

## Acceptability and usability of a 200 ml portion control tool in the family setting on the Island of Ireland

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Consumption of larger food portion sizes (PS) is an established risk factor for obesity<sup>(1)</sup>. The range of PS available has increased substantially over time, negatively impacting on consumers' judgement of appropriate PS, both inside and outside the home<sup>(2–3)</sup>. Although weighing scales and measuring cylinders are deemed the most accurate tools for estimating PS, they are considered cumbersome and time-consuming<sup>(4)</sup>. Alternatively, research has shown a 200-ml reusable cup to be an easily accessible household measure among consumers<sup>(5)</sup>. The need for user-friendly, fit-for-purpose tools i.e. cups, spoons and plates, to estimate appropriate food PS is a key prerequisite for PS control. The objective of this study was to assess the acceptability and usability of a 200-ml reusable cup as a portion control tool (PCT) within the family setting on the Island of Ireland (IoI), using a mixed methods approach.

A community-based recruitment strategy was implemented. Consenting families (n 106; urban and rural settings; Northern Ireland (NI) and Republic of Ireland (RoI)) participated in a 6-week intervention. Households were provided with an 'intervention pack' including a 200-ml cup as a PCT and an infographic with brief instructions on cup use and maintenance. Following collection of baseline demographics, a quantitative survey was administered by telephone at weeks 3 and 6 to assess general acceptability and usability (Likert scale: 1 [low] - 5 [high]), and as relating to specific meals/foods/family members. Data were collected from 83 households at week 3; 80 at week 6, followed by 4 focus group discussions (FGD) with a sample of the participating households (2 NI; 2 RoI; 4–6 participants per group; total n 21) to obtain qualitative data.

90% of households reported engagement with the PCT at week 3; 94% at week 6. At week 3, 86% of households reported the PCT as 'very acceptable', increasing to 91% at week 6. Regarding usability, respondents (81%) reported that the PCT was 'useable' at week 3, decreasing to 73% at week 6. The PCT was used most consistently for breakfast (78%; both timepoints) and for amorphous foods (week 3: 95%; week 6: 94%). Thematic analysis of FGD data suggested that use of the PCT for all members of the household was transient, with limited male engagement. Furthermore, the PCT was used most consistently for estimating children's PS following initial use. There was general agreement that the PCT resulted in perceived changes in PS behaviour in the family setting.

A 200-ml cup is acceptable and useable as a PCT within the family setting on the IoI in the short-term (6 weeks), successfully increasing awareness of appropriate food PS. Research addressing longer term PCT use is warranted with a focus on the impact of PCT's use on overall dietary intake.

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