatted, the arthropod misconstrues the action as a threat, and reacts defensively (Vetter & Visscher, 1998).

Why do people dislike arthropods? Two potential mechanisms:

1. Fear of certain organisms can be inherited, carried down from those of our ancestors who were wise enough to avoid danger and survived to pass on their DNA (Reynolds & Askew, 2018).

If this is the case for arthropods, then children should show the same rate of aversion to arthropods as adults.

2. Fears can be learned. Children look up to their parents and older peers, and in seeking to fit into social or family groups, absorb the expressed fears of those individuals (Reynolds, Field, & Askew, 2015).

If this is the case for arthropods, then children should show less aversion to arthropods than adults who have already learned these fears.

METHODS

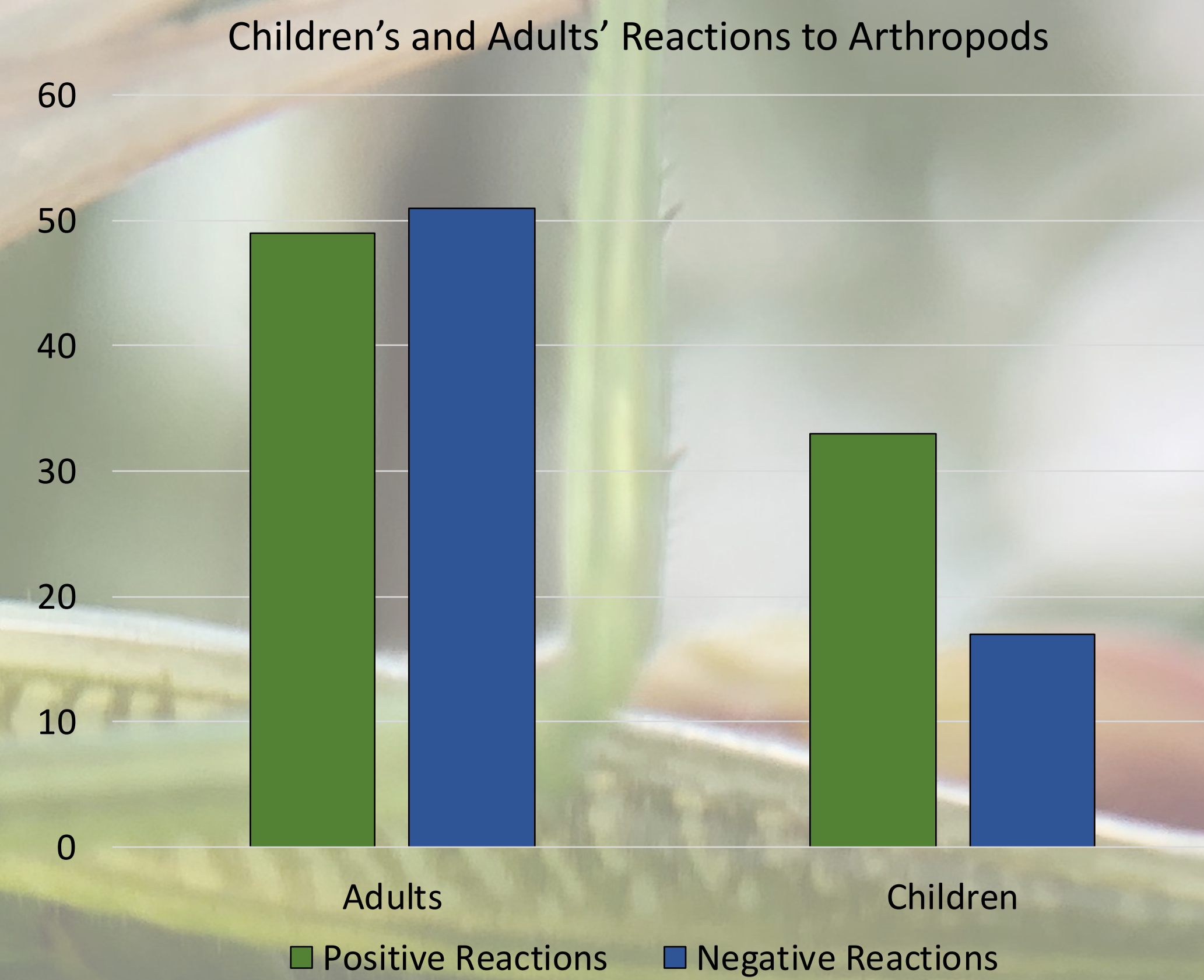
- Adults (18+ years old) and children (under 10 years old) were observed as they visited the World of the Insect exhibit
- Reactions were classified as either positive or negative, using predetermined parameters

Positive Reaction	Negative Reaction
Positive words such as “cool, awesome, interesting, pretty, I like it, I want one”	Negative words such as “eww, gross, scary, disgusting, I hate it, get it away”
Body language such as moving closer to the exhibit for a better look, smiling, laughing	Avoidant behavior, backing away from the exhibit, covering eyes, grimacing, crying

- Data from both days of study were compiled in a Google spreadsheet
- A chi-square test for independence was run between the adult group and the child group to determine whether there was a statistical difference in reactions between the groups
- A chi-square test for goodness of fit was run for the adult and child groups individually to determine whether there was a statistical difference between positive and negative reactions

RESULTS

- 100 adults and 50 children were observed
- Adults showed a fairly even distribution of positive and negative reactions (49% and 51%, respectively; $\alpha = 0.05$, $p = 0.841$)
- Children showed many more positive reactions than negative reactions (66% and 34%, respectively; $\alpha = 0.05$, $p = 0.023$)
- There was a statistical difference between adult and child responses ($\alpha = 0.05$, $p = 0.049$)
- These data support the prediction that adults would show more negative reactions towards arthropods than would children



