

# The effectiveness of telehealth care for improving caregiver burden, mastery of stress, and family function among family caregivers

The management of chronic cardiovascular diseases, especially chronic heart failure, depends on multiple factors, including patient education, maintaining or achieving ideal body weight, strict sodium and water restriction, lifestyle modification and adherence to medical prescriptions. Family caregivers who provide direct patient care at home, often bear the feeling of FOG (fear, obligation and guilt) during patient care due to disease-related uncertainty; physical, psychosocial, social and financial stresses; negative emotions or sarcasm from the patient; and criticism from other family members.

Telehealth services, an emerging health care model, may improve the clinical outcome of patients with chronic cardiovascular disease/heart failure. Telehealth services include health education, diet therapy, fluid status evaluation, adverse drug effects evaluation, drug compliance monitoring, mood or emotional care, and patient surveillance through advanced information technology-based monitoring systems. Nurse case managers track and scrutinize the clinical information carefully and contact the patient or relatives at least once per day (except in cases in which the patients have indicated that they would not prefer daily interactions) or when abnormal data are transmitted back to the service station at

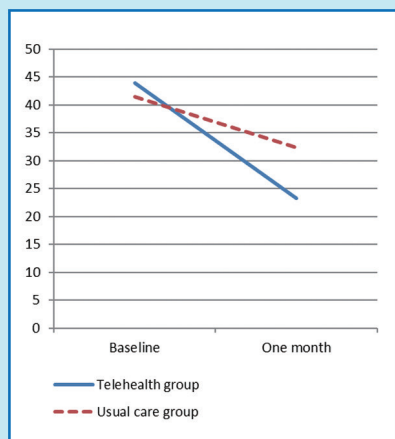
the telehealth center. However, measurements of the benefits of telehealth services focus mainly on the patients themselves, and the caregivers who are bound to the patient care process are often left neglected. Evidence from systematic reviews supports the use of telehealth services for patients with chronic cardiovascular disease/heart failure because it can reduce health expenditures, total mortality and hospital admissions. However, the impact of telehealth services on caregivers remains unanswered.

One quasi-experimental design by the TELEHEALTH study group addressed this issue and evaluated the effects of nursing-led transitional care that combined discharge plans and telehealth care on family caregiver burden, stress mastery and family function in the family caregivers of heart failure patients and compared these effects to those of caregivers when the patient received traditional discharge planning only. Family caregivers, especially those in the telehealth care group, had significantly lower burdens, higher stress mastery, and better family function at the one-month follow-up than before discharge. Telehealth care combined with discharge planning was associated with a 47% decrease in the Caregiver Burden Inventory (CBI) score, indicating a reduction in the family caregivers' burden, including temporal, developmental,

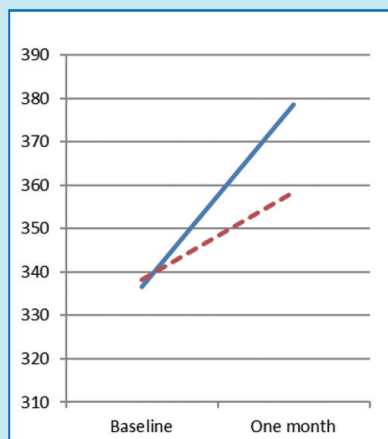
physiological, emotional, social, and financial burdens. A 12.4% increase in the Mastery of Stress Scale (MSS) was observed in the telehealth care group, indicating improvement in family caregivers' mastery of stress. Regarding family function, as assessed by the Freetham Family Function Survey (FFFS), a 9.0% increase in the FFFS score was observed in the telehealth group, indicating significant improvement in the family caregivers' family function, including the family's relationships with the subsystem and with society.

Although the family caregivers of patients who received usual care also showed improvements on the CBI, MSS and FFFS after one month, their improvement was less than that of the caregivers in the telehealth care group.

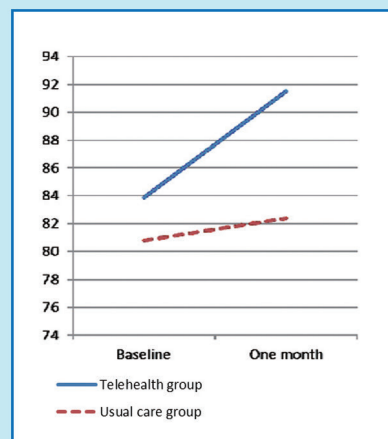
These results provide evidence that telehealth care combined with discharge planning could reduce family caregiver burden, improve stress mastery, and improve family function during the first 30 days at home after chronic cardiovascular disease/heart failure patients are discharged from the hospital. Telehealth specialists can provide care for caregivers within the framework of transitional care to help them successfully navigate the critical transition stage.



**Figure 1. Caregiver Burden Inventory.** Scores on the Caregiver Burden Inventory, a measure of caregiver well-being, were significantly lower in the telehealth group (indicating a higher level of well-being) than in the usual care group at one-month follow-up after discharge.



**Figure 2. Mastery of Stress Scale.** The caregivers' mastery of stress improved in both groups. The improvement of the telehealth group was significantly greater than that of the usual care group at one-month follow-up after discharge.



**Figure 3. Freetham Family Function Survey.** The improvement in family function was significantly greater in the telehealth group compared with the usual care group at one-month follow-up after discharge.

## References

Li-Chi Chiang, Wan-Chou Chen, Yu-Tzu Dai, Yi-Lwun Ho. (2012). The effectiveness of telehealth care on caregiver burden, mastery of stress, and family function among family caregivers of heart failure patients: A quasi-experimental study. *International Journal of Nursing Studies*, 49(10), 1230-1242. DOI:10.1016/j.ijnurstu.2012.04.013.

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