

XXXV CICLO - Anno Accademico 2020/2021

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Titolo tesi: The TeMP_Cardio nurse-led model of care to manage patients with stable heart failure in primary health care

ABSTRACT

Background: Heart failure is one of the chronic diseases that heavily impact the quality of life and healthcare costs. The recent management guidelines for heart failure have recommended the development of proactive management programs that provide a multidisciplinary approach capable of ensuring patients' education, patients' engagement in self-care processes, and adequate follow-up. Furthermore, several international and national reforms have been published to strengthen the primary health care organization and the role of family and community nurses.

The models of care studied so far on patients with heart failure have been evaluated mainly on rehospitalization and mortality rates, less on patient reported outcomes including self-care skills and on caregiver outcomes. Positive results on rehospitalizations have been reported, but the results are still conflicting. In addition, few studies, also including telemedicine interventions, have evaluated the proactive and preventive management of stable and uncomplicated patients. Most of the studies were conducted in hospital specialist clinics with little involvement of community resources and general practitioners. In addition, many studies tested individual interventions, such as telemonitoring, making it difficult to translate complex interventions into organizational models, where multiple elements must work synergically. Therefore, the aim of this project was to develop and test the feasibility of a complex model of care to manage patients with stable heart failure in primary health care led by family and community nurses.

Methods: The project has been developed through multiple phases. Firstly, literature has been reviewed in two steps (a) performing a scoping review to identify innovative models of care in primary health care to manage chronic conditions and (b) collecting methodological challenges and possible solutions to be considered in planning and testing a new model of care in primary health care. Secondly, through multiple research meetings, the Telemedical Multidisciplinary Program for cardiac failure (TeMP_Cardio) model of care has been designed. Lastly, the TeMP_Cardio model of care has been piloted in a six-month pragmatic single arm quasi-experimental study composed of a mixed-method study at three months and a pre-post study at six months. The TeMP_Cardio model of care has been tested in a district of the Province of Trento, North Italy, in 2021-2022 on patients with stable heart failure and able to reach outpatient health services autonomously or accompanied. Caregivers were included if they contributed to the heart failure self-care of included patients e.g., helping in managing drugs, daily life activities, and symptoms.

Results: From the first scoping review, 67 international studies out of the 6,540 have been included. The prevalent study design was the observational design (25 studies, 37.3%), and 62 studies (92.5%) were conducted on the adult population. The models of care emerged were mostly grounded on the Chronic Care Model framework followed by case or care management, and models centred on the involvement of pharmacists or community health workers. Across the organizational models, self-management support and multidisciplinary teams were the most common components. Clinical outcomes have been investigated the most, while caregiver outcomes have been detected in the minority of cases. Almost one-third of the included studies reported only significant effects on the outcomes. No sufficient data were available to determine the most effective models of care. However, more complex models seem to lead to better outcomes. From the second step of literature review, collecting methodological challenges and

solutions, we found that the study designs most appropriate in primary health care were observational, randomized cluster and/or pragmatic trials, stepped wedge designs, and mixed-method studies. Strategies to involve the population, e.g., with participatory research, and to assess intervention fidelity emerged as relevant. In addition, in the outcome selection, literature suggests that the patients' and caregivers' outcomes should be considered to a greater extent. On the basis of literature review results, the TeMP_Cardio model of care has been designed comprising of four main components, namely (a) the nurse-led multidisciplinary patient management, (b) the intervention by family and community nurses (FCNs) to support heart failure self-care abilities, (c) the intervention by FCNs to support families and caregivers, and (d) technological interventions. In the pilot study, testing the feasibility of the TeMP_Cardio model of care, 26 patients out of 137 were included and nine of their caregivers. At three months, 25 patients and eight caregivers completed the follow-ups and 19 patients, and seven caregivers were interviewed. Self-care improved significantly in all dimensions, with the highest difference emerging in self-care monitoring, and most patients and caregivers were satisfied with the model of care. With mixed-method analysis, we found that participants who improved their self-care reported having appreciated founding new coping strategies, being near the clinic and feel taken care of. Participants with fewer improvements in self-care perceived the model of care as useless as they find themselves in stable health conditions and were far from the nursing clinic.

At six months, 23 patients and seven caregivers completed the study. Self-care skills improved in patients, mostly in self-monitoring, and less in caregivers. One access to the emergency department for heart failure exacerbation was detected. The FCNs performed 234 follow-ups, of which 128 (54.7%) were by telephone, while 27 specialized services were activated, for example, dietitian, social worker, and psychologist.

Ten participants accepted to use the mobile app and the app was used regularly by five participants across the six months. Patients or caregivers decided to use the app mainly for a usefulness prevision and most were satisfied. The main reason for not accepting the app was the inability to use the smartphone or apps.

Conclusion: A community-based nurse-led model of care might have a positive impact on managing stable heart failure patients outside the hospital. Adjustments are needed to improve the recruitment strategy and to engage people who perceive the model of care as not useful or are not able or willing to use the app.