



Feasibility of integrating an mHealth intervention to increase exercise and physical activity adherence into a weight management service for adolescents with severe obesity: MOTIVATE-WMA

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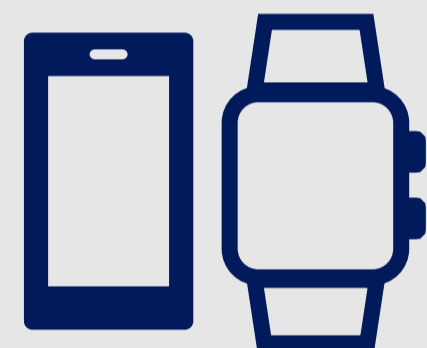
Background

Increasing exercise and physical activity (PA) should be a key component to any **weight management services** (WMS) treating adolescents with severe obesity.



But supervised exercise face challenges, due to the need for **dedicated space** and qualified staff. Additionally, supervised exercise programmes have **high attrition rates** and **low adherence among adolescents** with obesity.

Exercise interventions using **Mobile health (mHealth) technologies** have the potential to encourage engagement within paediatric WMS.



However, the **feasibility of incorporating an mHealth supported exercise and PA intervention into a paediatric WMS** has not been investigated.

Aim



Assess the **feasibility** of a 12-week **mHealth** exercise and PA intervention in **adolescents with severe obesity** receiving treatment from a tertiary WMS

Implications

- mHealth interventions could increase adherence and compliance** to exercise and PA in adolescents with severe obesity.
- MOTIVATE WMA will provide data for an **evidence-based exercise and PA intervention** that will be evaluated in a future randomised control trial.
- Qualitative feedback** from health professionals, and patients and parents will **inform integration of the intervention** into future WMS.

Study Design

This parallel group, **feasibility**, randomised control trial, consists of **baseline** testing, a **3-month intervention** period and **post-intervention testing**.



Forty, patients age **12-18** with **severe obesity** (BMI >30), will be recruited from the WMS at **Alder Hey Children's Hospital**.

Patients are **randomised** to either **continue with usual care**, or usual care with the **additional mHealth intervention**.

Study Outcomes

Feasibility Outcomes

Interviews

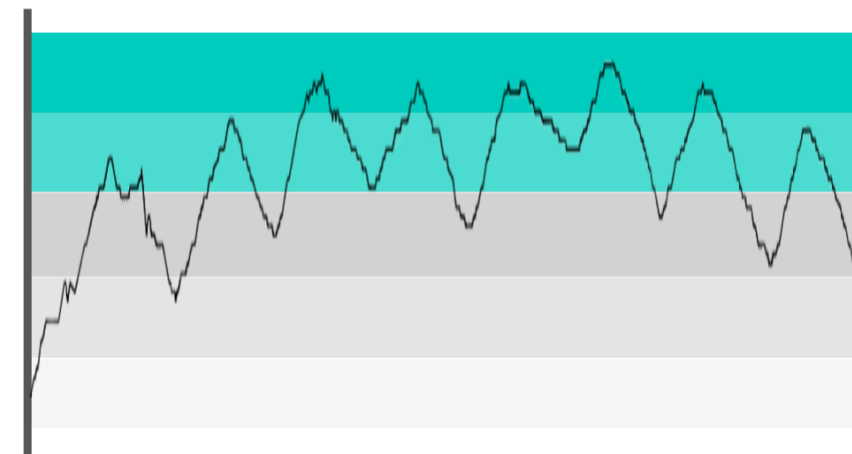
- Patient and Parent interviews
- Health professional focus group

Exercise Adherence

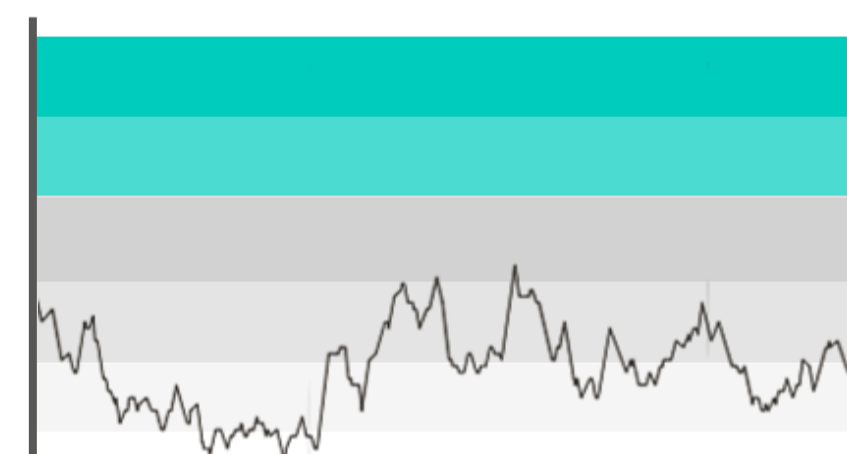
- Heart Rate (HR) recorded during exercise

Adherence is defined as any **completed exercise session**

Compliance is defined completing an exercise session at the correct **intensity** for the correct **duration** (see example below).



