Chronic disease self-management interventions using digital health technologies for community-dwelling older adults: A systematic review

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Purpose The potential of digital health interventions for chronic disease self-management is well recognized. Multiple systematic reviews were conducted focusing on specific conditions (Hewitt et al., 2020; Shen et al., 2019; Slattery et al., 2019) or technologies (Lee et al., 2018; Stellefson et al., 2013). But when applying digital health intervention in older adults, intervention strategies are important because factors such as cognition, motivation, physical ability, and perception might act as barriers (Wildenbos et al., 2018). To our knowledge, it was hard to find the article systematically reviewing strategies to deliver digital health intervention for older adults' chronic disease self-management. This systematic review aimed to explore strategies for chronic disease self-management interventions using digital health technologies for community-dwelling older adults. **Method** A systematic search of PubMed, EMBASE, Cochrane CENTRAL, and CINAHL was conducted for the articles published until January 13, 2022. Articles reporting randomized controlled studies of intervention effects, and written in English and Korean were included. The quality of the studies was assessed by two reviewers independently using the revised Cochrane Risk of Bias tool (ROB2) (Sterne et al., 2019). **Results and Discussion** A total of 19 randomized controlled studies (21 articles) were included in the review. A narrative synthesis was performed because of the high level of heterogeneity of interventions and outcomes across the studies. Fourteen studies were disease-specific (cardiovascular disease, diabetes, arthritis) and 3 studies were for multimorbidity. The most frequently used device was the mobile phone (10 studies, 47.6%). Delivery modes were mostly non-contact and only 2 studies were blending non-contact and face-to-face modes. Duration of intervention ranged from 6 weeks to 18 months and 6-month intervention was most frequent (42.9%). Outcome variables were heterogeneous across the studies including physiological indices, quality of life, various health-related behaviors, healthcare utilization, and mortality. The most frequent outcome variables were physiological indexes (42.9%) and quality of life (33.3%), but outcome measures were different across the studies. Considering results from the review and the high prevalence of multimorbidity among older adults (Ofori-Asenso et al., 2019), more studies to develop and evaluate self-management interventions using mobile phones for this population are needed.

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