

Development of an Irish-specific FODMAP Food Frequency Questionnaire: FISQ-Ireland



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Murphy, F^{1,2}, Doyle, S¹

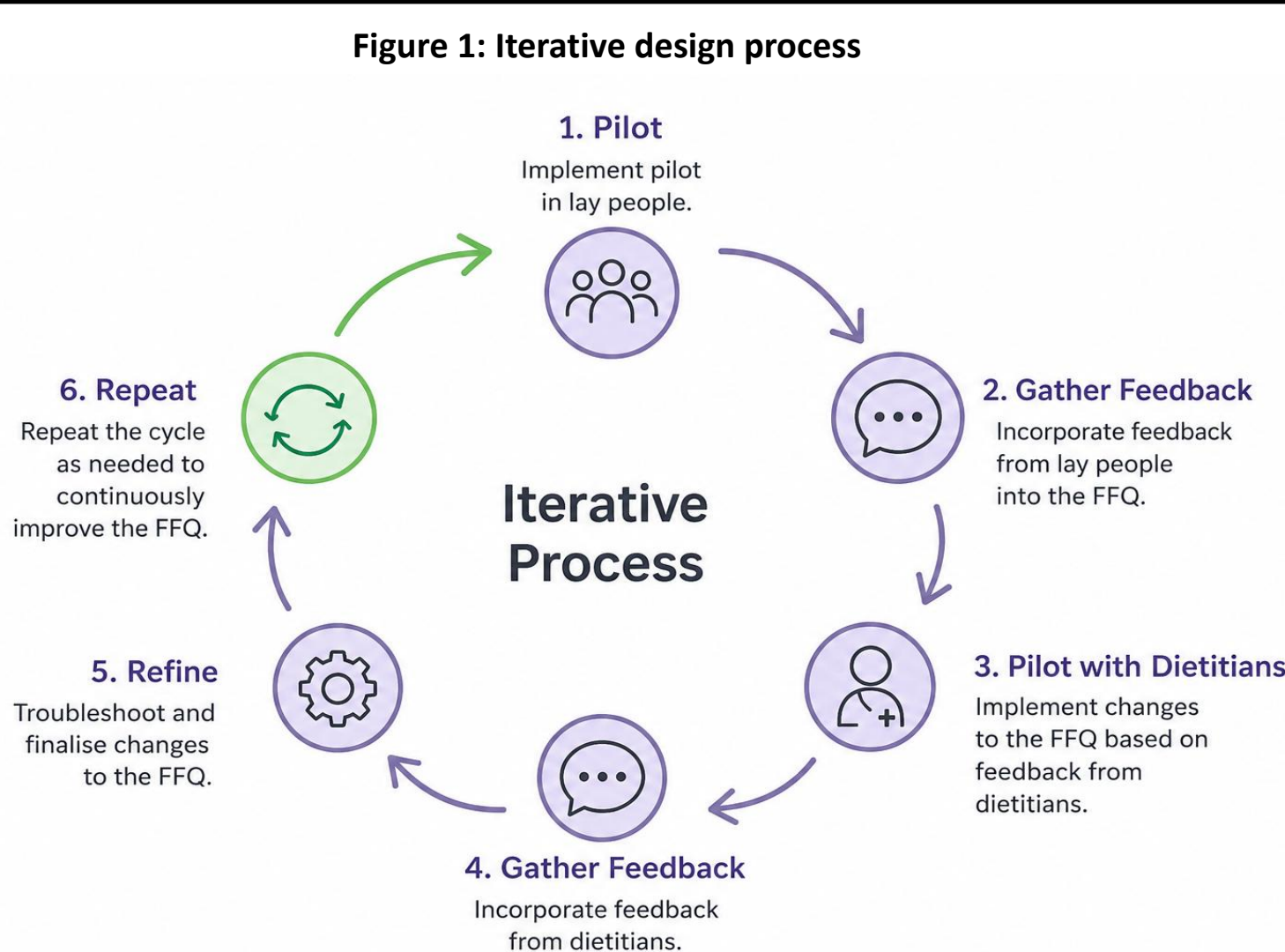
¹Technological University Dublin ²Trinity College Dublin

