

A mobile phone intervention to promote adherence to survivorship care among adolescent and young adult cancer survivors

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Background

Approximately 83% of childhood cancer patients survive into adulthood but remain at high risk for late effects from their treatments [1-2]. The Children's Oncology Group (COG) has established the "Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers," which serve as the current standards of care for adolescent and young adult (AYA) cancer survivors [3]. Less than half receive this recommended care [4]. Novel interventions are needed to improve delivery of recommended care. In a randomized controlled trial, text messaging and peer navigation both independently demonstrated improvement in knowledge, attitudes, and self-efficacy in AYA survivors in the domains of survivorship care planning, late effects, and health insurance planning [5]. The present study will evaluate the impact of an expanded mobile phone intervention combining both text messaging and peer navigation on health-related behavior changes to promote survivorship care adherence in AYA cancer survivors.

Aims

Aim 1: Expansion to a two-way multi-media mobile phone messaging platform (Chorus) to improve COG survivorship guideline adherence:

- web-based education on risk for late effects and need for ongoing survivorship care (Figure 1).
- monthly peer navigation phone calls for barrier assessment
- pre- and post-test questionnaires for participants to complete in Chorus

Aim 2: Acceptability and feasibility of the mobile phone intervention using qualitative methodologies and applying the Technology Acceptance Model [6]:

- perceived usefulness of the text messaging system
- perceived ease of use of the text messaging system
- effect of the text messaging system on health-related behavior intent

Aim 3: Randomized, controlled pilot trial to determine potential effect sizes on knowledge, attitudes, and self-efficacy towards seeking survivorship care and the actual adherence to recommended survivorship care, defined as completion of Adolescent and Young Adult Action Plan (ASAP) goals.

Methods

Aim 1: A web-based educational module (ASAP booklet) based on COG guidelines will be adapted for use on an interactive, multi-media mobile phone messaging platform (Chorus) featuring: (a) two-way text messaging; (b) referrals to community-based organizations; and (c) multi-media messaging with strategies, prompts, and reminders. Monthly peer navigator phone calls will be scheduled.

Aim 2: Acceptability, feasibility, and usability will be determined by qualitative analysis in n = 10 young adult cancer survivors. Based on the qualitative analysis, the mobile phone intervention will be refined for the pilot trial.

Aim 3: Sixty-four participants will be randomized to receive either the mobile phone intervention or standard clinic-based care. Pre- and post-intervention measures will be collected. Unpaired t-tests and Fisher exact tests will evaluate group differences on baseline characteristics. An ANCOVA will be used to analyze the intervention's effect on the outcomes of knowledge, attitude, and self-efficacy. The difference in the proportions of completed survivorship care goals will be measured using difference in proportions.

Analyses

Aim 2: Acceptability and feasibility study

Goal 1: The expanded mobile phone intervention will be acceptable and feasible to use with a cohort of young adult cancer survivors.

Goal 2: Key informant interviews and a focus group will identify themes to refine the text messaging system: (a) knowledge regarding risk for late effects, (b) intent to seek survivorship care, and (c) impact on completion of ASAP goals

Goal 3: Monthly phone calls from a peer navigator will identify and resolve barriers to completion of ASAP goals by young adult survivors.

Aim 3: Randomized, controlled pilot trial

Primary Outcome: A greater proportion of AYA survivors from the intervention group will complete at least two out of three of their ASAP goals than those receiving standard clinic-based care (control).

Exploratory Analysis 1: Greater improvement in survivorship care knowledge regarding late effects (vs control)

Exploratory Analysis 2: Greater improvement in knowledge, attitudes, and self-efficacy for survivorship care planning (vs control)

Exploratory Analysis 3: Greater improvement in knowledge, attitudes, and self-efficacy for health insurance planning (vs control)

Conclusions

- Mobile phone interventions offer a cost-effective, age-appropriate approach to AYA survivorship care education.
- The intervention's impact on behavior change will be assessed by comparing the proportion of participants within each group that completed a majority (at least two out of three) of their ASAP goals over the course of the study.
- Pre- and post-test outcomes will provide preliminary effect sizes on knowledge, attitudes, and self-efficacy towards seeking survivorship care after receiving the mobile phone intervention in comparison to those receiving standard survivorship care.

