

## Abstract

# A Two-Arm Randomized Pilot Study to Evaluate the Impact of a Mobile Health App on Quality of Life in Patients on Oral Anti-Cancer Medications

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## Abstract

**Background:** CORA is a personalized smartphone-based self-management app designed to help cancer patients on oral anti-cancer medications manage medication, medication side-effects, and symptoms with the overall goal of improving their quality of life.

**Objective:** To evaluate the effect of CORA on quality of life in patients on oral anti-cancer medications.

**Methods:** Eighty-four patients were randomized to either an intervention group that received CORA plus usual care or a control group that received usual care. Quality of life was measured using the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) scale administered at enrollment, 6 and 12 weeks. Engagement with the app was assessed by determining the unique days using the app. We evaluated the effect of engagement on FACIT-F both as a continuous variable (days using the app) and as a categorical outcome (low, medium, and high). Group differences for all outcomes over the study period were assessed using repeated measures mixed model analysis.

**Results:** Relative to the control group, the intervention group improved FACIT-F by 0.36 (95% CI 0.10-0.61)  $P=.006$  per week over the study period. As a continuous variable, each additional day using the app was significantly associated with an improved FACIT-F score per week in the study [0.0060 (95% CI -0.000034-0.012),  $P=.05$ ]. Within the intervention group that used the app, those who were most engaged with the app were significantly more likely to improve their quality of life over the study relative to the least engaged group [0.37 per week (95% CI 0.19-1.94),  $P=.05$ ].

**Conclusions:** CORA may have significantly improved quality of life (FACIT-F) in cancer patients over 12 weeks. Smartphone applications may positively impact health and behavioral outcomes in cancer patients on oral anti-cancer medications.

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