

Development of a Teen-Friendly Health Education Program on Facebook: Lessons Learned

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ABSTRACT

Introduction: Facebook is the most popular online platform among adolescents and can be an effective medium to deliver health education. Although Korean American (KA) adolescents are at risk of obesity, a culturally tailored health education program is not available for them. Thus, our research team developed a health education program for KA adolescents on Facebook called "Healthy Teens." The aim of this study was to discuss important lessons learned through the program development process.

Method: This program includes culturally tailored learning modules about healthy eating and physical activity. The program was developed on the basis of the social cognitive theory, and the online program was developed by applying Web

usability principles for adolescents. Upon completion, the usability of the program was assessed using heuristic evaluation.

Results: The findings from the heuristic evaluation showed that the Healthy Teens program was usable for KA adolescents.

Discussion: The findings from this study will assist researchers who are planning to build similar Facebook-based health education programs. *J Pediatr Health Care.* (2016) 30, 197-207.

KEY WORDS

Pediatric obesity, Web-based learning, social media, usability evaluation

The prevalence of adolescent obesity in the United States has more than quadrupled from 5% to 21% during the past three decades (Ogden, Carroll, Kit, & Flegal, 2014). Adolescent obesity increases the risk for a number of comorbidities, such as metabolic syndrome and type 2 diabetes (Biro & Wien, 2010) and creates an economic burdens for families and the nation, which will account for more than \$860 billion in health care expenditures by 2030 (Wang, Beydoun, Liang, Caballero, & Kumanyika, 2008). Although the obesity prevalence among Asian American adolescents is relatively less than the national average (Albrecht & Gordon-Larsen, 2013), acculturation to the American lifestyle, such as consuming more animal protein and fat, increases the risk of obesity more than twice in the second and third generations of Korean American (KA) immigrants compared with the first generation (Chen, Juon, & Lee, 2012; Popkin & Udry, 1998). Culturally tailored health education about promoting healthy lifestyles and weight have shown effectiveness in achieving healthy eating and adequate physical activity (Chen et al., 2012). Research about KA adolescent obesity prevention, however, has not been widely conducted, and

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This research was supported by the Chung-Ang University Research Grants in 2015 and the Sigma Theta Tau International Pi Chapter Doctoral Student Grant Award.

Conflicts of interest: None to report.

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0891-5245/\$36.00

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Published online August 5, 2015.

<http://dx.doi.org/10.1016/j.pedhc.2015.06.011>

educational health resources tailored to their acculturated diet and lifestyle are not available.

Currently, the Internet has become an effective medium to deliver health education (Im & Chang, 2013). Adolescents are particularly active in social networking sites (SNSs; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). The Pew Research Center reported that 95% of adolescents use the Internet, and their most popular online activity is the use of SNSs, such as Facebook, MySpace, and Twitter (Madden et al., 2013). With the rapid growth of new technologies in combination with wireless access to the Internet, SNSs have become part of adolescents' everyday lives. Traditionally, SNSs have been mainly used for communication purposes. Recently, however, they are increasingly being used for the sharing of health information and for providing social support among persons with chronic conditions (Greene, Choudhry, Kilabuk, & Shrank, 2011). Researchers also have used SNSs as a platform to deliver health interventions for adolescents on various topics, such as obesity prevention (Napolitano, Hayes, Bennett, Ives, & Foster, 2013), sexual health (Bull, Levine, Black, Schmiege, & Santelli, 2012), and alcohol and drug use (Litt & Stock, 2011). However, studies using SNSs as health interventions are still in the beginning phase, and only a few research studies have been conducted using SNSs to offer structured health education interventions for adolescents.

Among those SNSs, Facebook seems to be the most suitable platform for adolescent health education because it is the most popular SNS (eBizMBA Rank, 2015) and has several features useful for the delivery of structured health educational content. Another advantage of using Facebook is its availability and reliability as a social interaction tool, because it has been tested and updated by Facebook developers thus far, compared with developing a new custom Web site. Furthermore, Facebook has an image/video sharing function, no word limits in Note postings, and privacy protection (e.g., one can invite selected users to a private group). Twitter is another widely used SNS, but it has limited functionality, such as a 140-character limit per posting (Twitter, 2015), which makes it difficult to deliver in-depth education.

On the other hand, Facebook as an online learning platform poses specific design challenges and usability issues compared with online education through other types of Web sites. Usability means users can do what they want to do the way they expect to be able to do it without any questions and difficulties (Rubin & Chisnell, 2008). To achieve specific goals of Web sites, the site must be usable by specified users. Various usability principles have been identified in the literature to assist Web site developers (Barbour, 2007; Nielsen, 1993; Usability.gov, n.d.). For example, Nielsen (1993) defines the five components of usability: learnability, efficiency, memorability, errors, and

satisfaction. Some of these principles may not be applicable for Facebook-based programs, because Facebook is developed for mainly communication purposes and provides less freedom in design. Even though there are several usability challenges in developing health educational programs on Facebook, it still has many advantages that other platforms cannot provide, such as a high access rate and popularity among the target population.

In general, adolescents are considered to be a tech-savvy generation. However, according to user testing comparing adolescents and adults, the success rate of adolescents was lower than that of adults (Nielsen & Loranger, 2013). Although they might feel confident in using the Internet, adolescents do make mistakes and often give up quickly (Nielsen & Loranger, 2013). They also often have short attention spans and a low reading ability, become easily bored, and tend to scan instead of reading lengthy text (Fidel et al., 1999; Nielsen & Loranger, 2013). Thus usability principles may be more important for adolescents than for adults.

In this study, a Facebook-based obesity prevention program for KA adolescents (Healthy Teens) was developed to be used in a future trial that will investigate its impact on obesity prevention in this population. The aim of this article was (a) to describe the development of the Healthy Teens program and (b) to report lessons learned through the development process. By doing so, this article strengthens the evidence base regarding development of SNS-based, and in particular Facebook-based, health education programs that will be helpful for persons who are planning to build a similar program.

LITERATURE REVIEW

The goal of the Healthy Teens program is to change unhealthy behaviors to healthy ones for obesity prevention. In designing interventions to change behavior, theory-based approaches are effective in increasing health-related behaviors (Im & Chang, 2013). Additionally, it is important that online programs be user-friendly, especially for programs targeting healthy adolescents, because adolescents without an

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