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# The impact of a self-management patient education program for patients with chronic heart failure undergoing inpatient cardiac rehabilitation

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### ABSTRACT

**Objective:** To evaluate a patient-centred self-management educational group program for patients with chronic systolic heart failure as compared to usual care education during inpatient cardiac rehabilitation. **Methods:** A multicentre cluster randomized controlled trial of 475 patients was conducted. In the intervention condition, patients received the new self-management educational group program whereas in the control condition, patients received a short lecture-based educational program (usual care). The primary outcome was patients' self-reported self-management competence. Secondary outcomes included self-management health behaviour, health-related quality of life, and treatment satisfaction. Patients completed self-reported outcome measures at admission, discharge, and after 6 and 12 months. **Results:** There was a significant small between-group intervention effect on certain dimension of patients' self-management competence (self-monitoring and insight) in short term ( $p < 0.05$ ). Furthermore, significant small effects were observed for treatment satisfaction at discharge as well as symptom monitoring after 6 months ( $p < 0.05$ ) and by trend on symptom monitoring and physical activity after 12 months.

**Conclusions:** The patient-centred self-management program might be more effective in certain self-management outcomes than a usual care education in both short-term and long-term periods.

**Practice implications:** Therefore, such programs may be considered for dissemination within cardiac rehabilitation.

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## 1. Introduction

Chronic heart failure (HF) is a disease that requires a complex treatment regimen over a life-long period. Therefore, self-care/self-management is an essential part of successful treatment in patients with HF [1,2]. There is evidence for the effectiveness of

self-management interventions and patient education for HF patients regarding knowledge, self-efficacy, self-management behaviours, health-related quality of life, hospitalization and mortality [e.g., 3–5]. However, studies show methodological shortcomings and further research is needed to determine independent effects of specific self-management interventions as well as different combinations of interventions [4].

For HF patients, essential educational topics that should be covered include pathophysiology and aetiology, symptoms and signs, pharmacological treatment, risk factor modification, diet and exercise, sexual activity, immunization, sleep and breathing disorders, adherence, psychosocial aspects and prognosis, each

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associated with certain skills or self-management behaviours [2]. Thus, the focus on knowledge and providing information only may not be sufficient, and guidelines recommend comprehensive HF education and counselling targeting skills and behaviour [1,2]. Effective means for delivery may include individualization of content, use of combined mediums, provision of education on a one-on-one basis, and in multiple sessions, but studies that describe group delivery are missing [6]. Thus, studies need to explore the effects of patient education programs provided in a group format, as well as effects of specific educational techniques and identify subgroups of patients who benefit most.

Patient education is an essential part of cardiac rehabilitation [7] for HF in Germany. Nevertheless, at the time of the conception of our study no evaluated educational group programs for HF-patients had been available for routine use so far. Moreover, many German patient education programs still lack certain quality requirements, such as the use of manuals, patient-oriented didactics, small-group format and evaluation of effectiveness [8]. In addition, few studies have compared different educational approaches applied within a multidisciplinary rehabilitation program in an inpatient setting [e.g., [9,10]].

Therefore, this study evaluated the short-, intermediate- and long-term effects of a patient-centred self-management educational group program as compared with a usual care program for HF patients receiving inpatient cardiac rehabilitation. We hypothesized that the self-management education group program is superior to usual care regarding self-reported self-management competence (primary outcome). In addition, we expected superior

effectiveness of the new program regarding several self-management behaviours, as well as health-related quality of life (HRQL), and treatment satisfaction (secondary outcomes).

**2. Methods**

*2.1. Design and procedure*

This study was a multicentre cluster randomized controlled trial (RCT; WHO International Clinical Trials: DRKS00004841) in four cardiac rehabilitation clinics in Germany. Clusters were patient education groups that comprise HF patients recruited within two weeks after commencement of inpatient rehabilitation. Clusters were randomly assigned to the two treatment groups using a computer-generated list of random numbers. Randomization was performed by a scientific assistant at the research institute (central randomization per phone or e-mail) guaranteeing allocation concealment until a complete cluster had been recruited. Eligibility criteria for participants were a diagnosis of chronic systolic heart failure (ICD-10: I50), left ventricular ejection fraction (LVEF) of  $\leq 40$ , and New York Heart Association (NYHA) functional classification II or III. Exclusion criteria were acute events of decompensation, cognitive impairment, inadequate German language ability, and severe visual or hearing impairment. In the intervention group (IG), patients received the new patient-centred self-management educational program, whereas in the control group (CG), patients received a short lecture program (usual care). Data were assessed at admission (t1) and three

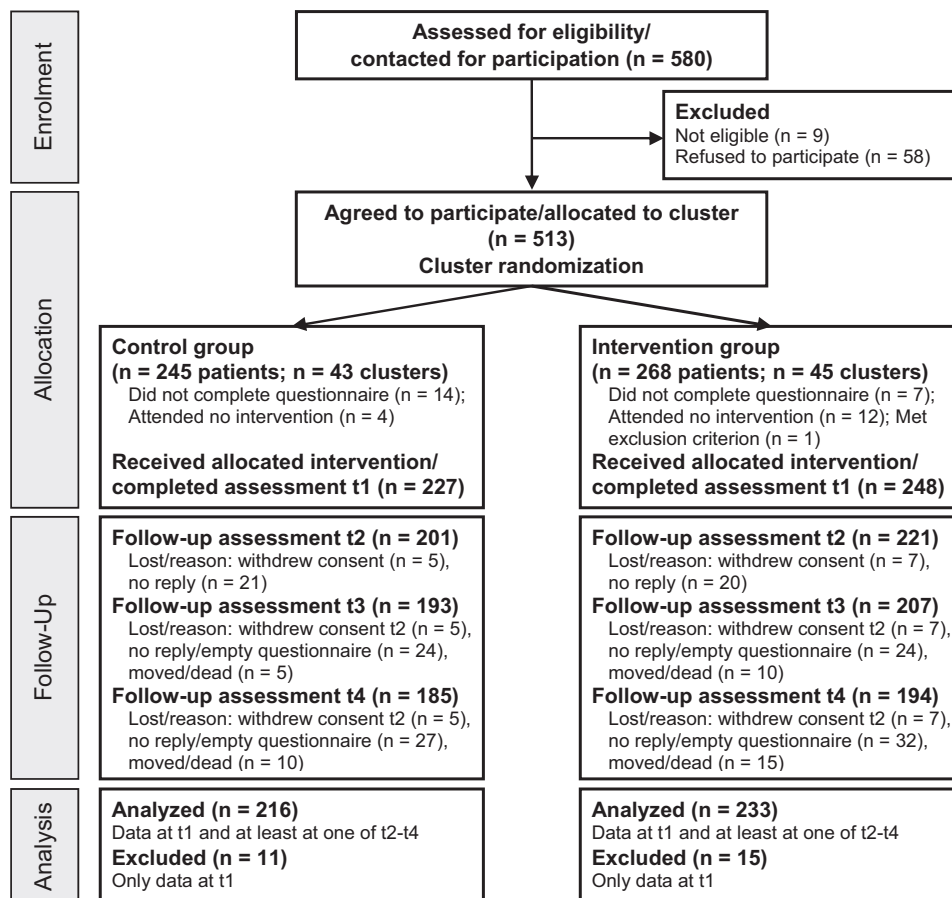


Fig. 1. Patient flow diagram.

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