

Olfaction, Gustation, and Mild Cognitive Impairment

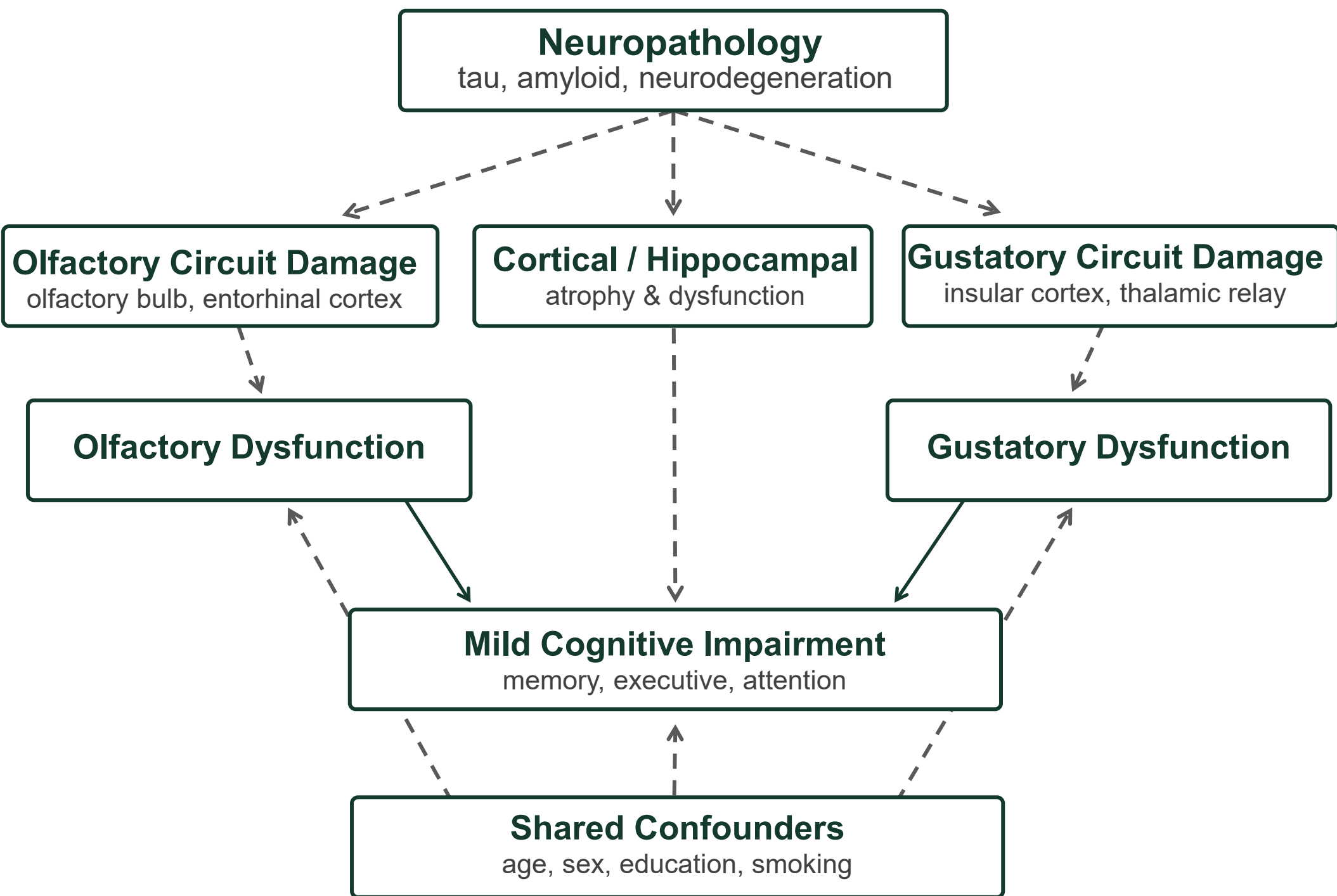


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Backgrounds & Hypothesis

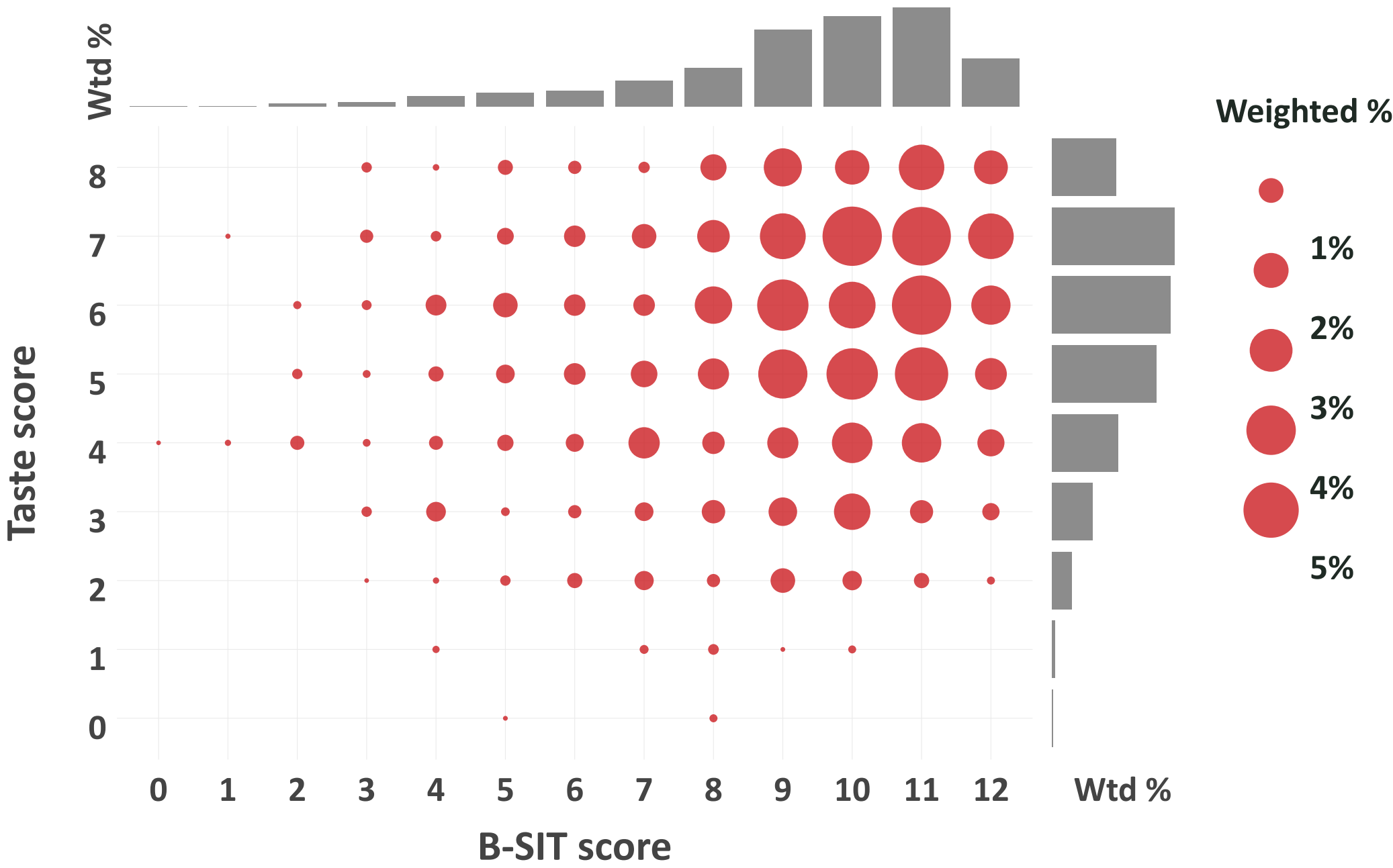
- Olfactory dysfunction is an early marker of dementia.
- Gustatory dysfunction may also be related to cognitive impairment, but empirical evidence is limited.
- Is gustatory dysfunction associated with mild cognitive impairment independently and jointly with olfactory loss?



