

# TAILORED SMS MESSAGING TO INCREASE EXERCISE IN CANCER SURVIVORS: A QUALITATIVE PILOT STUDY

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## ABSTRACT

**BACKGROUND** Exercise is recommended for cancer survivors, but we know little about increasing exercise in this population. Ecological momentary assessment (EMA) can help us understand behavioral processes by examining within day influences on behaviors. We used EMA to measure self-efficacy (SE) and positive and negative outcome expectations (OE+, OE-) each morning in order to tailor motivational exercise messages to participants and increase their daily moderate-vigorous intensity exercise minutes and steps.

**METHOD** Ten endometrial, breast and colorectal cancer survivors with a mean age of 58 ( $\pm 9.2$ ) participated in a 5-day pilot study, completing EMAs each morning and evening. Participants were provided with an Android smartphone with EMA and self-monitoring exercise applications and a pedometer. Based on the cumulative scores of SE, OE+, OE- and logic rules, up to 4 tailored, motivational messages based on Social Cognitive Theory (SCT) constructs were sent randomly throughout the day. Upon completion, a semi-structured individual interview was held to assess difficulties experienced, preferred features, and future directions.

**RESULTS** The daily exercise minutes and steps increased over the 5 days that participants used the program ( $p$  for linear trend = 0.018 and 0.055 for minutes of exercise and steps, respectively). Mean daily minutes of exercise increased from 19.4 on day 1 to 32.2 on day 5; mean daily steps increased from 5,957 to 7,085. 80% of participants said that they would be willing to use the program for 6 months or longer. Participants found the messages to be good reminders with useful content. Common themes included desiring a future version with goal setting, self-monitoring and feedback features.

**CONCLUSION** The preliminary data from this group of cancer survivors suggest that the use of technology to provide personalized motivational support for increasing exercise is an acceptable and feasible intervention and a formalized, expanded SMS-based exercise intervention should be developed.