Introduction

- Restriction of fermentable oligo- mono- di-saccharides and polyols (FODMAPs) is a cornerstone of dietetic management of irritable bowel syndrome (IBS)¹
- In order to implement any type of FODMAP restricted diet, it is necessary to be able to quantify FODMAP intake and sources, however tools to determine the sources/quantity of FODMAP intake are scarce.
- The purpose of this project was to develop a short FFQ specific to the Irish diet for use by clinicians to estimate FODMAP intake in adults with IBS. It aimed to be accessible, clinically informative and easy to use.

Methods

- FFQ development:** Developed on MS Forms, with output generated in an MS Excel workbook. Followed an iterative process of creation, service user feedback and clinician feedback.
- Questions included:** 72 commonly consumed FODMAP foods in the Irish diet defined using the National Adult Nutrition Survey 2011 data^{2,3} together with portion size visuals and consumption frequency. Questions regarding bowel habits, symptoms, eating behaviours and lifestyle factors were also included.
- Accessibility:** The 7 principles of Universal Design^{4,5} were followed to ensure the tool was equitable, intuitive and flexible.
- Piloting:** Piloted in 43 service users recruited through public posters, email lists and online IBS forums. Piloted in 4 gastroenterology dietitians. After piloting the FFQ, participants answered the System Usability Scale tool.