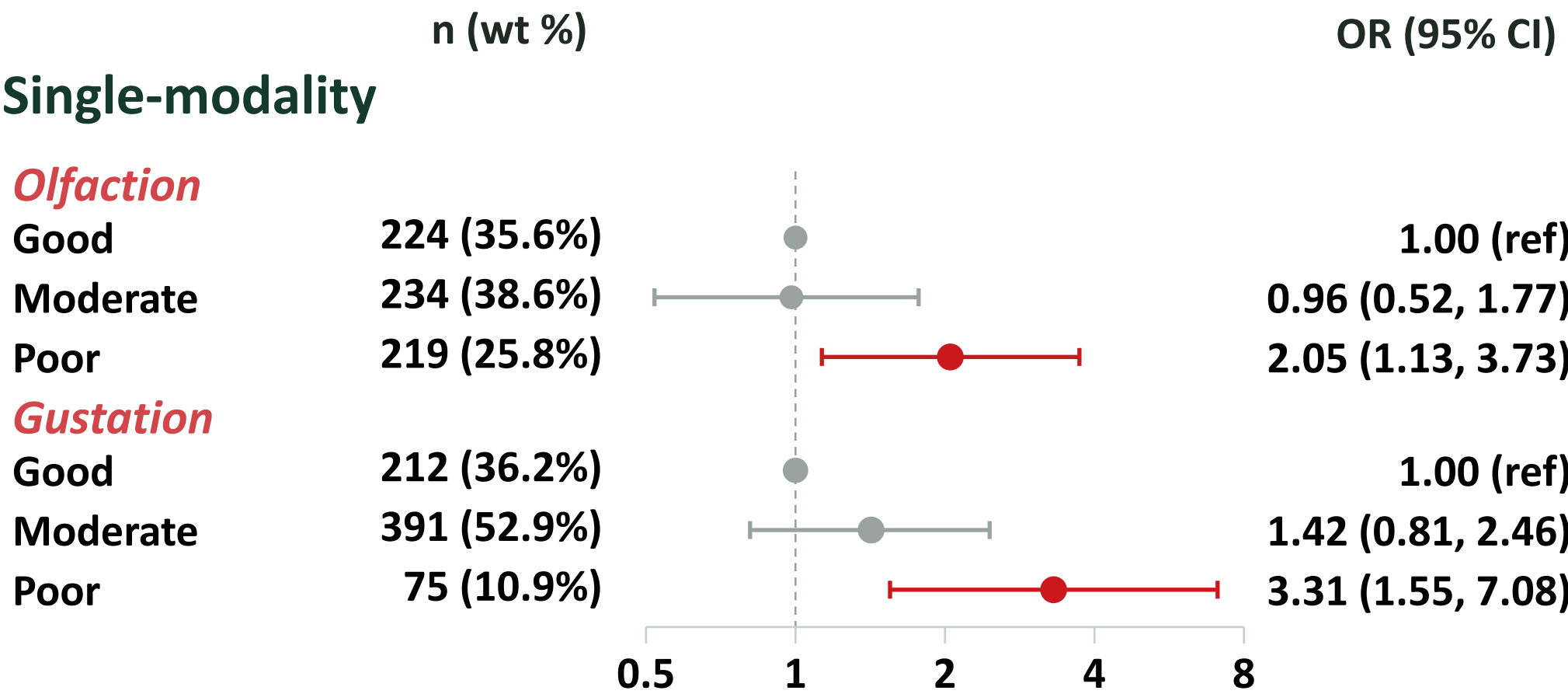
Olfaction & Gustation - Modestly Correlated

Measures	Olfaction	Gustation
	12-item Brief Smell Identification Test (B-SIT)	8-item Burghart Taste Strips sweet, sour, salty, bitter; 2 each
Score range	0–12	0–8
Good	11–12	7–8
Moderate	9–10	4–6
Poor	0–8	0–3

