Abstract

Measuring Patient Acceptance and Use of a Personal Health Network Application for Chemotherapy Care Coordination

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Abstract

Background: Cancer is a top concern in the United States and globally. Cancer care suffers from lack of coordination, silos of information, and high cost. Interest is emerging in developing formalized coordination mechanisms to address these challenges. Person-centered technology can improve coordination, thereby improving the lives and health of individuals with cancer. However, few examples of patient engagement in technology-enabled care coordination exist and we lack tools to measure engagement or adoption.

Objective: The “personal health network” (PHN) developed by the authors fills this gap: a personalized social network built around a patient for collaboration with clinicians, care team members, carers, and others designated by a patient, to enable patient-centered health and health care activities across a relevant community. The PHN is a mobile, social application that integrates person-generated data related to clinical concerns, symptom assessment, a shared care plan, secure messaging, and educational materials for individuals undergoing chemotherapy. The purpose of this study is to understand patients’ acceptance and use of the PHN.

Methods: The PHN was implemented in a two arm (n=60), randomized, pragmatic trial of a 6-month-long care coordination intervention at a cancer center. The intervention arm received nurse care coordination plus the PHN on a tablet and a data plan. Technology acceptance was measured with a new Health Technology Acceptance and Use (HTAU) tool validated in an oncology population by one of the authors (KK). HTAU include 8 constructs (33 items): performance expectancy (8 items), effort expectancy (4), social influence (5), facilitating conditions (4), hedonic motivation (3), price-value (3), habit (3), and behavioral intention (3). Each construct score is the mean of the items within it, all rated from 0=not at all to 6=a great deal. HTAU was collected at 3 months and 6 months. We report on 3-month results.

Results: HTAU at 3 months (n=33 intervention group, 94% response) shows high reliability, and Cronbach alpha is 0.96. The mean total score is 123.72 out of 198 (SD 40.60). The highest scored constructs are facilitating conditions (mean 4.48, SD 0.12), price-value (mean 4.40, SD 0.12), and effort expectancy (mean 3.86, SD 0.11) The lowest scored is habit (mean 2.37, SD 0.08) Other scores are moderate: performance expectancy (mean 3.10, SD 0.40), social influence (mean 3.13, SD 0.10), hedonic motivation (mean 3.30, SD 0.30), and behavioral intention (mean 3.41, SD 0.23).

Conclusions: Person-generated data and access to clinical data for patients has potential for improving cancer care coordination. Technologies to support this purpose must be accepted by patients. An in-depth understanding of technology adoption requires rigorous evaluation of the usability and usefulness constructs that underly it. Using HTAU we found that PHN usability was high, usefulness was moderate, and habit formation was low. Further evaluation of final results and interviews will help elucidate which constructs were meaningful, how they relate to outcomes, and suggest where future effort should be focused to improve adoption. This study contributes to person-centered design of technology-enabled care coordination interventions.

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KEYWORDS

cancer; mobile health; mHealth; Technology Acceptance Model; care coordination

Multimedia Appendix 1

Full poster.

[PDF File (Adobe PDF File), 1000KB-Multimedia Appendix 1]

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