

Together skills such as teaching them how to manage certain illnesses, helping them comply and adhere to treatment directives. Each of these health behavior domains has attracted significant attention. There is an increasing interest and investments in developing and using technology to promote health and wellness by various stakeholders including health and wellness researchers and practitioners, technology designers, and public health and government agencies. Therefore, it is necessary to conduct an empirical review to reevaluate and uncover important trends, best practices, gaps, and opportunities for improvement. In addition, research on this topic is fragmented, using many different approaches, methods and concepts. A literature review can help bring these disparate sources. Thus, in this paper, we present an empirical review of 16 – years (from 2000 to 2015) of PT studies across various health and wellness domains with the aim of: (1.) answering important questions regarding the effectiveness of persuasive technology for health and wellness; (2.) highlighting and summarizing emerging trends in the technological intervention design, research method, target health behavior, use of motivational strategies and behavior theories – which is important in guiding and setting roadmap for subsequent research agenda; (3.) uncovering pitfalls of existing PT interventions for health; and finally, (4.) suggesting directions for future research. This review serves as a reference for future research in this area, providing a comprehensive overview that will be a useful starting point for anyone interested in an overview of persuasive technology for health and wellness by systematically analyzing and categorizing the scattered research effort in this area under useful headings and highlighting the emerging trends.

Materials and methods As our goal is to systematically analyze persuasive technology in the health domain, we employed quantitative content analysis, a technique which enables comparison, contrast, and categorization of data according to different themes and concepts. This entails collecting data in a rigorous way, paying special attention to the objectivity of the results. For our literature search, we used the Elsevier Scopus database as our first data source with the search terms "Persuasive Health Technology", "Persuasive Technology and Health", "Behavior Change Technology and Health Persuasive Technology", "Technology and Health Interventions". Scopus is the largest abstract and citation database of peer – reviewed literature. We also searched PubMed, EBSCOHost, Springer, the ACM Digital Library, IEEE Xplore, and Google Scholar with the same search term. This ensures good coverage of technological health interventions across various fields including Human – Computer Interaction (HCI), medical and health informatics, health information systems, and other related research field. Finally, we scanned through the reference lists of the included studies to find further potentially relevant studies. The search resulted in 1842 unique titles, of which 544 articles were deemed relevant following a title examination. After the abstracts of each article were reviewed a total of 85 articles that were published from 2000 to 2015 are included in this analysis. We included only articles that discussed the design and evaluation of new PT for health and wellness or an evaluation of existing PT for health and wellness and are published in English. We also excluded papers describing the design and development of PT for health without an evaluation. The study identification process is as summarized in Figure I. Analysis and coding scheme in the second stage of the review, we coded the articles. To achieve this, we iteratively developed a coding sheet for analyzing PT, see Table 1. Next, we went through each of the articles and classified their data using the coding sheet. The coding sheet included the following parts (see Table 1):