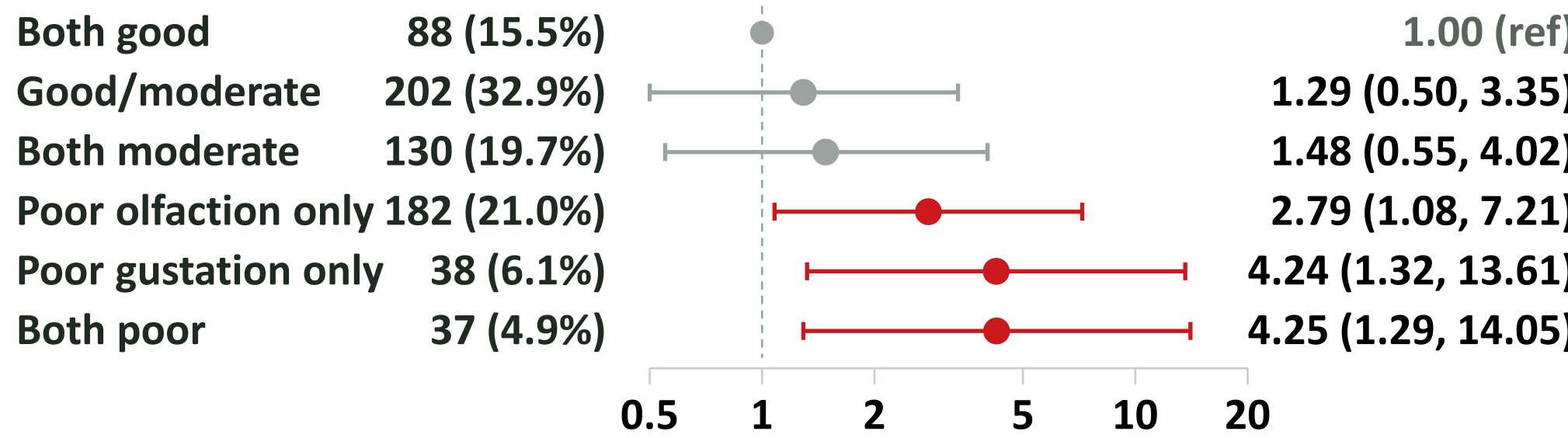
Weighted Spearman $\rho = 0.18$ (95% CI 0.13, 0.24)



