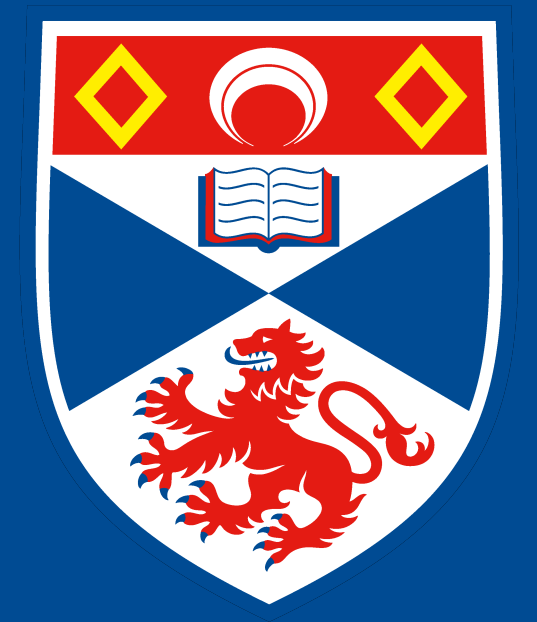


# Determining the effects of a portion size educational brief intervention on caregivers' decisions on appropriate child portion sizes



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## Introduction

- Current rates of obesity are often described as 'epidemic'. In Scotland, 30% of children aged 2-15 years were overweight or obese in 2019 with an additional 30% at risk of falling into this category (1).
- Moderate increases in intake of high energy-dense foods can facilitate over-consumption and can lead to weight gain and can predispose children to becoming overweight or obese (2-4).
- The portion size effect (PSE) is a well-established phenomenon which describes a positive association between the amount of food presented and the amount consumed (5,6).
- The PSE is a robust reliable finding and has been observed in children as young as 5 years (7).
- Educational interventions that target at-home eating practices, if effective, could provide a practical, accessible and cost-effective approach to educate parents on health-conscious eating behaviour (8).

**Aim:** To investigate whether exposure to portion size educational documents impact caregivers portion size choices for children aged 2-4 years

## Methods

- Online intervention with a between subject design was used. Participants were randomly assigned to an experimental group (control or educational) then invited to complete survey 1 (Fig 1).
- Survey 1: Participants completed a portion size questionnaire (PSQ) presenting images of 10 snacks: 4 low energy density (LED), 6 high energy density (HED). Participants selected which portion size (PS) they would serve their child. Participants also completed demographic questions.
- *Educational intervention group:* Participants were asked to read the British Nutrition Foundation's (BNF) portion size guide for children aged 2-4 years, providing information on the recommended portion sizes for main food groups. Participants were also emailed the PS brief guide.
- *Control group:* Participants did not receive the educational BNF PS intervention.
- Survey 2: Participants in both groups completed survey 2 [PSQ + eating behaviour questions (EBQs) about child and caregiver] 1 week later (data not reported here).

