Symptom Prevalence and Physiologic Biomarkers Among Adolescents Using a Mobile Phone Intervention Following Hematopoietic Stem Cell Transplantation

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Children undergoing hematopoietic stem cell transplantation (HSCT) have reported treatment-related symptoms as the worst part of their cancer experience. Those symptoms create difficulties with other life events and are remembered long after treatment ends (Enskar, Carlsson, Golsater, & Hamrin, 1997; Woodgate & Degner, 2003). Nausea, vomiting, fatigue, pain, anorexia, diarrhea, dry mouth, and taste changes develop immediately after HSCT and persist for months (Barker, Anderson, Sauer, & Butzner, 2005; Rodgers et al., 2008), increasing the need for medical care and negatively affecting patients’ development, compliance to treatment, and quality of life (QOL) (Cohen et al., 2012; Erickson et al., 2013). The Eating After Transplant (EAT!) mobile phone application (app) was developed to provide descriptive information and useful strategies to adolescent patients regarding common symptoms and eating issues during the first 100 days post-HSCT (Rodgers, Krance, Street, & Hockenberry, 2013). To meet the expressed needs of patients recovering from HSCT to participate in self-care activities, manage their symptoms, and have available information delivered in a practical method (Larson, 1995), EAT! provides descriptions of common gastrointestinal (GI) problems and self-care strategies in an easily accessible format for mobile phones. The app has demonstrated acceptability and usability, and patients undergoing HSCT were immediately competent with the app following orientation (Rodgers et al., 2013). The current study extends those findings by assessing whether the EAT! app is associated with decreased symptom prevalence and distress or with improved biomarkers, thereby enhancing well-being.

Background

HSCT is a common treatment modality for pediatric illnesses, including a variety of malignancies, hematologic diseases, immunodeficiency disorders, and genetic disorders. About 1,200 allogeneic HSCTs are performed annually in the United States in children younger than age 18 years (National Marrow Donor