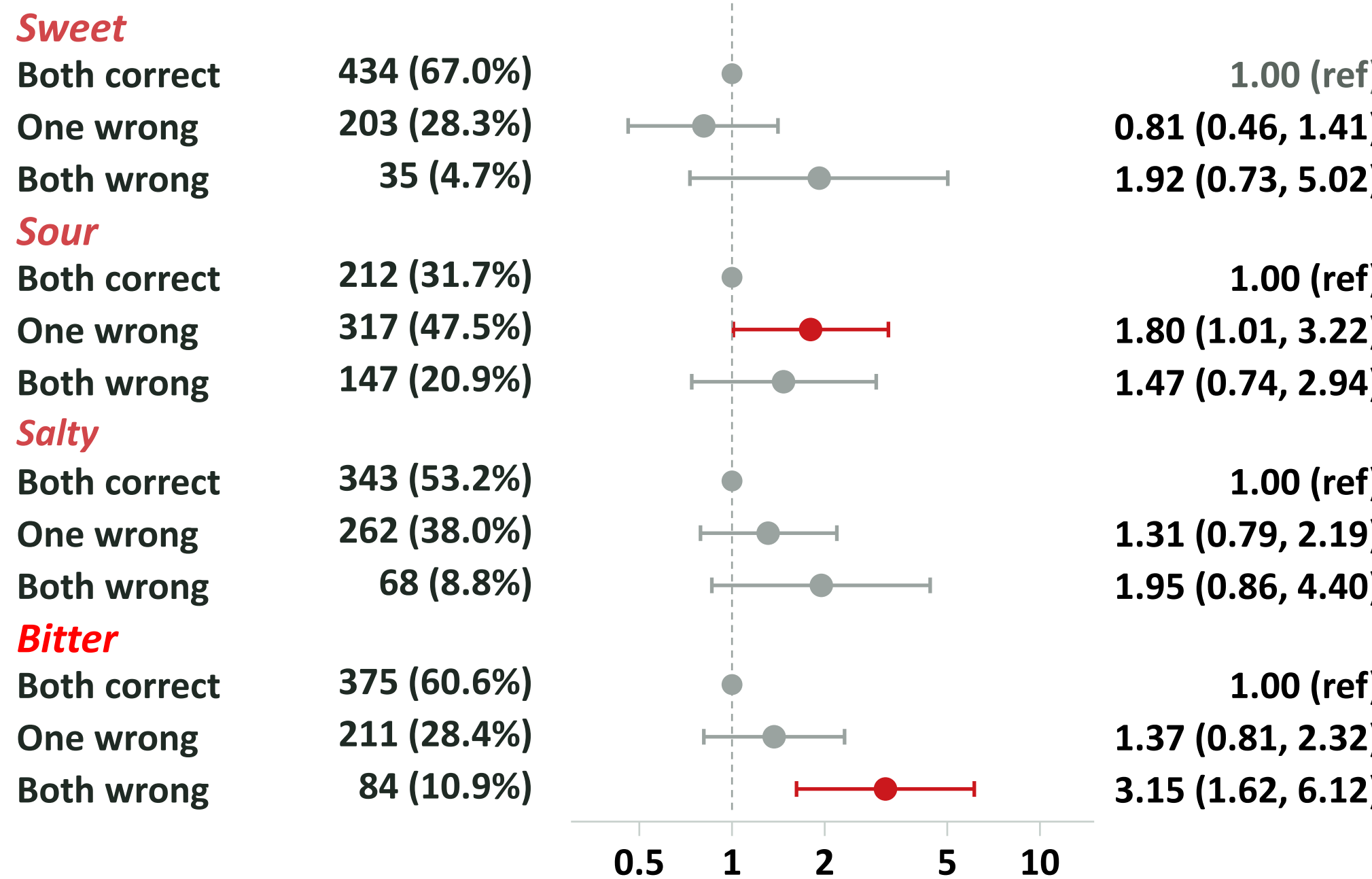
Olfaction, Gustation & MCI: Associations



Joint impairments



Which taste quality drives it (2 concentrations for each taste)?

