



Unhealthy and Unaware? Examining the Noise-Plus-Bias Model in the Context of Health Behaviors

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Introduction

- **Unskilled and Unaware effect:** people who are unskilled (in the first quartile) in a particular ability overestimate their performance compared to their peers (Kruger & Dunning, 1999, 2002)
- However, **Noise-plus-bias Model** suggests this pattern is not the same across tasks of all difficulty. (Burson, Larrick, & Klayman, 2006)
- Instead, people across all levels of ability equally overestimate their relative ability on easy tasks and underestimate it on difficult tasks
- Highly skilled people (those in the fourth quartile) are more accurate at estimating their percentile for easy tasks but tend to be less accurate at estimating their percentile for difficult tasks
- The above effects have primarily been examined in the context of performance/ability estimates
- **The Current Research:** Examines these effects in people's percentile estimates about how often they engage in health behaviors (relative to peers)
 - General commonness of behaviors replaces general task difficulty as the key moderator for assessing the noise-plus-bias model

Method

Participants: 112 undergraduates (74 women, 37 men, 1 unreported, $M_{age} = 19.32$)

Design: 2 (commonness: common/uncommon) x 2 (healthiness: positive/negative) within-subjects design

Procedure: RPs provided percentile and common-rule frequency estimates for 20 behaviors (5 from each cell)

Behaviors and Measures:

Common Healthy	Uncommon Healthy	Common Unhealthy	Uncommon Unhealthy
• Washing hands	• Eating breakfast	• Eating fast food	• Changing lanes without looking (while driving)
• Using turn signal (while driving)	• Eating fish	• Caffeinated beverages	• Add salt to food
• Talking to friends/family	• Taking stairs instead of elevator	• Rubbing eyes	• Driving instead of walking
• Walking > 5 minutes	• Going to the doctor	• Listening to loud music w/ headphones	• Getting too much sun
• Hanging out with friends	• Eating vitamin-rich food	• Getting too much screen time	• Text/Call while driving

Absolute/Common-rule Frequency (example):