ACTION COMPONENT

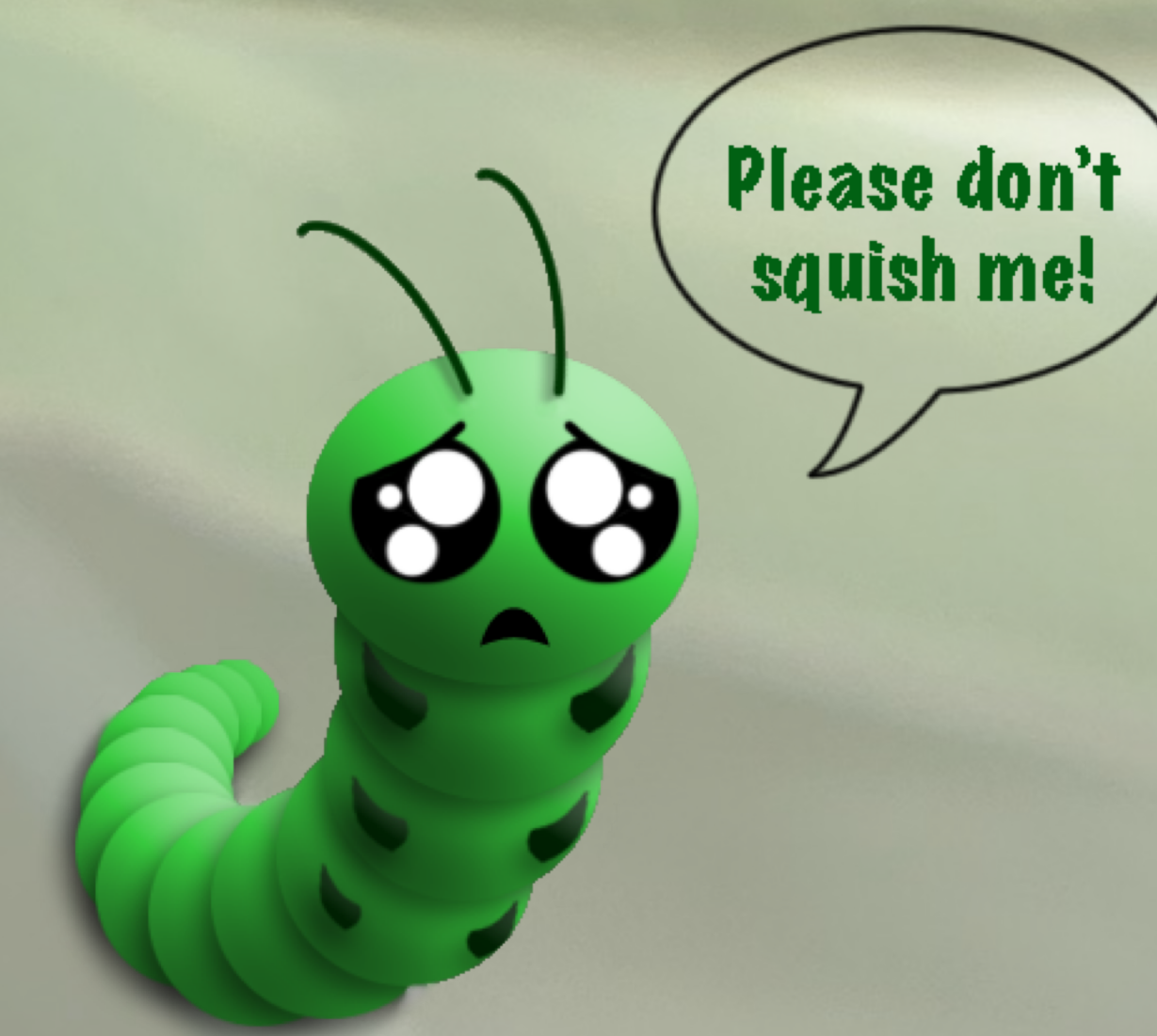
I am developing a series of graphics dispelling some of the most common myths about arthropods in hopes of improving the reputations of these important but misunderstood critters. Posters and handouts will be distributed to the Cincinnati Zoo, Cincinnati Nature Center, and other educational institutions to assist with arthropod-related education. Topics covered include but are not limited to:

- Misunderstandings about the frequency and severity of spider bites and wasp and bee stings
- How to differentiate between bees, wasps, and Hymenoptera mimics
- Which arthropods are beneficial to the garden, and therefore should be spared when considering pest control measures outside the house

Graphics will be appropriate for both children and adults, and include arthropod facts, photographs of actual arthropods, and cartoon arthropod “mascots.”

I will also focus on desensitizing adults to their misplaced fears and misconceptions, to prevent them from spreading those fears to the children in their lives.

Drafts of informational graphics



Caterpillar mascot for use in future informational graphics

WHY IS THIS IMPORTANT?

Humans tend to react destructively towards things, organisms, and even people that they fear because they do not fully understand them (Lee, 2016).

Bees are important pollinators that help our crops produce fruit



Ants and carrion beetles clean up dead organisms that would otherwise litter the landscape



Spiders can make our lives a little easier by eating pest insects like flies and mosquitoes

Snakes, coyotes, sharks, lions, and other perceived dangerous animals are also the targets of human fear-based violence.

Determining the causes and mechanisms of fear, disgust, and general misunderstanding can lead to targeted education to help combat human-animal confrontations.

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