Mobile-Based Monitoring System for the Management of Chemotherapy Related Symptoms

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INTRODUCTION

The prevalence of cancer treatment-related symptoms, which negatively affect the quality of life and vital functions of patients and their families, has negative consequences such as increased hospital admissions for non-treatment. This situation highlights the need for programmes that enable patients to manage symptoms related to oncological treatment at home. Mobile application programmes for symptom management will become increasingly important in developing and changing healthcare systems around the world. In recent years, mobile phone applications have become increasingly important in managing the side effects of chemotherapy, and it has become possible to use information technology to bring remote patients and professionals together in health centres. It is thought that the use of mobile applications can be cost-effective by increasing access to health services and improving diagnosis, treatment and rehabilitation.(1,2,3,4) Effective interventions to improve cancer patients' management of symptoms that may result from cancer treatment need to be planned and implemented in accordance with the cultural structure and health systems of our country. Although there are descriptive, cross-sectional and interventional studies on symptom management of cancer patients in our country, a limited number of studies using mobile applications were found. In this context, it is believed that the nurse-supervised mobile monitoring system in the management of chemotherapy-related symptoms will contribute to the management of treatment-related symptoms and improve the quality of life of patients receiving chemotherapy with communication and technology solutions.

METHODS

The Oncology Symptom Management System (ONKOSIS) is a mobile health application that enables patients to identify and record their cancer-related symptoms once a day and receive real-time information and advice on how to manage their symptoms at home without having to go to hospital, thereby improving patients' quality of life through patient-centred care, better symptom management at home, and avoiding inappropriate service use due to hospitalisation.
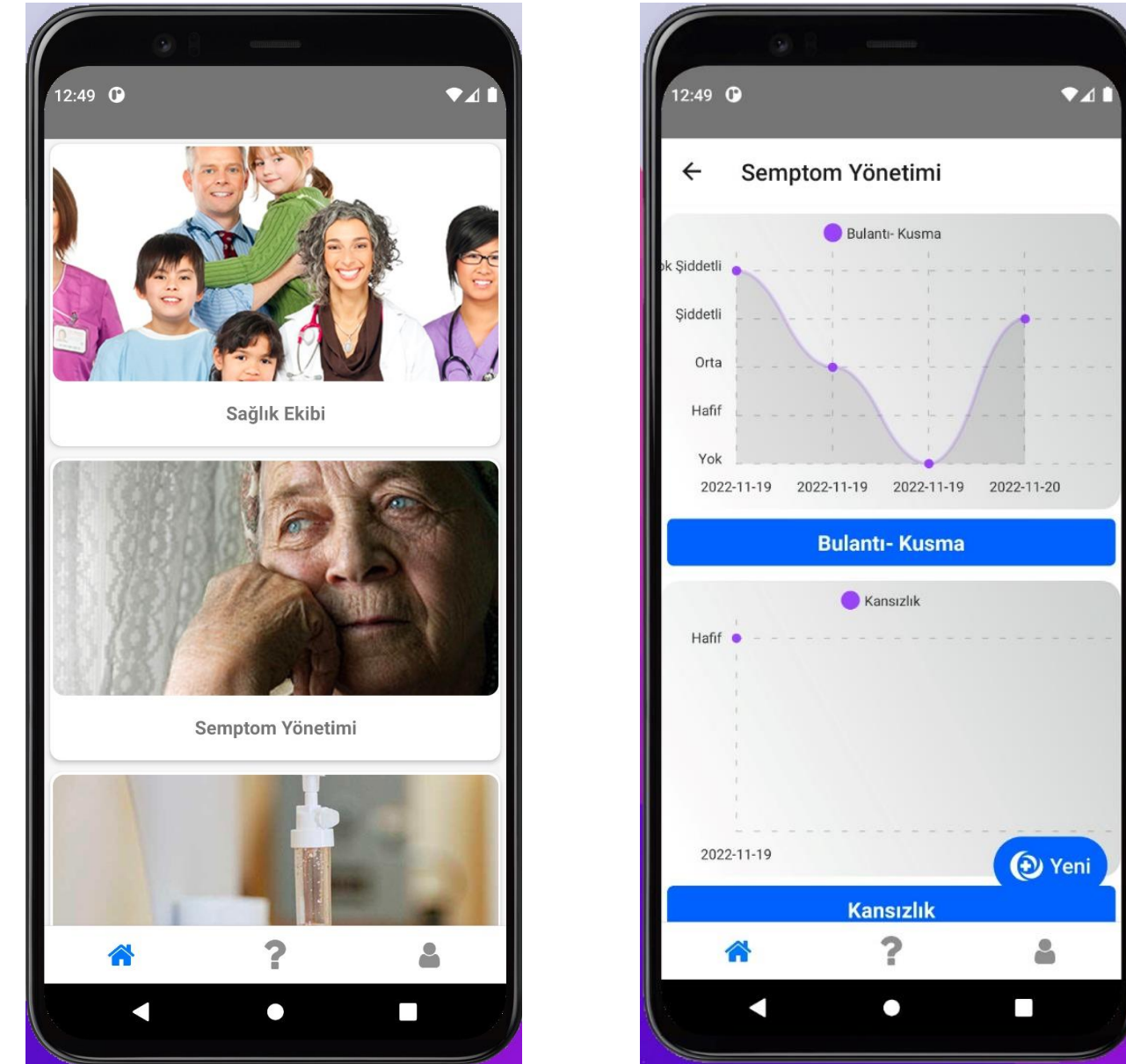
To create this application, a comprehensive literature review was conducted to identify common symptoms associated with treatment for common cancers and steps to guide individuals in relieving these symptoms. Following these steps, algorithms were created for each symptom in line with evidence-based practice.(5,6,7,8) Ethical approval number 2020-192 was obtained from the Social and Human Sciences Research Ethics Committee of Istanbul University Cerrahpaşa. Our experimental study was designed as a single-blind, randomised controlled trial. Patients who met the inclusion criteria were randomised to the intervention (n=106) and control (n=106) groups after obtaining informed consent.


