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Effect of Environment & Portion Size on Energy Intake

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Introduction & Lit Review

Portion sizes have increased in the UK[1,2]

"**Portion size effect**": increases in portion size lead to increases in energy intake[3,4,5,6]

- 100% increase in portion size results in a 35% increase in energy intake[7]

Correlation between increased portion sizes and rates of obesity[8]

Rates of obesity in UK continue to rise[9]

Rationale for Current Study

Studies on eating behaviours often use lab settings[3,6,11,12]

- Concerns about the generalizability to natural settings[13,14]
- Presence of researcher may influence participants to change their eating behaviours[15,16,17]

Some have used naturalistic settings (e.g. participants' own homes), but depend on self-reported food intakes[18,19]

- Self-reported measures may be inaccurate
- Participants found to under-report food intake[20,21]

Our study exposes participants to two environments:

1. Laboratory
2. Lounge

The lounge mimics a home setting, for two purposes:

- Participants may consume an amount of food they naturally would at home
- Avoids inaccuracies of self-reports

Hypotheses

Hypothesis 1: Participants in the large portion condition will have a greater energy intake than those in the standard portion condition

Hypothesis 2: Participants will have a greater energy intake in the lounge than in the lab

Hypothesis 3: An environment-portion size interaction will result in a greater portion size effect for the lounge than the lab