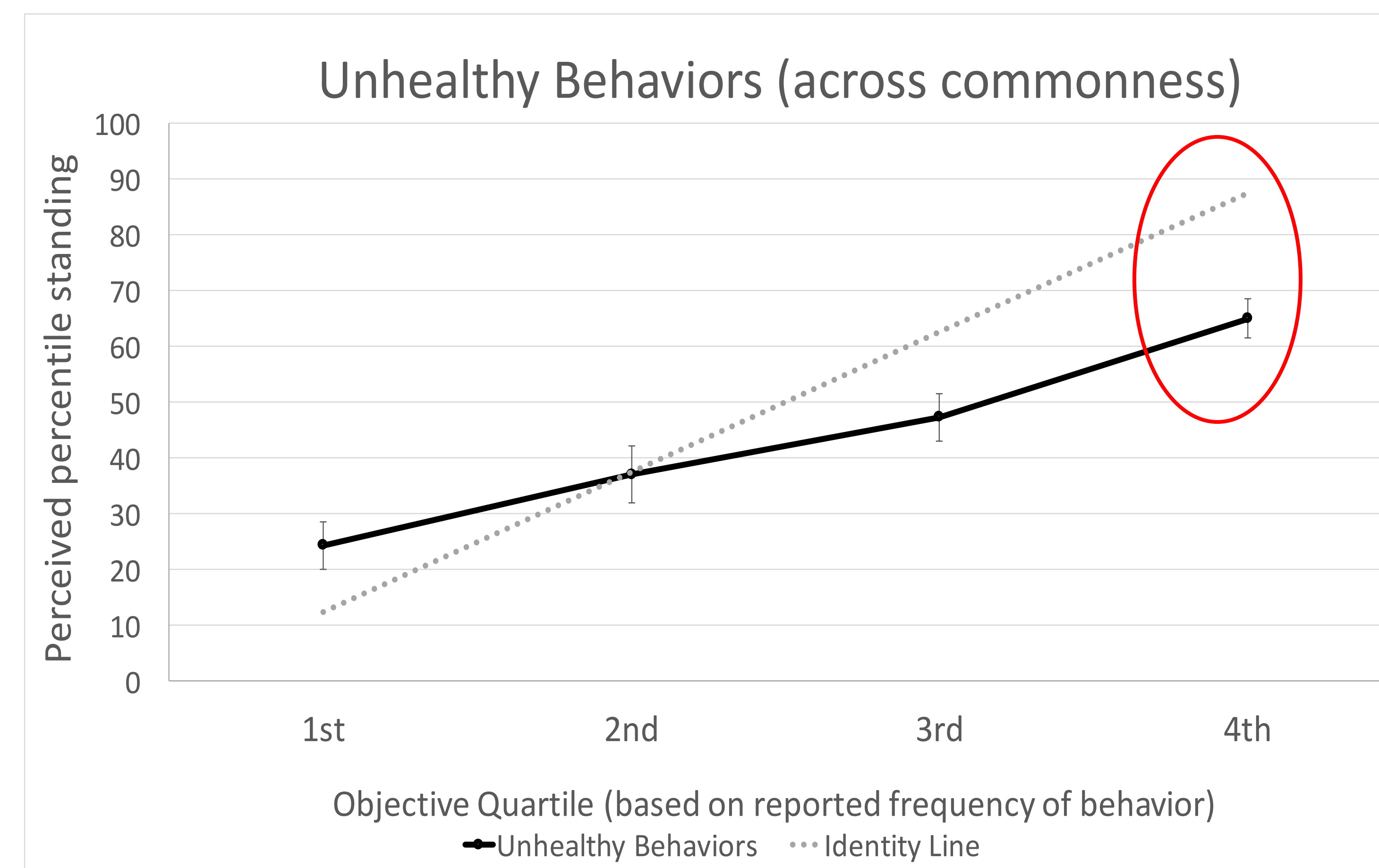
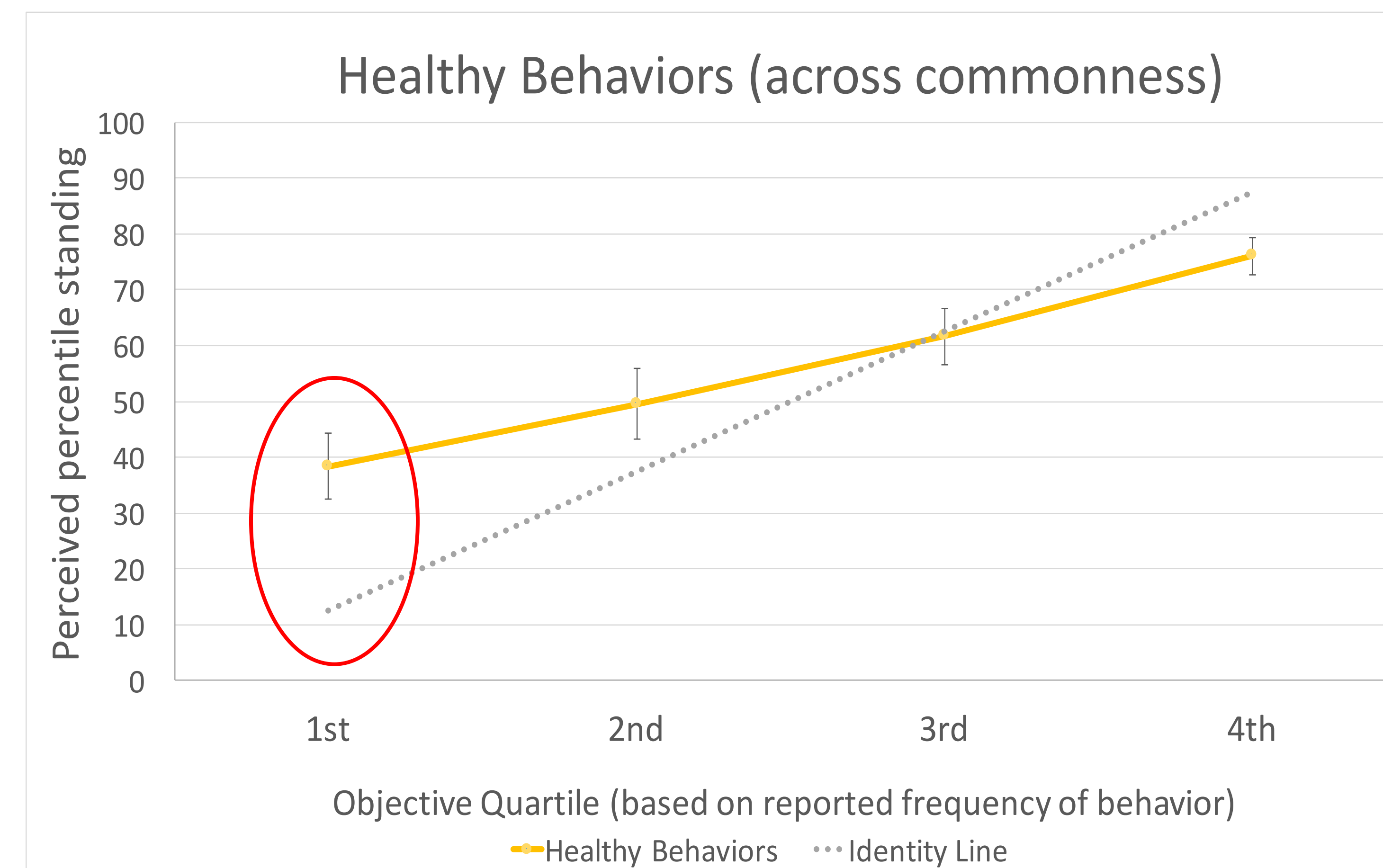
During a typical [day], how many times do you [wash your hands]? (0-25)

Perceived percentile (example):

Assume there are 99 other people in the study and we ordered them according to how often they [wash their hands]. Slide the scale to indicate where you place among 99 other people in the study.