RESULTS

Measurements

Changes in quality of life due to the intervention: The Nightingale Symptom Rating Scale will be completed by patients at the end of each treatment cycle to assess the quality of life of patients using the mobile app compared to the control group. The Nightingale Symptom Rating Scale is a Likert quality of life scale used to assess the severity of treatment-related symptoms in cancer patients. It includes 38 symptoms commonly reported by cancer patients.

Assessment of number of out-of-hospital admissions: The number of out-of-hospital admissions due to chemotherapy side effects during treatment will be assessed at the end of treatment.

Assessment of satisfaction with the mobile application: This will be assessed at the end of chemotherapy treatment using a score between 0 and 10.

Assessment of intervention recommendations: This study aims to evaluate whether the interventions recommended to patients for symptom management in oncology patients receiving chemotherapy are effective or not in the range of 0-10 points.
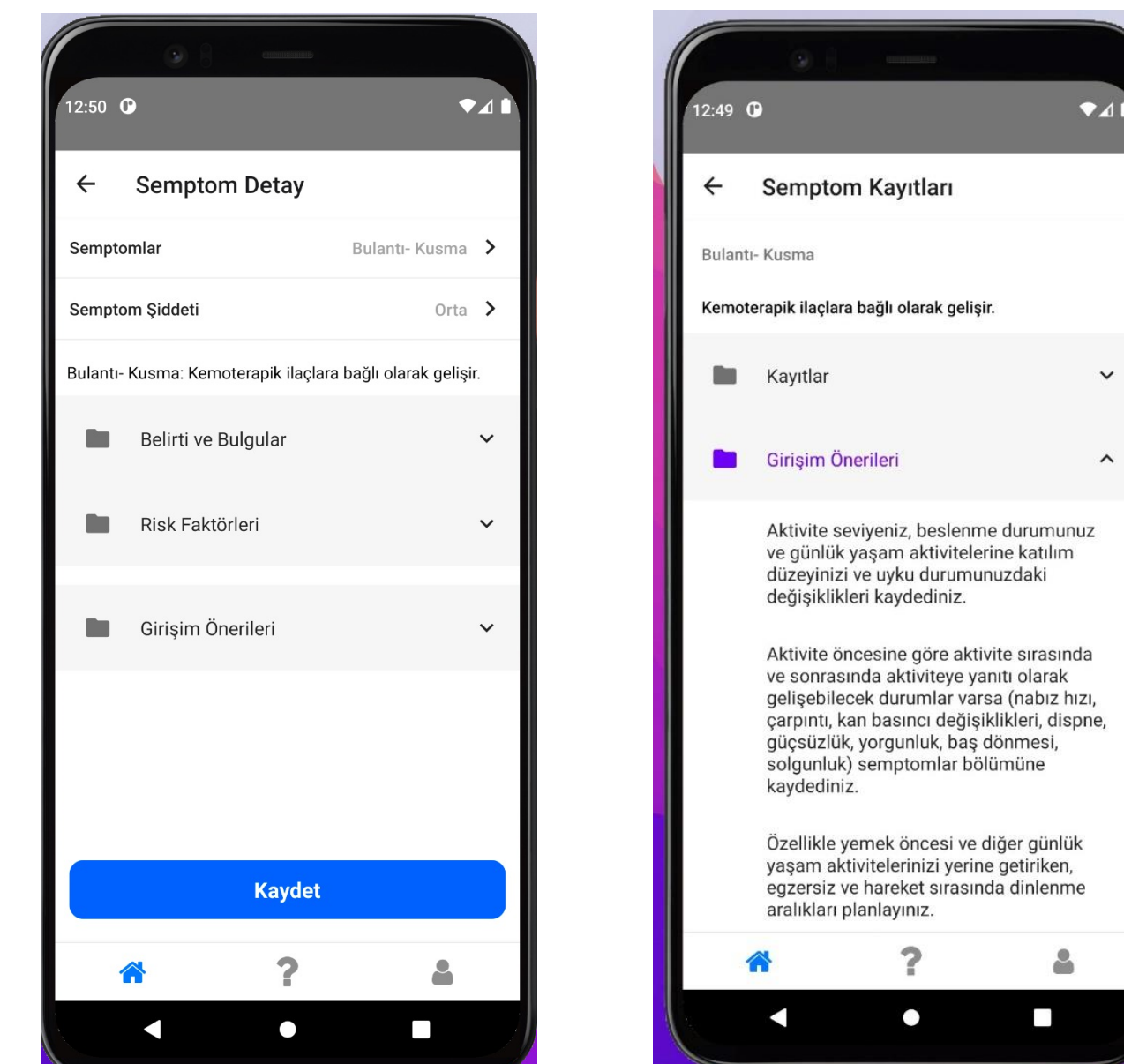
CONCLUSIONS

ONKOSIS will help patients undergoing cancer treatment to manage their symptoms and side effects in their daily lives. The main target group is therefore patients undergoing cancer treatment. For example, it will be possible to improve the quality of life of cancer patients using the application, provide better symptom management at home, and increase profit rates by reducing healthcare costs if hospital admission rates are reduced. If the application is used in the follow-up of patients receiving cancer treatment in hospitals, it is predicted that institutional satisfaction will increase, in addition to other value-added benefits. ONKOSIS mobile application will be used in symptom management by cancer patients, in patient follow-up by healthcare professionals, and in scientific studies by academics in our country.

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FUNDING

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