The Promise and Ambiguity of eHealth Research

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Chronic illness, although preventable and frequently manageable, accounts for most of the deaths in the United States (Centers for Disease Control and Prevention, 2013). Adopting healthy behaviors such as physical activity, nutrition, smoking cessation, and medication adherence is imperative to reducing the burden of morbidity and mortality associated with preventable illnesses. Early interventions targeted at improving these behaviors have proven somewhat successful, and for some individuals, we saw modest improvements in the health of Americans. However, the development and implementation of behavioral interventions remained as a public health challenge. Since then, we have learned that it is important to address the specific reasons for which an individual may not be able to adopt and adhere to health-promoting behaviors. We moved from the “one-size-fits-all” approach to the development of tailored interventions for promoting behavioral change.

Tailored interventions are more likely to enhance the adoption of healthy behaviors because they are assessment based, taking into account personal characteristics and determinants in order to determine the most effective strategies that meet an individual’s needs (Kreuter, Farrell, Olevitch, & Brenna, 2000). The result is a message that is more likely to be viewed as personally relevant, to be remembered, and to increase the individual’s motivation to perform healthy behavior. And, indeed, evidence from a meta-analysis conducted by Noar, Benac, and Harris (2007) suggested that tailored interventions seem to be more effective in improving healthy behaviors when compared to standard nontailored interventions.

A growing eHealth field has charted a new course for tailored interventions and a course that seems to have a limitless potential. eHealth is generally defined as the use of information and communication technologies for health promotion, disease prevention, and disease management (Eng, 2001; World Health Organization, 2006). The Internet, computer-based technologies, electronic health records, and videoconferencing are examples of commonly used eHealth methods to deliver health behavioral interventions. A systematic review (Griffiths, Lindenmeyer, Powell, Lowe, & Thorogood, 2006) highlighted several reasons for the delivery of behavioral interventions via eHealth. The reasons identified were (a) reduction in delivery costs, (b) reduction in geographically based barriers, and (c) convenience for users. Thus, eHealth for intervention delivery seems promising for improving health and wellness, but a closer look at the literature reveals that there are some ambiguous areas of eHealth research and some unanswered questions that require further exploration.

The precise meaning of eHealth does not appear to be clear. Even though the World Health Organization and others have provided researchers with a standard definition of eHealth, there is no clear consensus about the meaning of the term in the literature. The meaning of eHealth varies by institution, funding organizations, and the context in which the term is used, lending itself to communication difficulties among the entities that use the term. Fortunately for us, two universal themes common to eHealth definitions are identified in a systematic review of 51 definitions (Oh, Rüzo, Enkin, & Jadad, 2005). The universal themes were health and technology. According to the authors, health was mainly used in reference to health services and delivery whereas technology was used both as a tool to enable process and as an embodiment of eHealth (e.g., health website, personal digital assistants, and interactive television). Themes less mentioned in the review were commerce, activities, stakeholders, outcomes, place, and perspectives. Yet, questions remain concerning how the different concepts may influence different stakeholders. Oh et al. (2005) posed the following questions: What do individuals expect when they hear that an intervention is an eHealth intervention? And, how does eHealth change the nature of relationships and interactions in the healthcare system?

Another area for researchers to consider concerns behavioral change sustainability. As is the case with traditional behavioral interventions, eHealth interventions do not seem to sustain behavioral change once the intervention is completed. For example, intervention effects were reported to peak from 4 to 12 months post baseline but begin to decline after 12 months based on a meta-analysis assessing the mean effect for 88 eHealth interventions (Krebs, Prochaska, & Rossi, 2010). Helping individuals maintain their behavioral change is warranted post eHealth intervention and leaves us to ponder one major question regarding sustained behavioral change: Are the actual eHealth interventions sustained once the programs are completed?

eHealth design features need further exploration. For example, variations seen in the outcomes for eHealth interventions are partly the result of the type of design features used in the interventions. A systematic review of 52 published reports highlighted 4 of 11 interactive eHealth features that
may mediate the effects of the intervention design on outcomes (Morrison, Yardley, Powell, & Michie, 2012). The four features are social context and support, contacts with the intervention, tailoring, and self-management. Social context and support facilitate individuals’ perceptions of their human or human-like interaction. Contacts with intervention were either expert-initiated or user-initiated and provide the means in which the individual interacts with the intervention. Tailoring provides relevant information matched to the individual or groups. Self-management is the use of personal information for reflective monitoring. Because some of these design features are not specific to eHealth interventions, Morrison et al. (2012) urged researchers to consider some of the following unanswered questions for a fuller understanding of how and why these features work. What are the mechanisms that make each of these four features effective? Why is it that user-initiated contacts (e.g., ask the experts) seem to have little influence on intervention outcomes? Are self-management strategies more effective when they are structured or unstructured?

The eHealth research field is becoming well established, and with its burgeoning body of literature comes areas that call for clarification. The ambiguous components of eHealth—its definition, intervention sustainability, and characteristics of its effective design features—are challenges for future research. The field is well poised for and could benefit from published reports that document important information such as intervention details, descriptions of the development and implementation of interventions, and stakeholder expectations of eHealth interventions. Indeed, these unanswered questions pose an exciting opportunity for nursing scientists and make eHealth research ambiguous and promising at the same time.

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