Participants & Methods

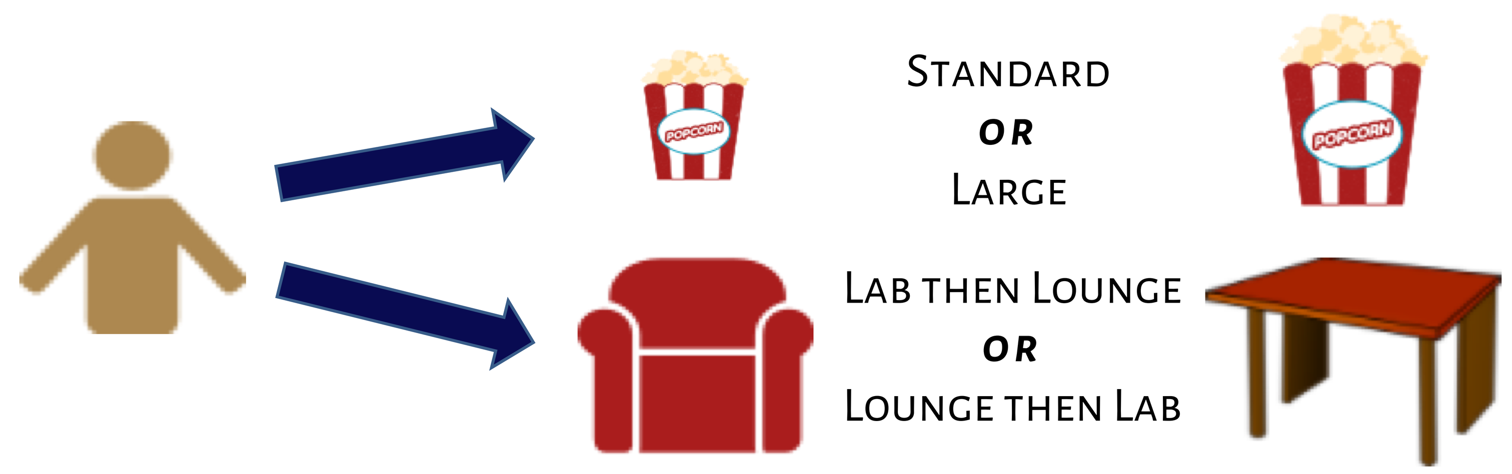
Study Sample

$N = 45$

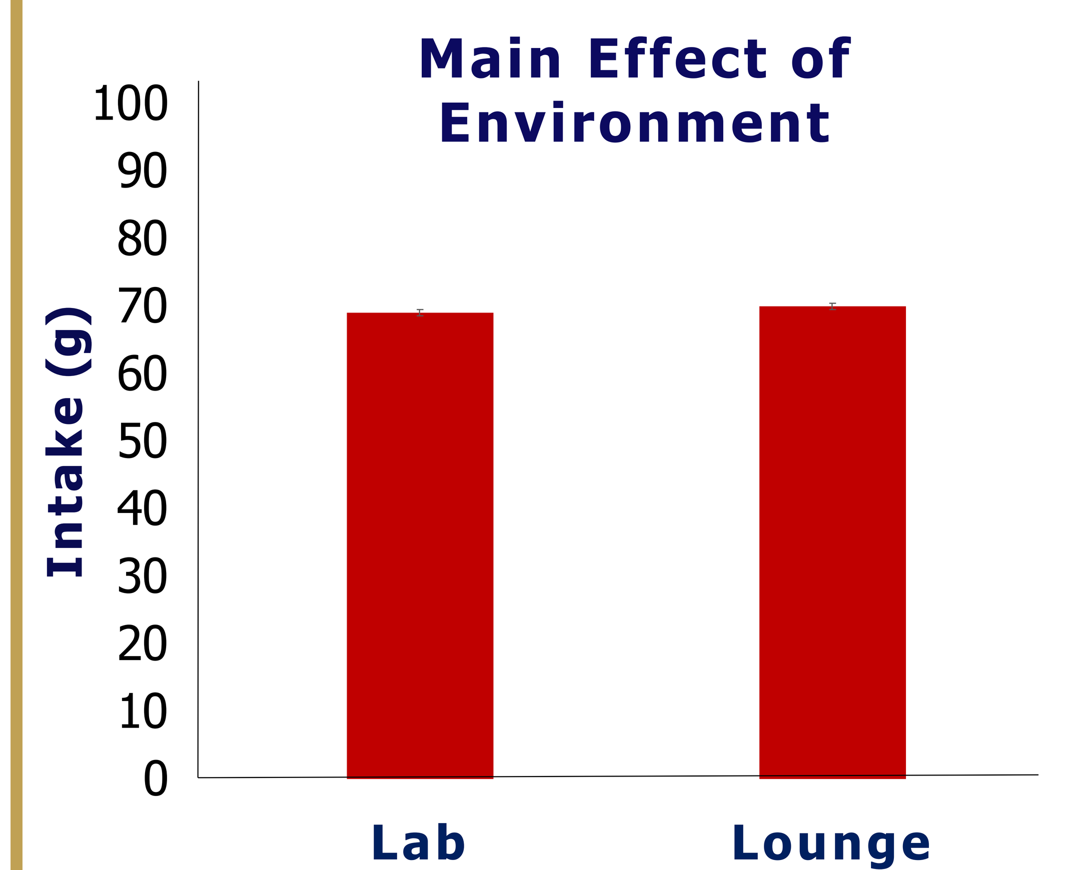
Males = 13, females = 32

Age range: 20 to 63 years

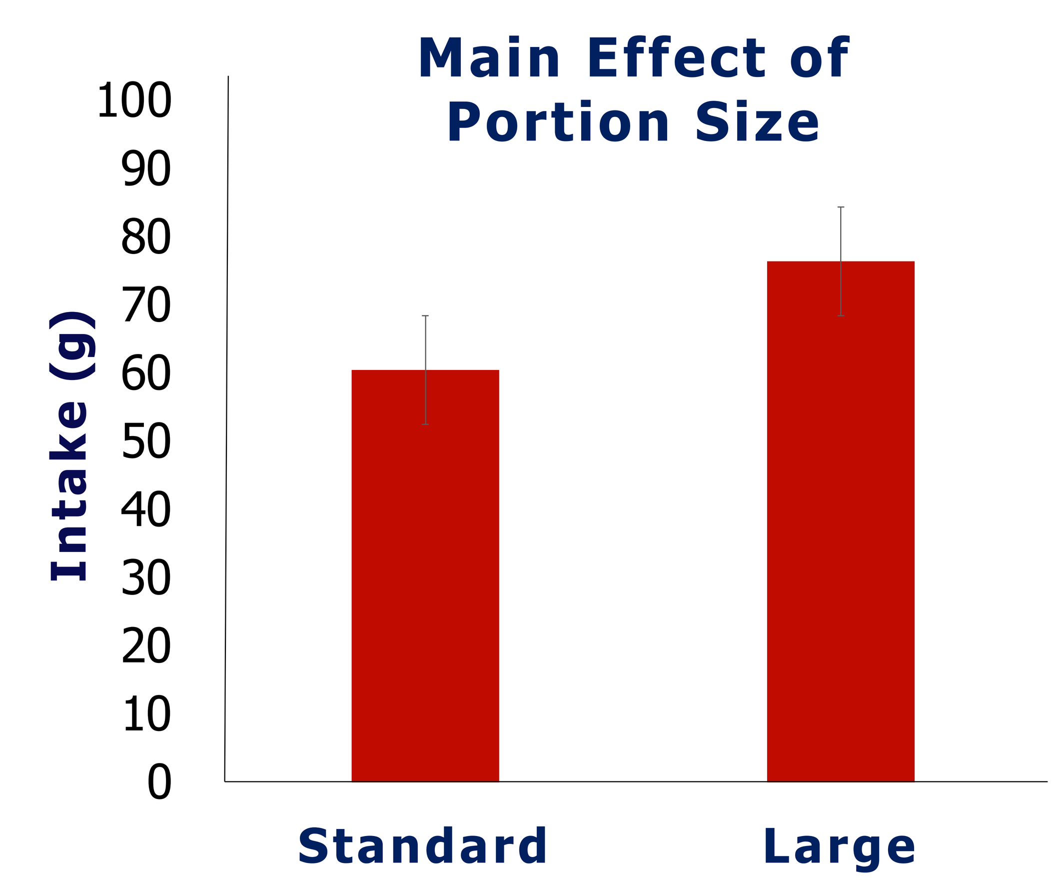
($M = 28.16$, $SD = 8.33$)