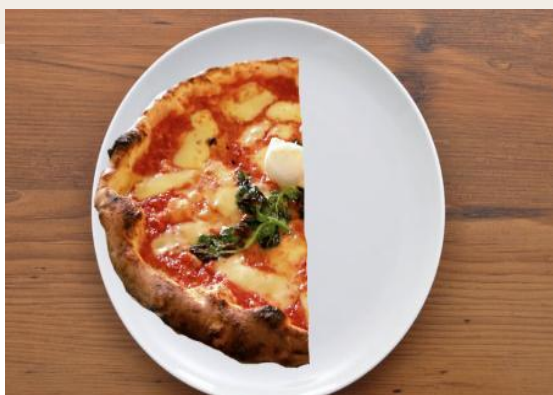


Results

1. Service user interface

How often during the month would you have pizza? *

A portion is 1/2 of a pizza



☐ Never or less than once a month

☐ 2 or 3 times a month

☐ 1 or 2 times per week

☐ 3 or 4 times per week

☐ 5 or 6 times per week

☐ Once a day

Figure 1: Sample question from the food frequency questionnaire

2. Service users perceived usability of FISQ

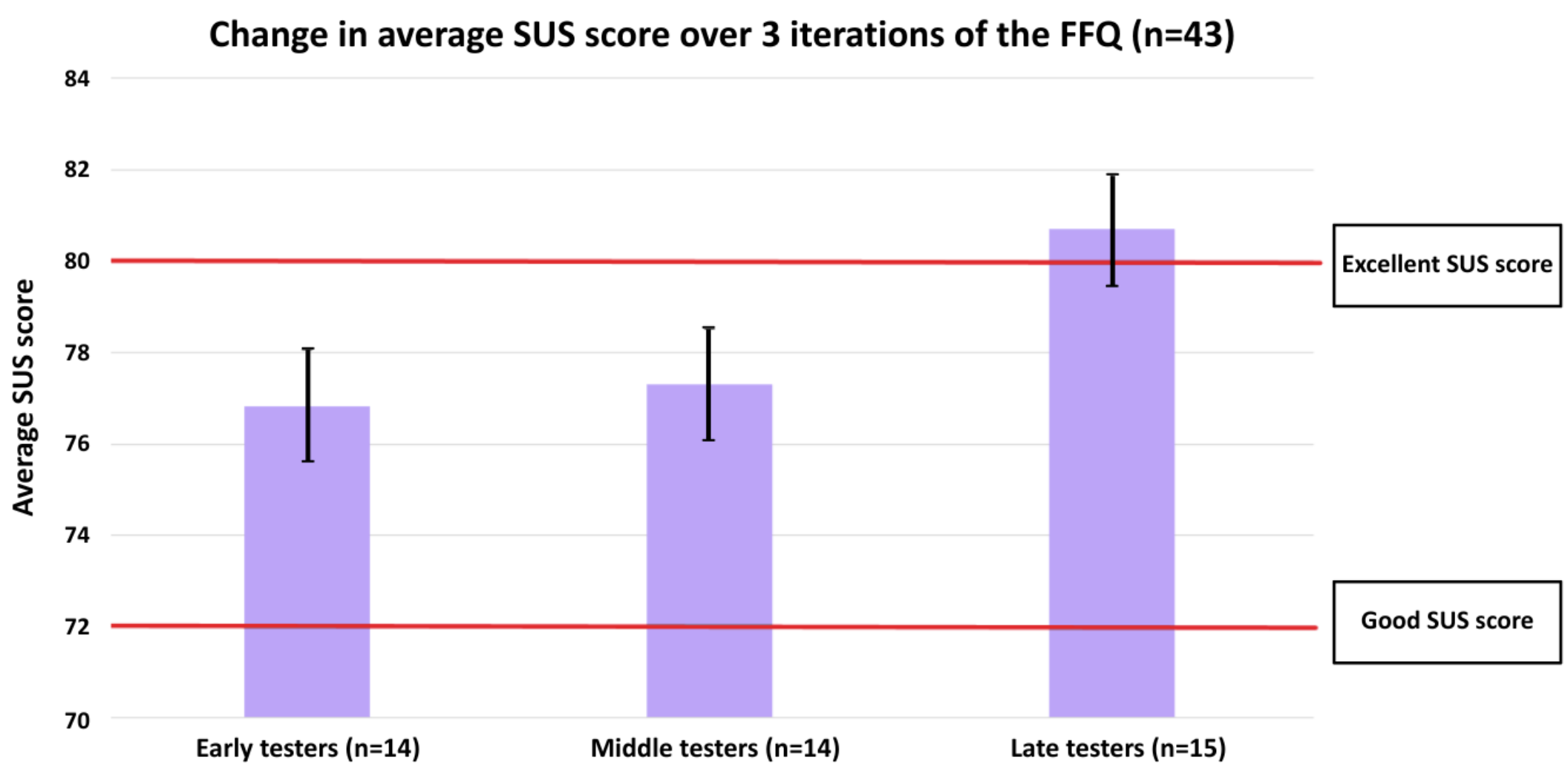


Figure 2: Change in the average System Usability Scale (SUS) score over 3 iterations of the food frequency questionnaire. Final iteration was deemed excellent

