Past research has found that people with low objective numeracy (low math ability) have difficulty in understanding numeric information such as risk (Peters et al., 2006). People overweight certainty relative to near-certainty (Tversky & Kahneman, 1981). This is known as the certainty effect. This overweighting extends to risky decisions framed as certain, known as pseudocertainty (e.g. a 70% chance of moving onto a sure bet).

More recent research has suggested that any option with 100% in it is similarly overweighted (e.g. 100% chance of moving onto a 70% bet; Lee & Chapman, 2009).

Current research examines the relation of objective numeracy to the pseudocertainty bias and 100% effect and evaluates interventions (i.e. presenting net efficacy and pictographs).

HYPOTHESES
1. Numeracy moderates the pseudocertainty effect in vaccine ratings because more numerate people are more likely than the less numerate to calculate net efficacy and, thus, avoid the pseudocertainty bias.
2. When given the overall effectiveness of the vaccine statements, all participants will better understand the information and rate the vaccines more equally, thus reducing the pseudocertainty bias.
3. Providing a pictograph will reduce the pseudocertainty bias regardless of numeric ability.

METHOD

<table>
<thead>
<tr>
<th>Study</th>
<th>Size</th>
<th>Source</th>
<th>Net Efficacies</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>227</td>
<td>College Students</td>
<td>70%</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>435</td>
<td>mTurk</td>
<td>70%</td>
<td>Net Efficacy</td>
</tr>
<tr>
<td>3</td>
<td>285</td>
<td>College Students</td>
<td>70% or 55%</td>
<td>Pictograph</td>
</tr>
</tbody>
</table>

RESULTS

Figure 1. Vaccine likelihood question.

Figure 2. Pictograph example.

Figure 3. There were no differences in the size of the pseudocertainty effect for innumerate and highly numerate participants

DISCUSSION

- The effect of numeracy on the pseudocertainty effect was mixed
- There was no evidence found for a 100% effect separate from the pseudocertainty effect
- Providing the net efficacy of the vaccines reduced the pseudocertainty effect among the more highly numerate
- Pictographs reduced the pseudocertainty effect regardless of numeracy

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FOR REFERENCES, SEE HANDOUT