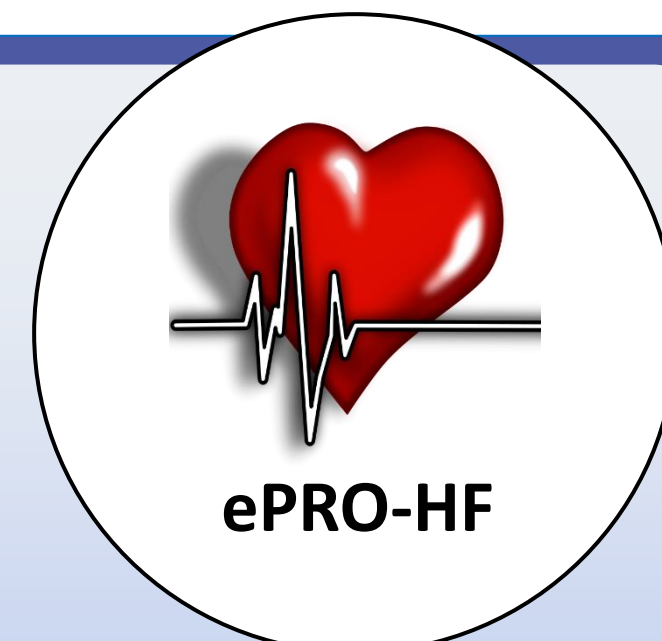


# Implementing Electronic Patient-Reported Outcome measures for use by Heart Failure (ePRO-HF) patients in the community to prevent admission: A feasibility study in the UK.

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ePRO-HF

## Background

- Heart failure (HF) is increasing in prevalence,(1) affecting over 64 million people worldwide,(2) and is the top cause of preventable hospitalisations in Europe.(3)
- People with HF often have multiple long-term conditions, frequent symptoms and declining health status.
- Early identification of people with HF who are at high risk of hospitalisation is a critical challenge as deterioration is poorly predicted by clinicians, patients and carers.(4)
- Based on our previous Core Outcome Measures in Effectiveness Trials (COMET) adopted outcome set for Patient Reported Outcome Measures (PROMs) important prior to admission in HF,(5) we wanted to test the feasibility of patients using a simple patient centred app (ePRO-HF) in routine HF care to record symptoms and health.

## Methods

- Patients with a diagnosis of HF from two NHS Trusts in England and a national patient HF network were included.
- Following consent, they received an online training session on how to install and use the ePRO-HF app (Figure 1).
- They were asked to rate their symptoms using simple numerical scales (1-10) weekly for a minimum of 6-months and complete the monthly health questionnaires (Kansas City Cardiomyopathy Questionnaire (KCCQ-12), the Brief Illness Perception Questionnaire (B-IPQ) and the 2-item Patient Health Questionnaire (PHQ-2)).
- Measures of feasibility and acceptability were based on established cut-offs: consent proportion ( $\geq 40\%$ ), retention (65%), completion of  $\geq 50\%$  follow-up measures and capture of 100% information by the central database.
- A quantitative survey was administered at the end of follow-up on study design and intervention feasibility and acceptability.

## Results

- Of 30 HF patients approached, 27 (90%) consented to participate and 26 (96%) patients completed the baseline survey. 25 (93%) proceeded to use ePRO-HF (15 women and 11 men, median age 53 [IQR 48 to 60]).
- At baseline 24 (92%) patients reported experiencing symptoms, with the most prevalent being dyspnoea 81%, fatigue 69%, pain 46%, and dizziness 27%.
- All patients used the app for a minimum of a month with 22 (88%) using the app for  $>6$  months. The median number of ePRO-HF weekly symptom submissions was 1.1 (0.9, 2.5) over a duration of mean 8 (SD 2.2) months with a median of 4.2 (3.8, 9.9) per month.
- 80% completed  $>50\%$  of weekly submissions each month and 60% completed all weekly submissions.
- 17 patients (63%) completed all six, monthly health surveys (KCCQ, B-IPRQ, PHQ-2) and 20 (82%) completed  $>50\%$ .
- 22 (88%) patients completed the feedback survey (**Table 1**).
  - Of these, 73% had reported not recording symptoms prior to using ePRO-HF.
  - Patients reported that the app helped them to monitor symptoms and weight (n=18, 82%), understand symptom change (n=15, 68%) and was an acceptable way to monitor symptoms (n=17, 77%).
  - Only 32% felt that the app helped them communicate their symptoms to a health professional and 82% stated that they would like the app to give them a prompt to seek advice from health care professionals