3. Output data visible to clinician

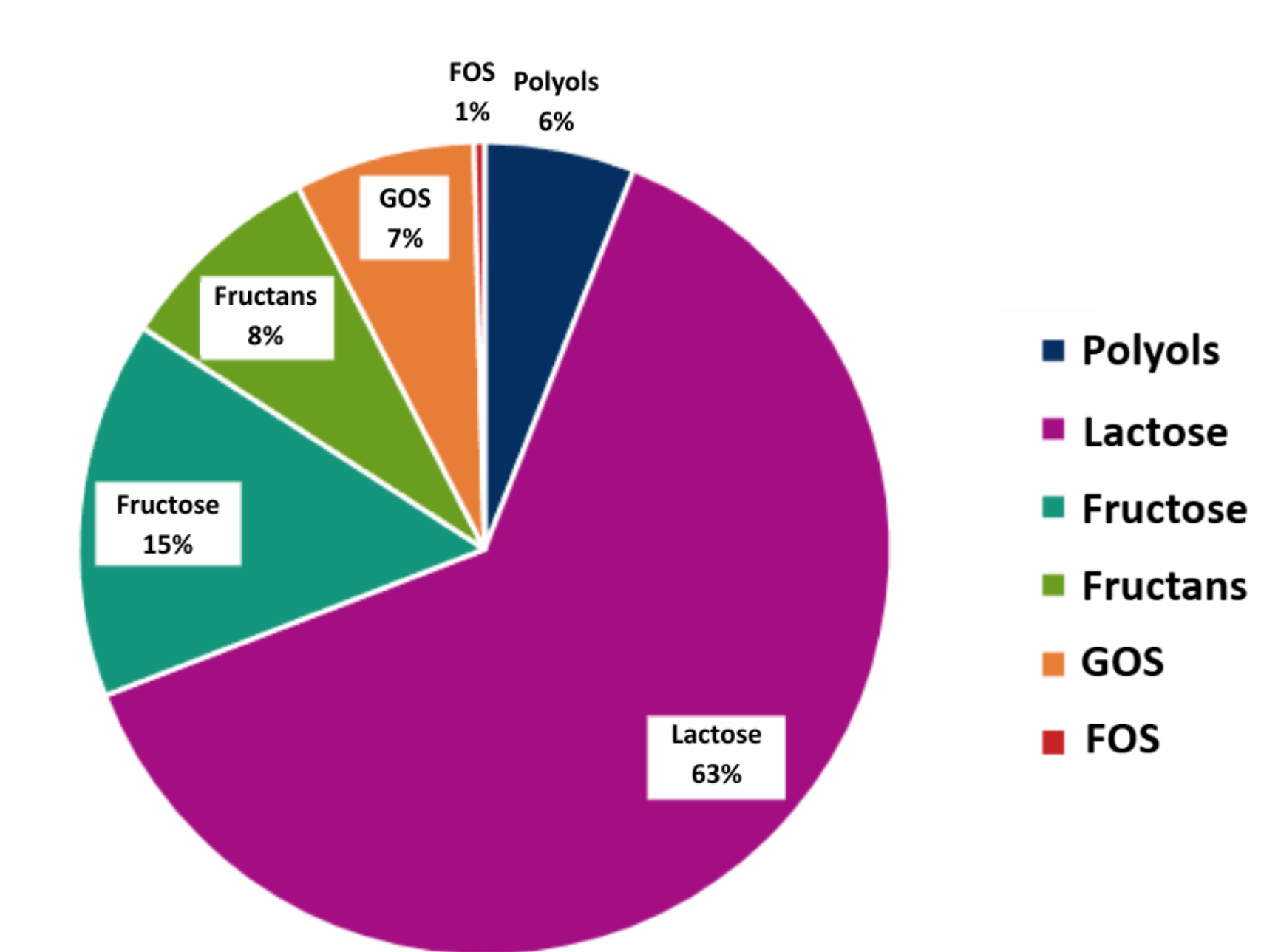


Figure 3: Proportion of FODMAPs consumed per day

IBS-SSS score 480 Symptom severity Severe

Alcohol SD >6 SD on one occasion

Less than 2 weekly Never or seldom

Cream or butter Caffiene intake

Never or seldom 6 or 7 times per week

Bristol stool type 7 - Liquid consistency with no solid pieces Bowel frequency

Once or twice daily

Takeaways Once a week Sugar-free products

No

Meal pattern I always have 3 meals a day Fatty food intake

Never or seldom

Figure 4: IBS Symptom score, bowel function & lifestyle behaviours

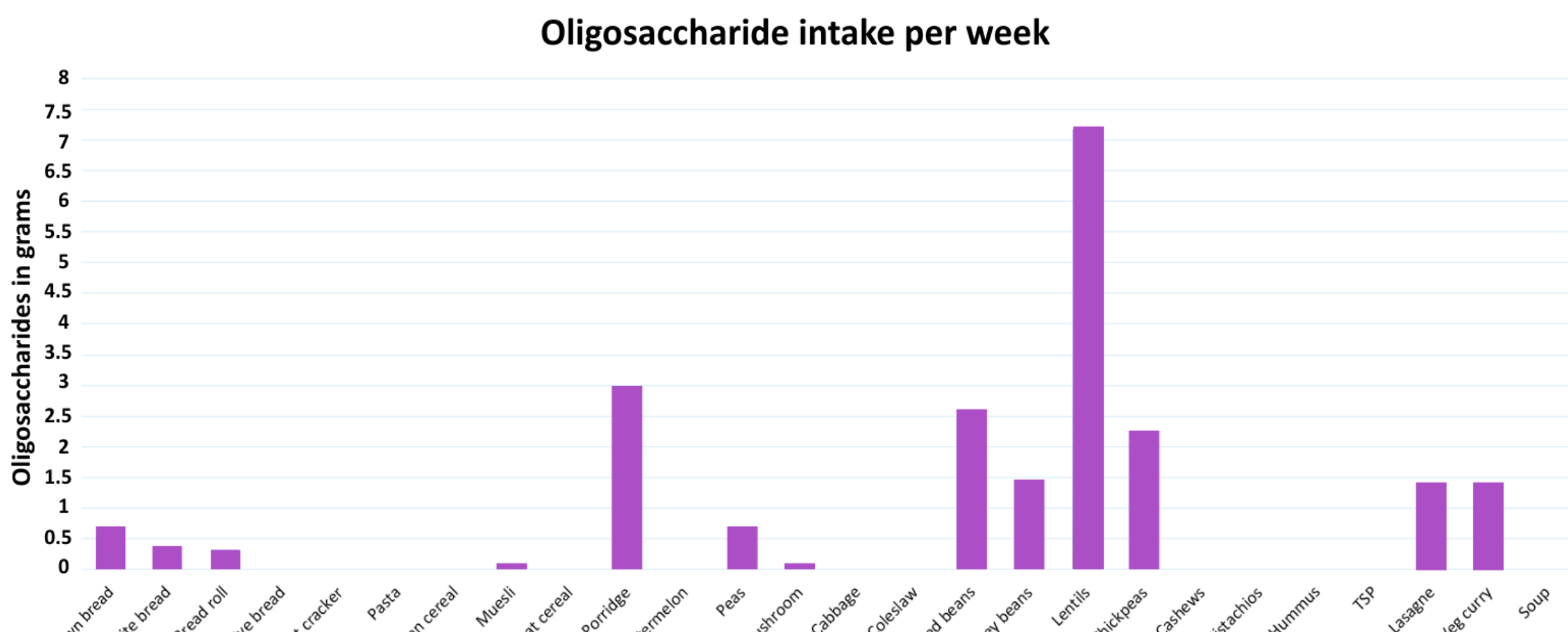


Figure 5: Sample output showing main sources of a FODMAP subtype

"very helpful.....accessible..... relevant to everyday life"

A barrier to use is "IT literacy of patients" and "Some difficulty with answers uploading to the excel sheet"

Figure 6: Quotes from participants in the pilot and dietitian trials

Conclusion

- FISQ-Ireland is the first semi-quantitative FFQ to measure the intake and sources of FODMAPs in Irish adults with IBS. The comprehensive autogenerated workbook of patient analysis can support efficient dietary assessment and targeted dietary management in clinical practice.
