

Providing Telerehabilitation at Home for Adult Intensive Care Unit Survivors and Their Family Caregivers

Background

Recovery after home discharge is a particularly challenging transition for intensive care unit (ICU) survivors and their family caregivers. Professional resources after home discharge are fragmented and insufficient to meet complex, long-term rehabilitation needs, shifting increasing burden onto family caregivers.

Our long-term goal is to develop a full-scale, randomized controlled trial (RCT) to test a new intervention: **Post-Intensive Care Unit Versatile and Integrated System for TeleRehabilitation** (Post-ICU VISYTER). Post-ICU VISYTER is an in-home physical rehabilitation program for ICU survivors and their family caregivers that will be initiated by a nurse researcher and delivered via a telerehabilitation (TR) system. This TR system will feature components of (1) a web-based platform to deliver interactive physical exercise sessions and (2) a mobile health system (i.e., smartphone application and clinician portal) to assist daily exercise and symptom monitoring. Before embarking on the RCT, we must first pilot test the mobile health system component among ICU survivors and their family caregivers.

Purpose

1. To modify an existing mobile health system (*iM-HERE*) to add an application of assisting daily physical exercise and symptom monitoring and make it suitable for use by ICU survivors and their family caregivers in home settings (Phase 1);
2. To evaluate the usability of this modified mobile health system (*i-CU Well*) by ICU survivors and family caregivers in home settings (Phase 2).

Methods

Design: A single group, prospective cross-sectional design will be used.

Phase 1: *iM-HERE* will be modified—by adding a new application for exercise and symptom monitoring—to allow participants to (1) receive scheduled text message reminders to participate in daily exercise and symptom monitoring, (2) record and automatically send exercise and symptom data to the clinician portal, and (3) receive individualized education from the clinician portal. A focus group, comprising five multidisciplinary health care professionals, will review this modified system (*i-CU Well*) and provide feedback to further develop its design and usability.

Phase 2: The usability of *i-CU Well* will be tested among five dyads of ICU survivors and family caregivers who are enrolled in our ongoing project evaluating the feasibility of delivering in-home interactive physical exercise sessions. Dyads will (1) receive instructions regarding the use of *i-CU Well*, (2) use *i-CU Well* for one week, and then (3) participate in a usability evaluation.

Analysis: Data will be analyzed using descriptive statistics and qualitative content analysis.

Relevance to Nursing

Few studies have tested strategies to engage ICU survivors and families during rehabilitation after home discharge. In conjunction with our ongoing project, the proposed project will provide preliminary data crucial to support a later RCT of Post-ICU VISYTER, which promises to facilitate family-centered, self-management programs, a growing field in which nursing leadership is highly important.