

## Myfood24 healthcare, a pilot trial of a new diet tracking app in tier 3 weight management and gastroenterology surgery patients

D.E. Threapleton<sup>1</sup>, S. Beer<sup>2</sup>, S. Trevillion<sup>3</sup>, D. Burke<sup>4</sup>, D.C. Greenwood<sup>5,6</sup> and J.E. Cade<sup>1,2</sup>

<sup>1</sup>Nutritional Epidemiology Group, School of Food Science & Nutrition, University of Leeds, Leeds, UK,

<sup>2</sup>Dietary Assessment Ltd, Nexus Building, Discovery Way, Leeds, UK,

<sup>3</sup>Tier 3 Weight Management Team, York and Scarborough Teaching Hospitals NHS Foundation Trust, York, UK,

<sup>4</sup>LIMR Division of Gastroenterology and Surgery, University of Leeds, St James's Hospital, Leeds, UK,

<sup>5</sup>Leeds Institute for Data Analytics, University of Leeds, Leeds, UK and

<sup>6</sup>School of Medicine, University of Leeds, Leeds, UK

Healthcare professionals do not have tools needed to track food and nutrient intakes in patients requiring dietary support. Monitoring nutritional intake can promote behaviour change but few existing tools provide electronic dietary recording, comprehensive food composition data, instant nutritional analysis and a platform connecting healthcare teams with patients, providing timely, personalised support. myfood24 has been validated for use in research<sup>(1)</sup> and is available as an app patients and healthcare professionals. This feasibility randomised controlled trial aimed to assess the use of 'myfood24 Healthcare' in two clinical populations. Tier 3 weight management patients in York and gastroenterology surgery outpatients, Leeds (UK) were randomised into three groups: standard care, myfood24, or myfood24+diet optimisation. Optimisation uses machine learning to suggest diet changes getting patients closer to nutrient targets. Patients were asked to record diet with the app at least four times over eight weeks. Covid restrictions meant all data was collected online. Healthcare professionals viewed patient dietary information and provided semi-structured interview feedback on usability. Patients completed an online survey after 8 weeks to provide demographic details, previous technology experience and feedback on usability and acceptability of myfood24. A total of 48 patients (21 weight management and 27 gastroenterology surgery) were recruited and randomised to the 3 groups. Covid influenced recruitment of patients and altered app delivery. Patients mean age was 51y and self-rated internet ability was only 'fair'. In the app users (n 32) compliance was good, with 25 (78%) using it at least once. Among users, the mean (SD) days recorded was 14.0 (17.5). Mean daily energy intake for weight management patients was 1060kcal (SD 513) and for gastroenterology patients 1209kcal (SD 675). Self-reported nutrient intakes varied by patient group reflecting dietary needs. 9 of the 16 allocated to the optimisation used it. Suggestions were activated on 88% of days recorded, mean 16days (SD 19). Feedback questionnaires were completed by 50%. Despite small numbers, some patients (3/16, 19%) said that symptoms had improved by using myfood24; it gave them confidence to stick to advice (4/16, 25%) and it could help them manage their condition (4/16, 25%). Over half said they would use the feedback to ask for advice at their next appointment. The mean System Usability Score was 59 (95% CI, 48 to 70). Patient and healthcare professional feedback indicates that patients found the tool easy to use. Improvements suggested related to user training when using the app and improvement of the search function. This feasibility study conducted during Covid restrictions, led to smaller numbers than anticipated, also potentially affecting response. However, results show that myfood24 Healthcare app is acceptable and useful for patients and healthcare professionals. These data have informed app refinements which are now in place.

### Acknowledgments

Thanks to our patient representatives Jacqui Gath and Pete Wheatstone for support during the study. Thanks to the Surgical Medtech Co-operative and Cath Moriarty for support; David Locker for facilitating the project in York. Thanks to Dustin Foley and Lucie Hadley for optimisation function machine learning programming.

### Reference

1. Wark PA, Hardie LJ, Frost GS, *et al.* (2018) *BMC medicine* **16**(1), 1–14.