mHealth app in reducing the depression of family caregivers

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Background: The rapid aging of the world population has become an important issue. From 2015 to 2050, the proportion of the world's elderly population has increased from about 12% to 22%; the number of elderly people in the world will reach 1.4 billion in 2030 and 2.1 billion in 2050. At the end of March 2016, Taiwan's household registration registered 3.31 million people over the age of 65, accounting for 14.1% of the total population, and has entered the Aged Society. **Purpose:** With the increase in the population of a country and the extension of the average life expectancy of the nation, the demand for medical and long-term care services has also increased significantly. Long-term care services have caused great psychological pressure on family caregivers, leading to depression. In this study, we developed a mHealth app based on the home-care needs of patients in Taiwan to explore whether the mHealth app can reduce the depression of family caregivers. **Methods:** This experimental study, included 30 primary family caregivers, was conducted from October 2017 to May 2018. Based on the Center for Epidemiologic Studies Depression Scale, we designed an online questionnaire system to collect data on the depression assessments of the 30 family caregivers. We conducted the survey three times. First was prior to using the mHealth app, the second was a month after the first survey and the third was two months after the second survey. The results were analyzed using SPSS to describe the distribution of variables. Descriptive t-tests and one-way analysis of variance were performed to analyze the effects of the usability of mHealth app to reduce depression. **Results**: In this study, the degree of depression decreased with the intervention time, and the difference between the result of prior to using the app and after using the app for three months was statistically significant $P<0.001$. According to the results of the questionnaire, we reduced the proportion of severe depression from 16% to 3%, and increased the proportion of people without depression from 13% to 30%. Most primary family caregivers demonstrated favorable acceptance of the app. In addition to the facilitating conditions, such as the options and description of each function, could be understood without the need of other auxiliary methods. The app is based on the needs of the hospital's home care unit, and family caregivers could check the patient's data and conduct home care at any time. They considered it a good tool and useful for managing the physiological data of patients at home; thus, the family caregivers expressed willingness to use the app long term. **Conclusion**: The primary family caregivers demonstrated positive acceptance of the current mHealth app. They are willing to spend time to learn new tools to increase their effectiveness.