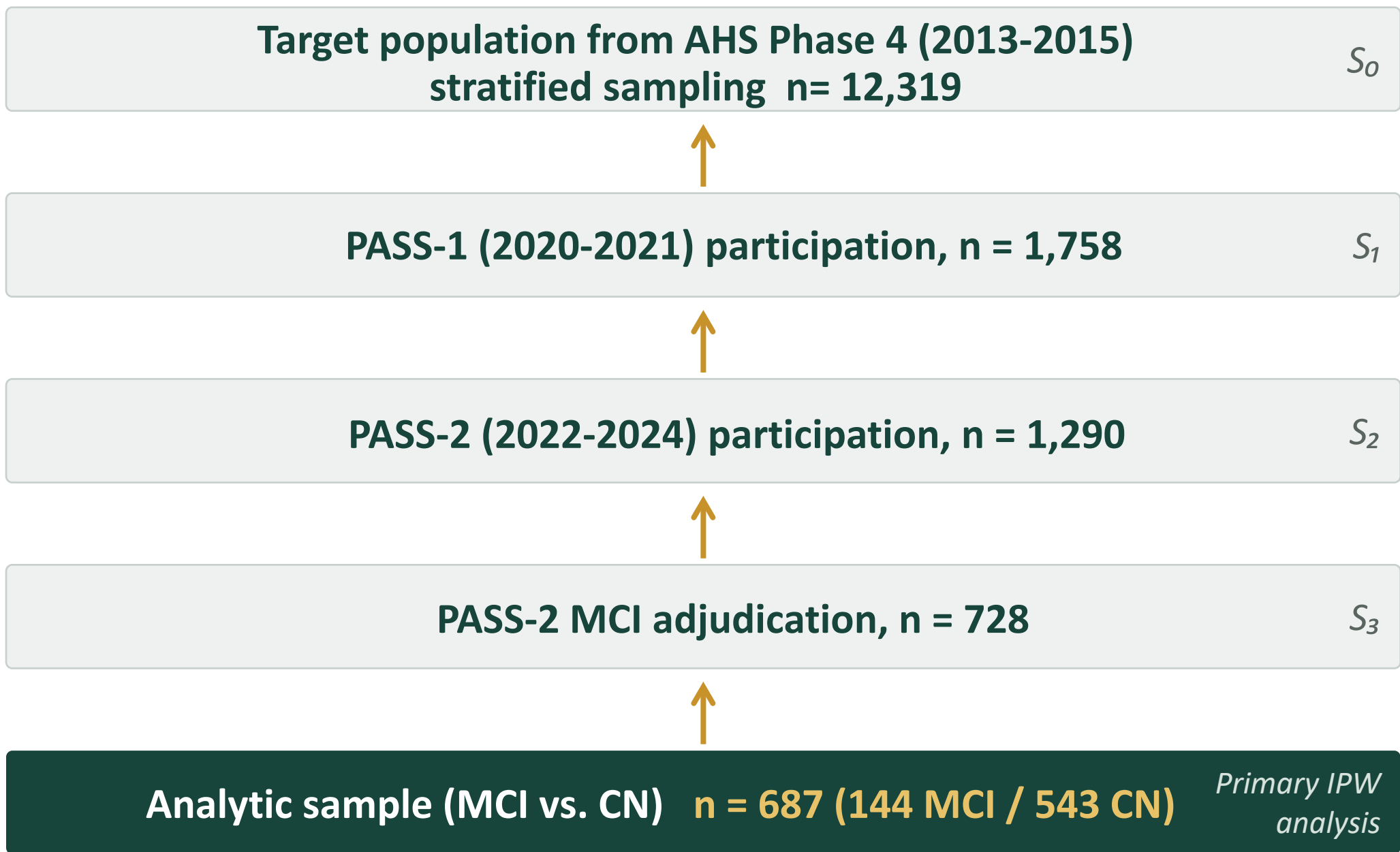


Findings were consistent across sensitivity analyses

Mutual adjustment of olfaction with gustation
MCI-plus-dementia outcome
Continuous olfaction & gustation test scores

Survey Design

728 predominantly White male farmers (mean age 71 ± 5.4 years) from the Agricultural Health Study (AHS)- Pesticide And Sense of Smell (PASS) study