I wash my hands more than ___ of the other people in the study. (0-99)

Results



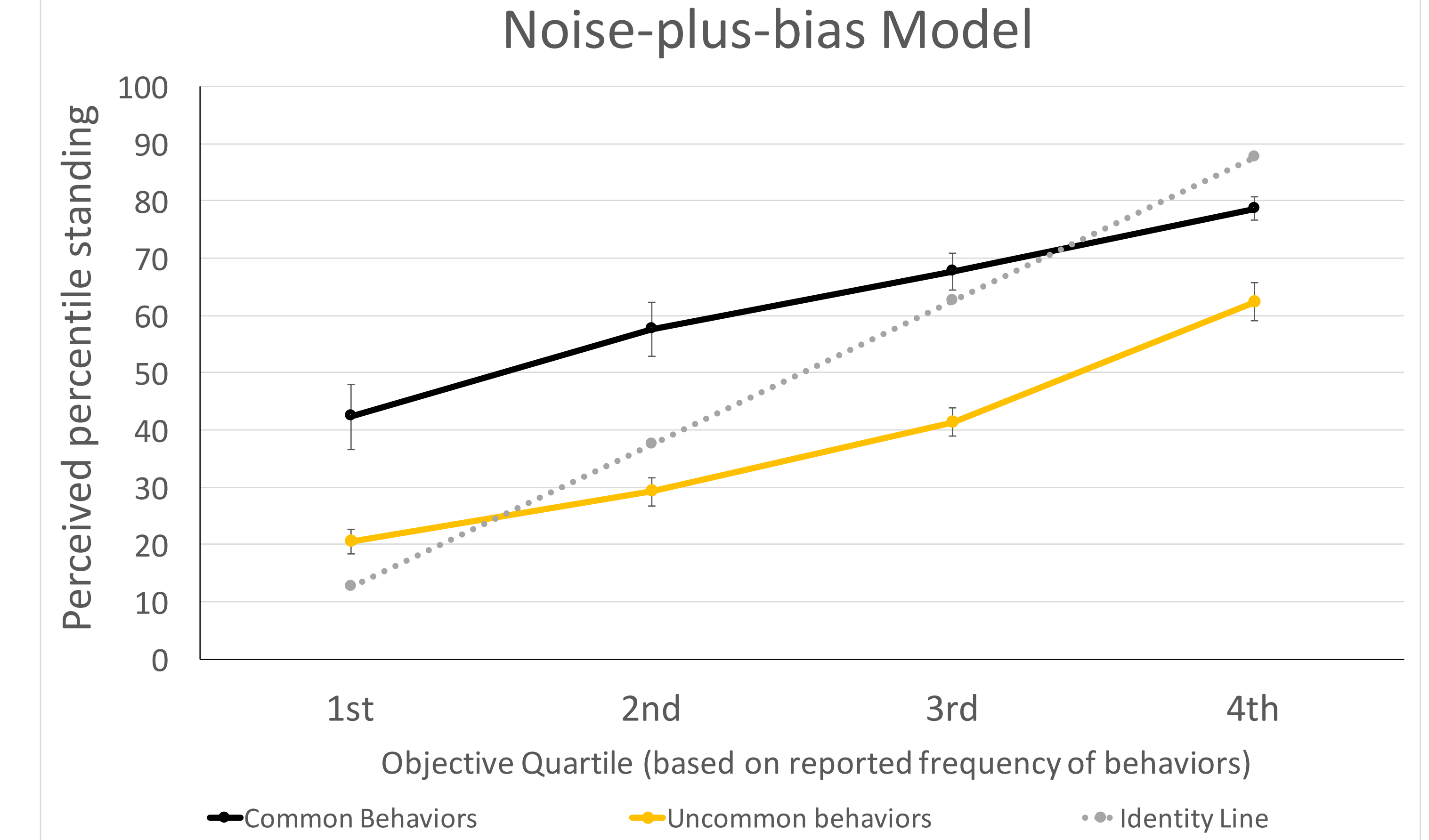
The areas in the ovals are consistent with an **unhealthy and unaware** pattern.

Those who performed healthy behaviors the least were more miscalibrated than those who performed them the most.

People who performed unhealthy behaviors the most were more miscalibrated than those who performed them the least.

Full interaction: $F(1,18) = 5.048, p = .037, \eta^2 = .219$

Results continued



However, there was strong overall support for **noise-plus-bias model**.

- We computed a difference metric of perceived percentiles and normative percentiles of each quartile per participant and behavior

A repeated measures ANOVA showed a quartile-level by commonness interaction, $F(1,18) = 8.363, p = .010, \eta^2 = .317$.

- For uncommon behaviors, the difference metric was greater for the fourth quartile ($M = 24.48$) than the first quartile ($M = 10.19$)
- For common behaviors, the difference metric was greater for the first quartile ($M = 26.46$) than the fourth quartile ($M = 12.31$)

Conclusion

- Similar to the 'Unskilled and Unaware' effect, people who engage in healthy behaviors the least, as well as those who engage in unhealthy behaviors the most, were most miscalibrated in their perceived standing.
- But overall, there was also support for the 'noise-plus-bias model'. People who engage in uncommon (common) behaviors the most (least) are more miscalibrated than people who engage in them the least (most)
- This research might inform intervention programs to calibrate people's self-awareness of how often they do and should engage in healthy behaviors.