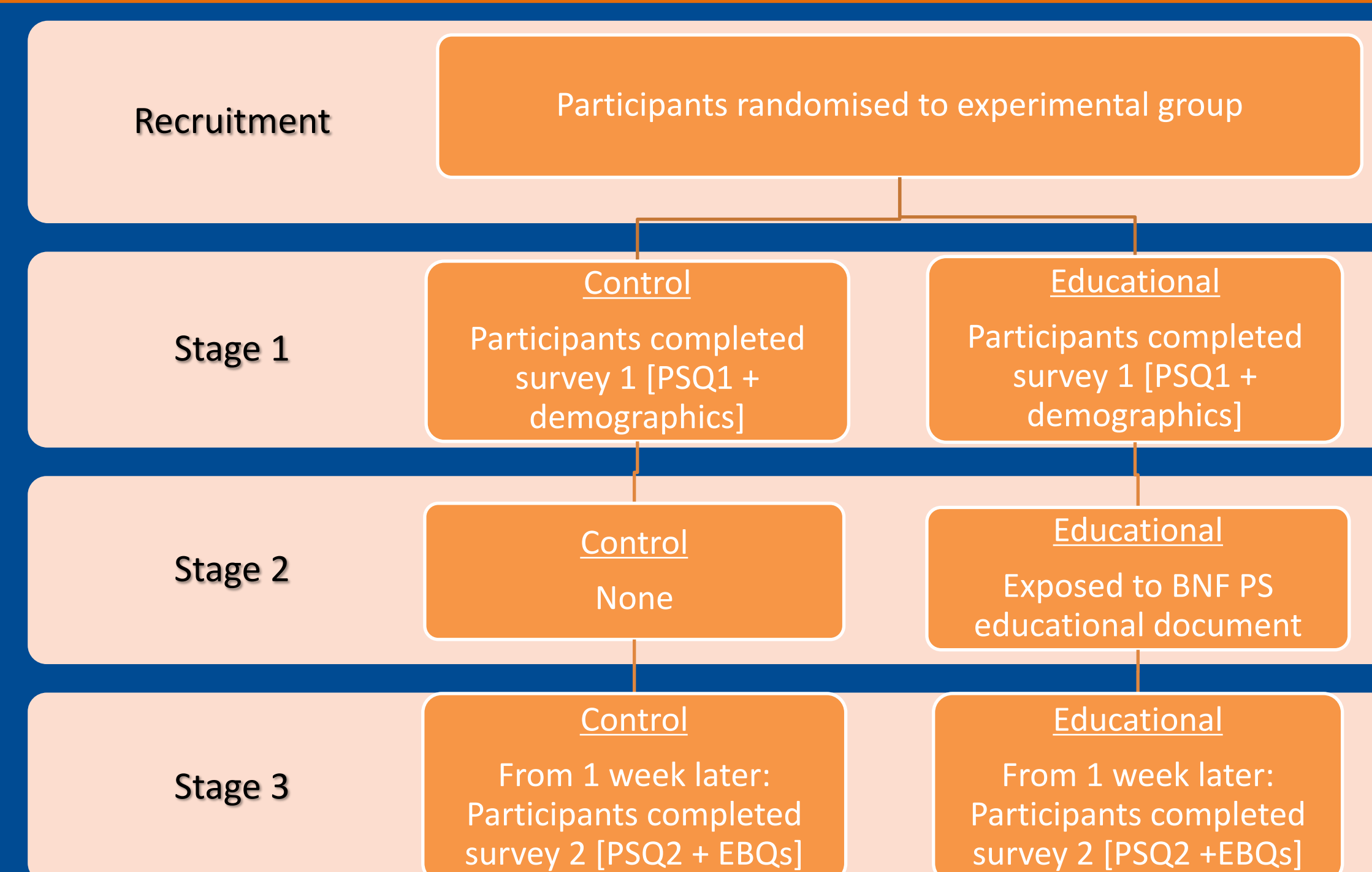


Fig 1. Experimental design. PSQ: portion size questionnaire, EBQs: eating behaviour questions, BNF: British Nutrition Foundation, PS: portion size.

## Preliminary Results

- 42 participants were recruited. Data are reported on 28 participants (96% female) who completed the study.
- Most participants chose portion sizes larger than recommended for both LED and HED snacks (Table 1).

### Portion Size Selection – Comparison to Recommended Portion Sizes

- Control grp (n=13): Participants chose PSs significantly greater than recommended (LED: 40.0g; HED:16.8g) for their children for LED (mean: 53.5 ± 13.2g; p=0.000) and HED (mean: 24.4 ± 6.7g; p=0.000) snacks (Fig. 2).
- Educational grp (n=15): Participants chose PSs significantly greater than recommended for LED (mean: 57.6 ± 17.8g; p=0.000) and HED (mean: 21.6 ± 5.4g; p=0.000) snacks (Fig. 2).

### Portion Size Selection Pre and Post Survey Attempts

- No difference was found in PS selection (for combined LED + HED snacks) between survey 1 (mean: 41.8 ± 16.8g) and survey 2 (mean; 36.1 ± 18.3g) in the control grp (p=0.094) or between survey 1 (mean: 40.7 ± 22.9g) and survey 2 (mean: 38.5 ± 21.4g) in the educational grp (p=0.394). (Fig.3).
- No difference was found in PS selection between survey 1 LED snacks (mean: 55.4 ± 13.6g) and survey 2 LED snacks (mean: 51.6 ± 13.1g) in the control group (p=0.56) (Fig.3).
- A significant difference was found in PS selection between survey 1 HED snacks (mean: 28.3 ± 5.4g) and survey 2 HED snacks (mean: 20.5 ± 5.6g) in the control group (p=0.005) (Fig. 3).
- No difference was found in PS selection between survey 1 LED (mean: 59.3 ± 18.8g) or HED snacks (mean: 22.1 ± 5.9g) and survey 2 LED (mean: 55.9 ± 17.3g) (p=0.507) or HED snacks (mean: 21.0 ± 5.1g) (p=0.537) in the educational group (Fig.3).