Significance/Future Directions

- Intervention research to improve health behaviors is a national priority.
- If effective, mobile phone interventions can be expanded in larger trials (i.e. multiple sites or regional consortiums) to improve rates of survivorship care adherence and clinical outcomes for AYA survivors.
- Demonstrate effectiveness in multiple mobile phone platforms
- Expansion of language capabilities to address health disparities

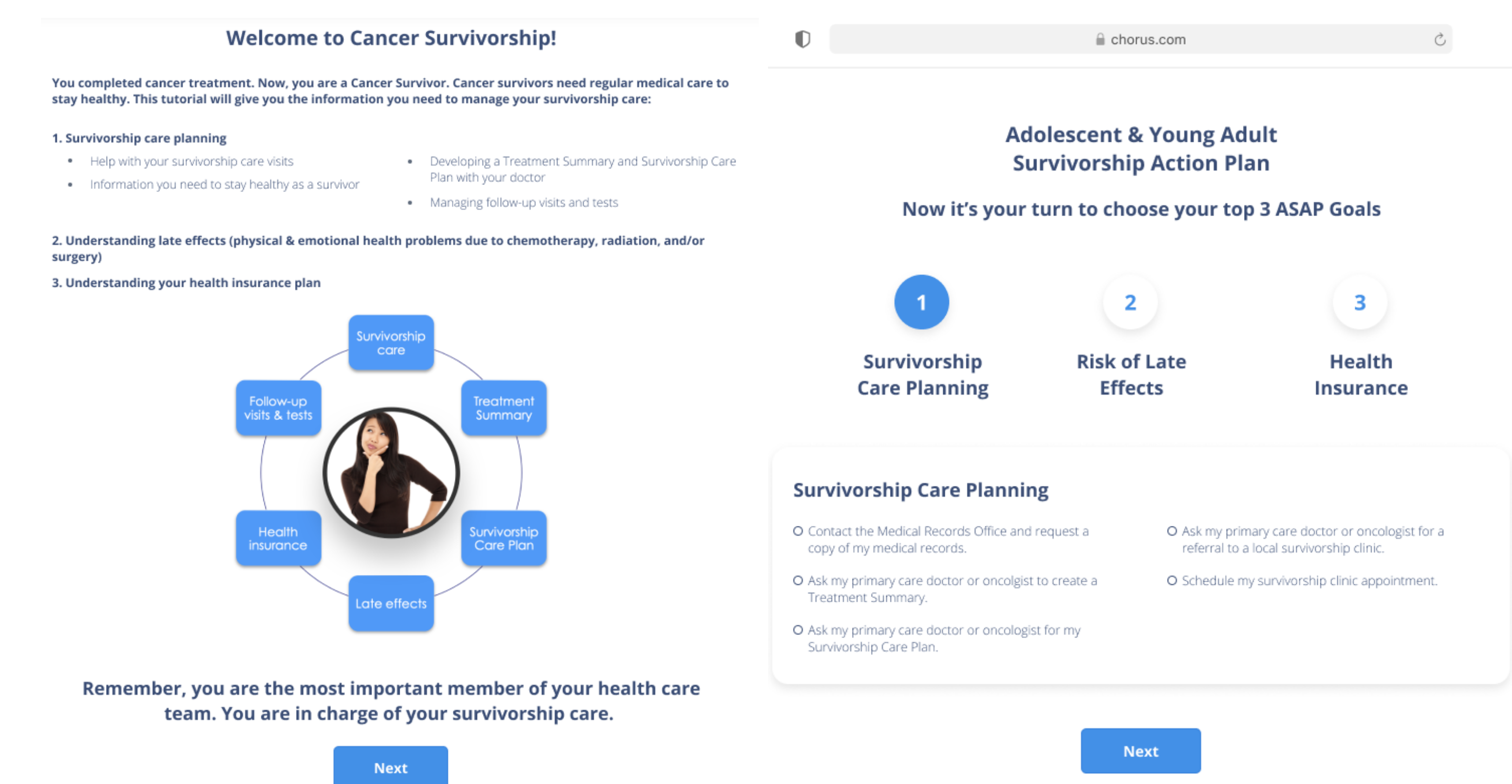


Figure 1. Web-based survivorship care educational content (left) and selection of survivorship care ASAP goals (right) as viewed on a mobile phone.

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