Exploring patient suggestions for the design, functionality and implementation of digital health technologies before and after bariatric surgery.

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Introduction: Healthier lifestyle changes made before and after bariatric surgery can positively impact weight-loss outcomes and overall surgical success.(1) Digital technologies, like smartphone apps and smartwatches, present an opportunity to provide surgical patients with remote support. Little is known about the optimal design or delivery of digital technologies for bariatric surgical patients.(2) This qualitative study was designed to collect perspectives of bariatric surgical patients, to work towards development of useful and effective digital strategies for this cohort, with the focus of improving surgical outcomes and success.

Methods: The COREQ checklist was followed. Pre- and post-operative patients attending bariatric surgery clinics within one hospital in the North of England were invited to take part. Purposive sampling was used to recruit a representative sample of patients. Semi-structured interviews took place between February-March 2020 and were audio-recorded and transcribed verbatim. Reflexive thematic analysis enabled the development of themes from the data. NVivo12 software assisted data organisation.

Publication pre-print available here

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Research Question: *How* should digital technologies be designed to support patients undergoing bariatric surgery; *what* do patients want from technologies and *when* should they be delivered?

Person-centred findings

1. Provide tailored and structured content:
"In the first couple of weeks (following surgery), we need to be told what to do, what exactly to do… like what to eat and what to avoid" – Patient 9.

2. Facilitate self-monitoring and goal-setting:
"If it calculates your BMI going down as well, I think that would be a really good motivational tool" – Patient 7.

3. Deliver accessible and trusted information:
"That way you can keep coming back to the information any time you wanted to, rather than looking for the leaflets they gave us" – Patient 3.

4. Meet information-seeking needs:
"I want to make sure I get it (dietary intake) right and give myself the best chance of success... I think using tech and still having the (face-to-face) appointments will give me as much support as I need" – Patient 5.

Results: Twenty patients were interviewed (average age 46-years, SD: 10.6). Ten participants (55%) had or were undergoing gastric bypass surgery. Reflexive thematic analysis enabled the development of 4 themes relating to the *design, functionality* and *implementation* of optimal digital technologies to best support bariatric surgical patients (see person-centred findings, left).

Conclusions:
This study provides key insights to fill knowledge gaps relating to the design, functionality and implementation of person-centred digital interventions for patients undergoing bariatric surgery. We did not sample participants by socioeconomic status; it is possible that varied experiences with technologies exist. Our focus was solely bariatric surgery and thus findings may not be generalisable to other elective surgical procedures. These findings have the potential to influence future work on the co-design and optimisation of person-centred digital health technologies to be used in modern healthcare.

References:
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(2) Robinson A, *et al.* Digital technology to support lifestyle and health behaviour changes in surgical patients: systematic review. BJS Open, 2020. DOI: 10.1093/bjsopen/zraa009