Compliant Session



Non-Compliant Session

Health Outcomes

Anthropometrics

- Height
- Weight
- Waist circumference
- Body fat %



Lipids

- Cholesterol
- Triglycerides
- High density lipoprotein
- Low density lipoprotein



Cardiovascular Health

- Blood Pressure



Glucose Control

- 14-day flash glucose monitor
- HbA1c



Quality of life

- KIDSCREEN-52
- PedsQL



Physical Activity

- 14 day Gene-Activ PA Watch
- 14-day Activ-Pal sensor



Methods

Interventions

Usual Care



A **blinded heart rate** monitor will be given to the usual care group to record any exercise.

Adolescents with obesity treated at a tertiary WMS have access to a multidisciplinary team including:

- Endocrinology
- Psychology
- Dietetics
- Outreach nursing
- Physiotherapy

mHealth Intervention – Exercise counselling supported by mHealth

EC1: Week -1

Current beliefs/concerns & SMART goal setting

EC2: Week 0

Develop personalised exercise/PA programme

EC3: Week 4

Patient feedback & finalisation of exercise/PA programme

EC4: Week 8

Patient feedback & review of progress

EC5: Week 12

Exit strategies to maintain exercise/PA behaviour

mHealth Intervention – mHealth biometrics to encourage communication



Smart Watch

- Guides planned exercise sessions
- Real-time HR feedback
- Records session for review



Mobile Application

- Preview planned exercise sessions
- Retrospective HR feedback



Online Coach Platform

- Plan personalised exercise sessions
- Retrospective view of completed exercise sessions

Mobile Health biometrics

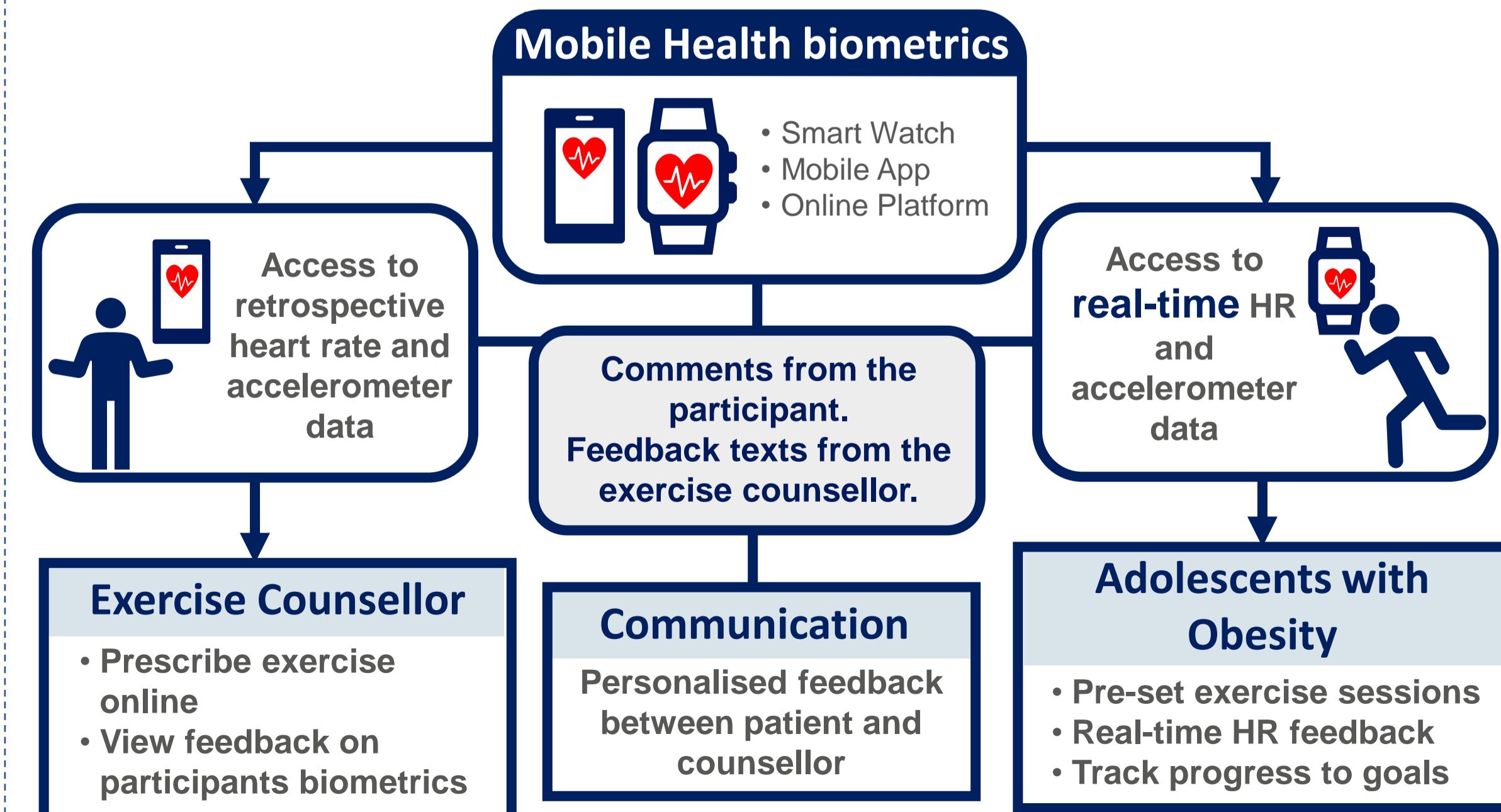


Figure 1. The use of mobile health biometrics to encourage communication between the healthcare providers and adolescents with severe obesity.