Home-based cardiac rehabilitation and health-related quality of life in people with heart failure: the SCOT:REACH-HF study

Journal Item

Home-based cardiac rehabilitation improves the health-related quality of life of people with heart failure: Summary of the design, findings, and implications of the SCOT:REACH-HF study.

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Background

There is compelling evidence that participation in cardiac rehabilitation (CR) improves the health-related of quality of life and reduces the risk of hospitalisation of people with heart failure (HF).[1] CR is a class I grade A recommendation of national and international clinical guidelines for HF management.[2] Despite these clear benefits and strong guidance, CR referral and participation rates remain stubbornly poor across the globe. Whilst the reasons for this are complex and multilevel, a key access barrier is the cost and inconvenience of the traditional centre-based mode of CR delivery.[3] Provision of modern evidence-based alternatives of CR, including home-based, digital technology-supported, and hybrid (combing centre and remote) programmes are urgently needed.[1]

REACH-HF is a comprehensive home-based rehabilitation and self-care support programme, co-developed with people with heart failure and clinicians. The programme is supported by healthcare professionals over a 12-week period. The clinical effectiveness and cost effectiveness of the REACH-HF intervention in people with HF with reduced ejection fraction (HFrEF) have been confirmed by a UK mutlicentre randomised controlled trial and economic modelling.[4,5]

The SCOT-REACH HF study

The SCOT:REACH-HF study was designed to assess the 'real world' implementation of the REACH-HF home-based CR intervention for people living with HFrEF and their informal caregivers in Scotland, in order to inform future potential scaled roll-out across NHS Scotland. The study findings were recently published in the European Journal of Cardiovascular Nursing.[6] This paper provides a summary of the study methodology, findings. and implications for practice and policy.

Methodology

The study used a mixed-method, single arm, pre-post design, and collected both quantitative and qualitative data. CR services in six NHS Scotland regional Health Boards were included as early adopter sites: NHS Ayrshire and Arran; NHS Lanarkshire; NHS Forth Valley; and NHS Highland, Orkney, and Shetland . Using existing CR referral pathways, sites recruited people with a confirmed diagnosis of reduced ejection fraction HF. The person with HF was asked to nominate a friend or family member to participate as a 'caregiver' (that is, a spouse, relative, or friend who typically provided them with unpaid support). Three categories of data were collected: (i) participant (patient and caregiver) reported outcomes at baseline (pre-intervention) and following REACH-HF at four-month follow-up; (ii) information on cost of the REACH-HF intervention to NHS Scotland; and (iii) interviews with REACH-HF facilitators,

service providers and key stakeholders. Pre-specified statistical and qualitative analysis plans were developed and finalised prior to commencing data analysis.
For people with HF, the primary outcome was disease-specific HRQoL (Minnesota Living with Heart Failure questionnaire (MLHF)). Secondary outcomes included: CR-specific HRQoL (modified PROM-CR+),17 generic HRQoL (EQ-5D-5L), psychological wellbeing (Hospital Anxiety and Depression Scale (HADS)), HF self-management (Self-Care in Heart Failure Index (SCHFI)), and health literacy (selected sub-scales of the Health Literacy Questionnaire (HLQ)). Caregiver outcomes included generic HRQoL (EQ-5D-5L), caregiver specific HRQoL (Family Caregiver Quality of Life Scale (FAMQoL)), psychological well-being (HADS), and caregiver burden (Caregiver Burden Questionnaire for Heart Failure (CBQ-HF)).

Findings

Between 4th March and 22nd October 2021, 136 people with HFrEF and 56 caregivers were recruited. Of these, 124 people with HF and 46 caregivers provided baseline data. 101 people with HF and 26 caregivers (81% and 57%, respectively, of those completing baseline assessment) completed four-month follow-up at the end of the 12-week REACH-HF programme.
Most participants with HF were men (72%), NYHA class II-III (94%), with a mean age of 68 years, and left ventricular ejection fraction of 31%. Co-morbidities included atrial fibrillation (48%), hypertension (48%), and myocardial infarction (34%). Most were receiving HF standard of care drug therapy.
At four-month follow-up, MLHF total scores improved compared to baseline (mean within-group difference of -9.8 (95% CI: -13.2 to -6.4, P<0.0001), with 62 of 98 participants (63%) having a change that met the minimally important clinical difference of ≥5 points. Pre-post improvements (P≤0.05) were also observed for: the EQ-5D-5L; SCHFI self-care maintenance and symptom perception sub-scales; HLQ ‘actively managing my health’ sub-scale; and all PROM-CR+ sub-scales. Non-significant improvement (P>0.05) was seen in: the SCHFI self-care management sub-scale; three HLQ sub-scales (‘feeling understood and supported by healthcare providers’, ‘ability to actively engage with healthcare providers’, ‘understand health information enough to know what do to’); or in the HADS depression and anxiety sub-scales. Although there was a trend to benefit for several caregiver outcomes, this was only statistically significant for the CC-SCHFI management and symptom perception sub-scores. Including facilitator training, REACH-HF material costs, and average facilitator total REACH-HF delivery time, the average cost for delivery of the REACH-HF intervention was estimated at £397.22 per patient.

Twenty qualitative interviews were conducted with 11 REACH-HF facilitators, five supporting clinicians, and four national stakeholders. Interviewees were largely positive about REACH-HF, considering it to have 'filled a gap' where centre-based CR was not an option. Key factors which would support future roll-out were also identified, including a perceived need to 'reimagine' current models of CR provision for HF.

Implications

The SCOT:REACH-HF study demonstrates that REACH-HF is an affordable home-based CR programme which can be routinely implemented in the 'real world' of NHS Scotland. Furthermore, participation in REACH-HF resulted in substantial gains in the quality of life and health outcomes of people with HF . Reassuringly, the pattern and magnitude of gains in patient-reported outcomes in SCOT:REACH-HF are consistent with those seen in the REACH-HF randomised trial. Our findings also echo the international body of literature showing that HRQoL improvements for people with HF engaging in home-based CR are similar to those participating in centre-based provision.[1]

Findings from the SCOT:REACH-HF study support scaled roll-out of the home-based REACH-HF programme across NHS Scotland, as an alternative to traditional centre-based models, in order to improve future CR access and uptake for people with HF and their families.

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