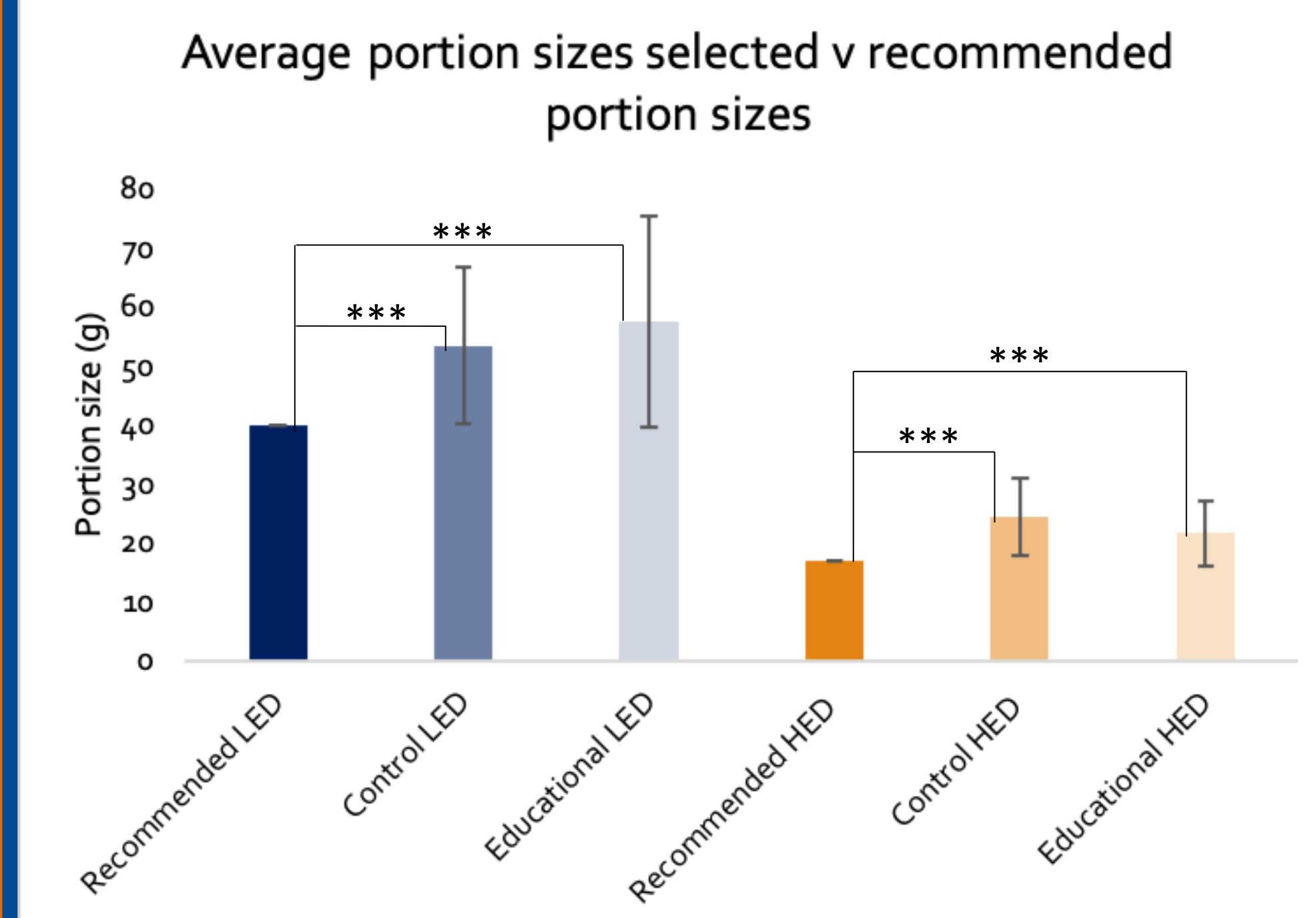


Fig 2. Mean LED and HED portion sizes chosen by participants compared to mean recommended portion sizes. \*\*\* = p < 0.05.