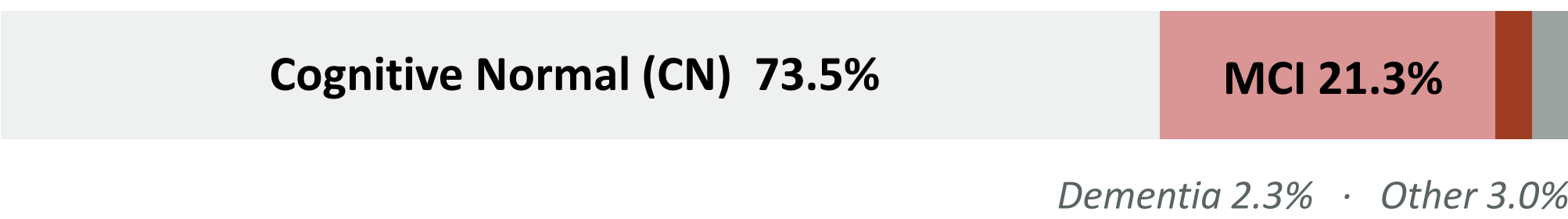


$$W = SW_0 \times SW_1 \times SW_2 \times SW_3$$

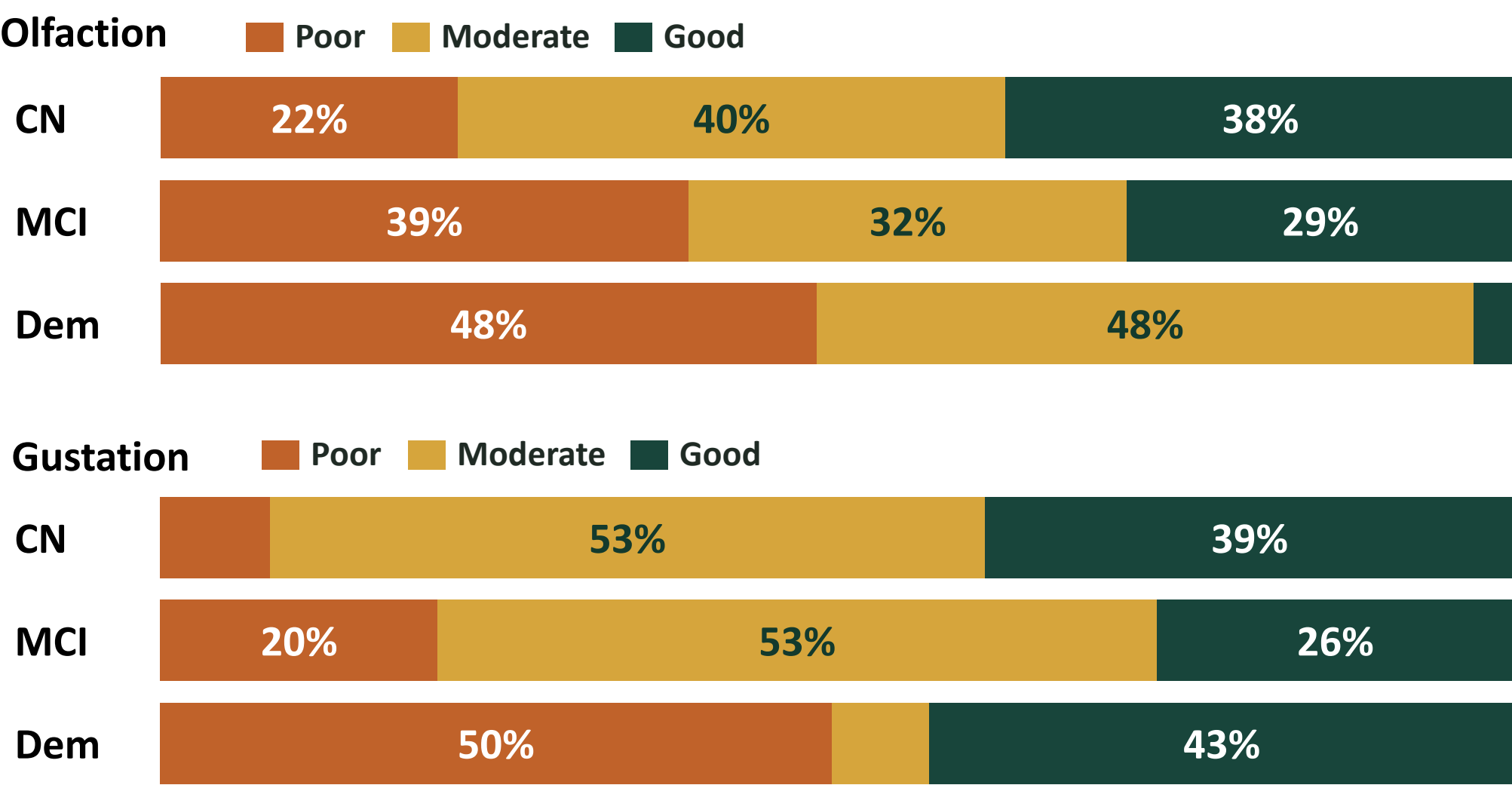
Inverse-probability weighting (IPW) corrects bias from sample selection & non-responses, generalizing estimates to the target population

Cognitive Status & Chemosensory Impairment

Adjudicated cognitive outcomes (n = 728)



Chemosensory impairment by cognitive outcomes



All percentages are weighted to the target population.

References

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Doorduijn AS, et al. Olfactory and gustatory function in MCI and Alzheimer's disease. 2020.
Schmicker M, et al. Taste, not smell, distinguishes preclinical (SCD+) cognitive risk. 2023.
Fathy YY, et al. Insular cortex atrophy in Alzheimer's disease: a meta-analysis. 2020.
Mantovani E, et al. Gustatory function in Alzheimer's disease: systematic review and meta-analysis. 2024.

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