



**Lay summary: Prevalence and predictors of weight loss maintenance: a retrospective population-based survey of European adults with overweight and obesity**

**Reference:** Scott, S.E., et al. The NoHoW protocol: a multicentre 2×2 factorial randomised controlled trial investigating an evidence-based digital toolkit for weight loss maintenance in European adults. *BMJ Open* (2019). DOI: 10.1136/bmjopen-2019-029425

**Why is this study important?** Obesity and associated diseases place a severe burden on healthcare systems. Behavioural interventions for weight loss are successful in the short term but often result in weight regain over time. Self-regulation of eating and activity behaviours may significantly enhance weight loss maintenance and may be effectively augmented by contextual behavioural approaches to emotion regulation.

**What did we do?** This study explains the design used to evaluate the effect of the NoHoW study. The study is an 18-month, 3-centre, 2×2 factorial single-blind, randomised controlled trial, which recruited 1627 participants achieving ≥5% WL between March 2017 and March 2018. Participants are randomly allocated to one of four arms: (1) self-monitoring only (self-weighing and activity tracker), (2) self-regulation and motivation, (3) emotion regulation or (4) combined self-regulation, motivation and emotion regulation. Participants attend four clinical investigation days at 0, 6, 12 and 18 months and are instructed to use the digital toolkit for 18 weeks during the first 6 months and at their discretion for the remaining 12 months. The primary outcome is change in weight (kg) at 12 months from baseline. Secondary outcomes are body composition (eg, bioimpedance analysis), health biomarkers (glycated haemoglobin, lipids, blood pressure, hair cortisol), dietary intake, physical activity, sleep, motivational, self-regulatory, emotion regulatory moderators/mediators of WLM, engagement, user experience, acceptability and cost-effectiveness of the interventions.

**What does it mean?** This is the first project to develop and evaluate (via randomised controlled trial) an information and communications technology toolkit combining continuous tracking of physical activity and body weight with theoretically informed, evidence-based digital interventions targeting self-regulation and motivation, and emotion regulation in a 2×2 design, to target long-term weight management. The 2×2 factorial design is a step forward from a conventional two-armed trial to determine the effect of self-regulation/motivation, emotion regulation interventions and their interactions on weight and health markers.