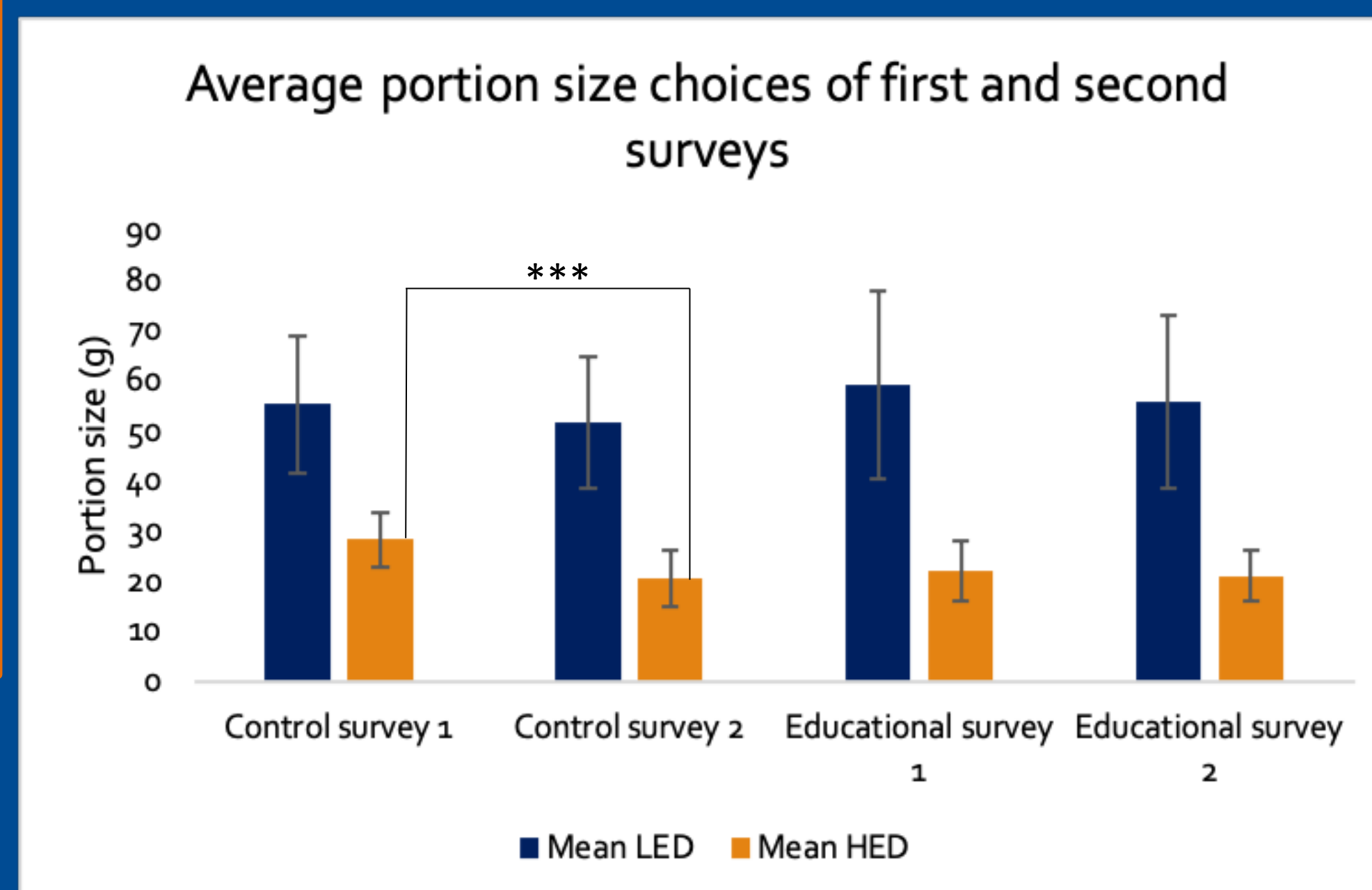


Fig 3. Mean LED and HED portion sizes chosen by participants in first and second attempts of the survey split by experimental group. \*\*\* = p < 0.05.

Portion Size Selected	LED	HED
Smaller than recommended	11.43%	14.29%
In line with recommended	1.43%	0.00%
Larger than recommended	87.14%	85.71%

Table 1. Percentages of participants who chose LED and HED snacks smaller than, in line with or larger than recommended.

## Discussion Points

- Most participants chose snack PSs greater than recommended for their children suggesting a potential disparity between how much food caregivers perceive they serve their children and how much they should serve.
- There was no effect of educational intervention on PS selection. Exposure to education documents was not sufficient to alter PS selection.
- Future research may benefit from a more robust educational intervention with more frequent exposure to educational material or utilising alternative types of multimedia to educate caregivers on appropriate portion sizes for their children.

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