- The tool was deemed accessible and usable by service users, however, further work needed to improve usability for dietitians and overcome technical barriers.
- A validation study must also be completed prior to use in practice.

References and Acknowledgements

Specialist input received from Dietitian Lorraine Cooney, who provided expert knowledge and insight on the research topic. An application for intellectual property approval has been approved by TU Dublin - Invention ID: DIS-25-068

1. Lea R, Whorwell PJ. The role of food intolerance in irritable bowel syndrome. *Gastroenterology Clinics*. 2005;34(2):247-55. 2. Gibney MJ, O'Sullivan A, Flynn A, Walton J, Daniel H, Manios Y, et al. Analysis of the National Adult Nutrition Survey (Ireland) and the Food4Me Nutrition Survey Databases to Explore the Development of Food Labelling Portion Sizes for the European Union. *Nutrients*. 2018;11(1):6. 3. Sophie Ree FHI, Breige McNulty, Janette Walton, Suzanne L. Doyle. An Analysis of FODMAP Intake and Common Dietary Sources in the Irish Population. *Science Undergraduate Research Experience Journal*. in press. 4. Story MF. Maximizing usability: the principles of universal design. *Assistive technology*. 1998;10(1):4-12. 5. Story MF. Principles of universal design. *Universal design handbook*. 2001;2.