Can hedonic scales be replaced? Exploring indirect methods for measuring sensory acceptability through food leftovers



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Sensory and Consumer Research

Background & Objective:

The use of hedonic scales to quantify consumers' sensory acceptability is widespread. However, self-reported measures can be affected by multiple biases, potentially influencing study outcomes. In practice, sensory analysts frequently observe that samples receiving the highest overall liking scores are also those most consumed, resulting in lower quantities of leftover product. Based on this observation, it can be hypothesised that measuring the amount of food left uneaten by consumers in sensory booths could serve as an effective indirect indicator of sensory acceptability.

This study aims to validate the measurement of food waste as an indirect, objective indicator of consumer sensory acceptability.

Authors

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Research approach

Who?

150 participants

18-65 years
50% women, 50% men
Croissant consumers
(≥twice a month)

Where?

Spain

What?

4 samples

Sequential monadic, balanced serving order

Results

The results showed a significant negative correlation between overall liking and leftovers across all samples, confirming that higher sensory acceptability is associated with lower quantities of discarded product after tasting.

How?

Sensory evaluation

Dislike extremely — **Neither like nor dislike** — **Like extremely**

1 2 3 4 5 6 7 8 9

Overall liking (9-point hedonic scale)

Leftover measurement

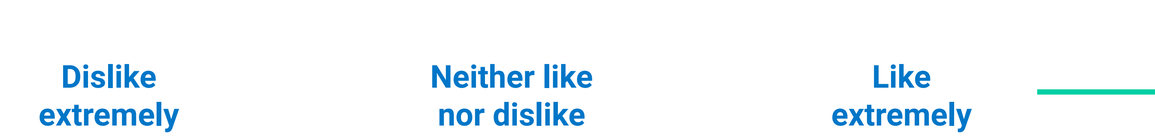
1 instructed technician

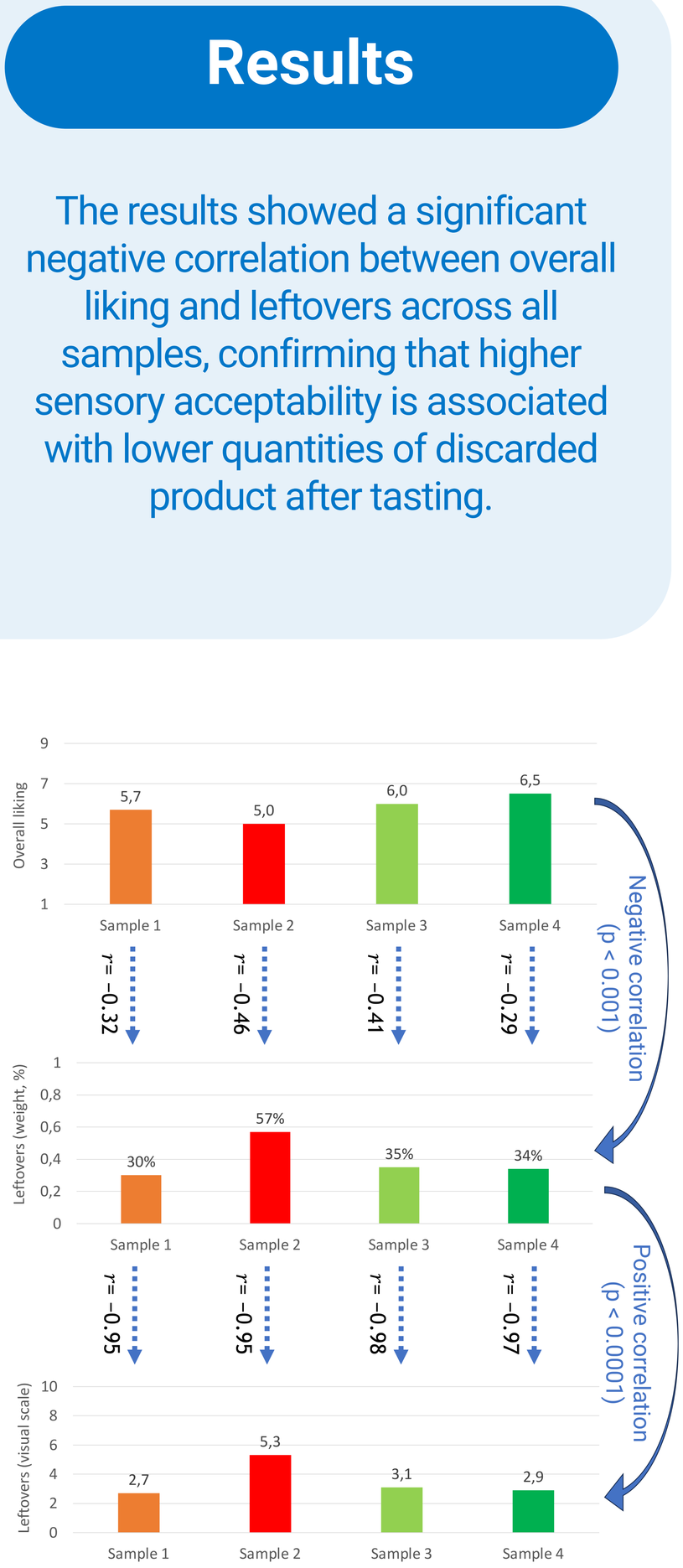
Weight (%)



$$\text{Leftover weight (\%)} = \left(\frac{\text{Leftover weight}}{\text{Initial weight}}\right) \times 100$$

Visual scale





Conclusions

Waste-based methods demonstrated their potential as valid indirect indicators of consumer sensory acceptance, offering a practical complement to mitigate self-reporting biases in hedonic evaluations. Furthermore, the visual waste scale emerges as a rapid, cost-effective, and non-invasive tool for industry applications, eliminating the need for systematic weighing while maintaining strong predictive reliability. Finally, these findings reinforce the idea that the food industry should adopt a consumer-centric perspective: products must be designed to genuinely match consumers' preferences to reduce worldwide food waste.

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