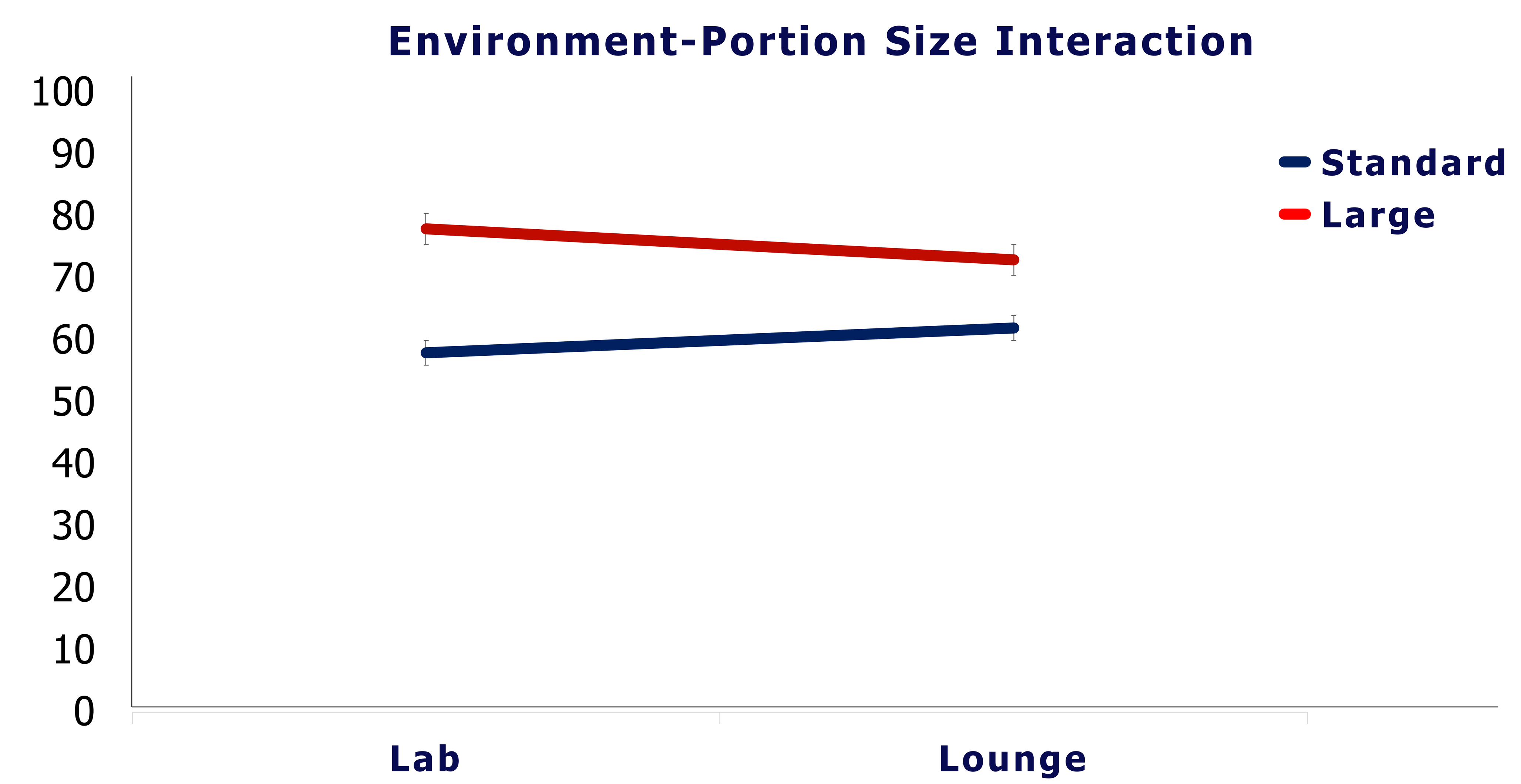
Analyses & Results



Non-significant main effect of environment



Non-significant main effect of portion size



Non-significant interaction between environment and portion size

Discussion

Hypothesis 1: Not supported

- There was a medium effect size ($\eta^2 = .046$)
- Analysis was under-powered
- Portion size effect may reach significance with full quota of participants ($N = 64$)

Hypothesis 2: Not supported

- Sacrificed a fully naturalistic environment (i.e. participants' actual homes) to maximize controllability
- Although the lounge mimicked a living room, participants may not feel as comfortable as they would at home
- Participants may have eaten less than they would at home
- Limited the impact of environment

Hypothesis 3: Not supported

- Portion-size effect was not impacted by the different environments

Limitations & Future Directions

Three major limitations:

1. An under-powered analysis due to insufficient participants
2. Lounge does not fully mimic home environment
3. Some participants correctly anticipated the experiment's true aims, despite the use of deception

Further deception may be implemented

- The use of a second environment could be withheld

Further efforts to mimic a home setting in the lounge

- Bigger room
- Exposure to natural sunlight

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