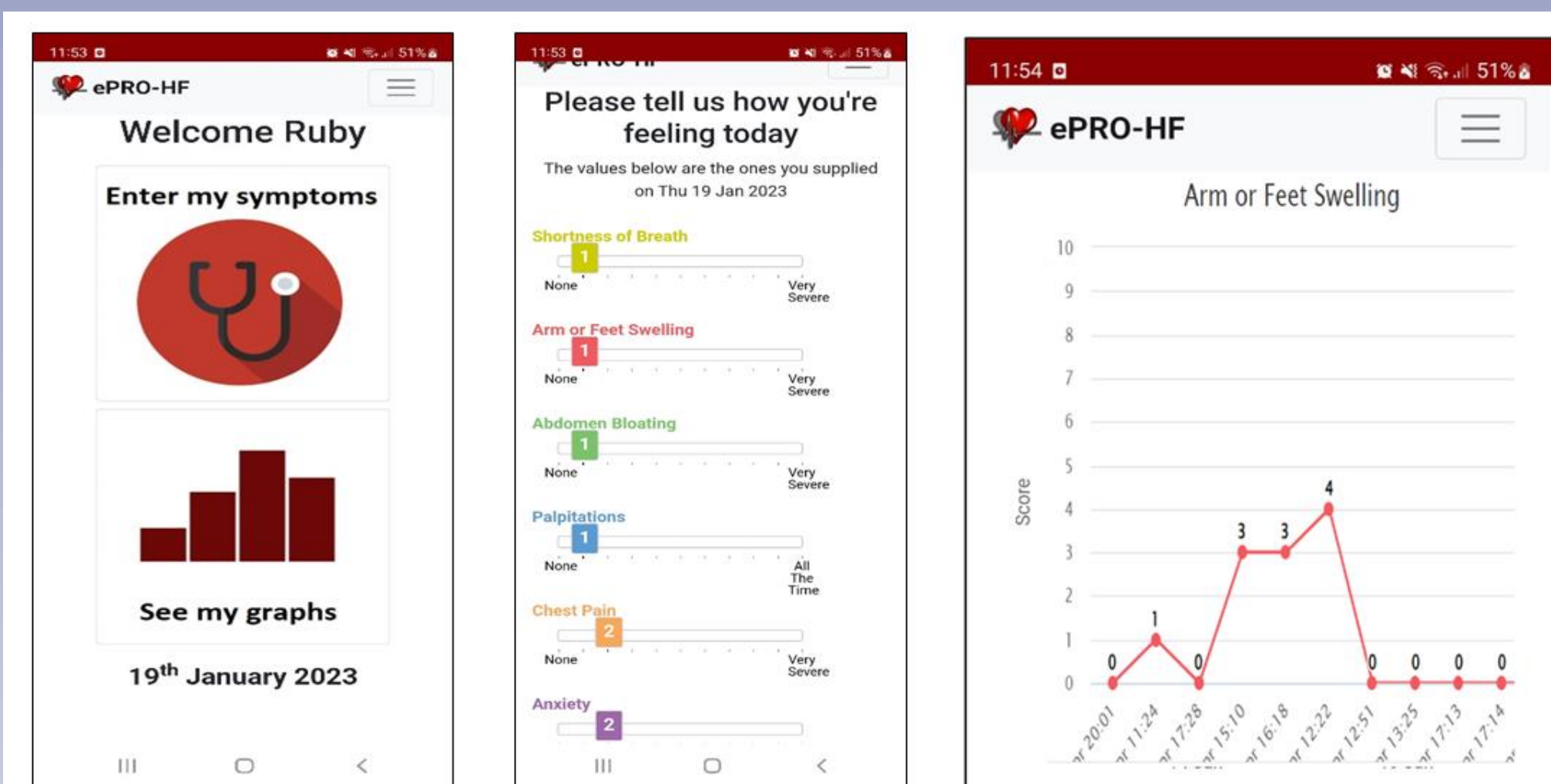


Table 1: Post study patient feedback questionnaire

Domain	Agree/ strongly agree (N; %)
<b>Usefulness</b>	
I used to record my symptoms previously	6 (27%)
I used to record my weight previously	12 (55%)
The app helped me to monitor my symptoms and weight	18 (82%)
The app helped me to understand change in my symptoms and weight	15 (68%)
Important symptoms were included	14 (64%)
<b>Ease of use</b>	
Easy to learn	22 (100%)
Quick to use	22 (100%)
Simple and easy to understand	22 (100%)
I could move between screens easily	21 (96%)
I needed carer/family support to complete the app	3 (14%)
<b>Appearance</b>	
The app looked nice	16 (73%)
I liked using the app	17 (77%)
The graphs were clear	18 (82%)
The weights charts were clear	19 (86%)
Communication with HCP	
I showed my symptoms to HCP	4 (18%)
The app helped me communication my symptoms	7 (32%)
<b>Reliability</b>	
Symptoms/weight recorded accurately	20 (91%)
Symptoms/weight easy to retrieve	20 (91%)
Symptoms/weight easy to edit	18 (82%)
<b>Satisfaction</b>	
Acceptable way to monitor symptoms	17 (77%)
I would use the app again	14 (64%)
I am satisfied with the app	17 (77%)
I would like the app to give me a prompt to seek advice from HCP	18 (82%)

## Conclusion:

A simple patient centred app is a feasible and acceptable way for HF patients to monitor their symptoms and health. Further work is needed to understand how communicating symptoms and health to health professionals can be improved and the potential to include a simple prompt to help patients seek timely advice.

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