



Acceptability of Health Kiosks Within African American Community Settings: A Pilot Study

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Abstract

Introduction: Health kiosks have been increasingly adopted to provide health-care services to those with limited access. Kiosks have the potential to reach people who may have undiagnosed health conditions or those who are not under regular physician care. Thus far, there is limited research assessing the usefulness of health kiosks in the community. This study aimed to explore the acceptability, usability, usefulness, and overall satisfaction of health kiosks in African American majority community settings.

Methods: Two health kiosks were placed in predominantly African American low-income areas in an urban city in Western Pennsylvania. After the kiosk interaction, participants 18 years and older were recruited to complete a survey on their overall kiosk use experience. The technology acceptance model was adapted to develop the survey. Survey responses were analyzed using descriptive statistics. Qualitative survey responses were analyzed using content analysis.

Results: Seventy-seven percent of the 31 survey respondents were female and 37.8% were ages 60 to 69 years old. Overall, 90% of participants were satisfied with their kiosk experience and 97% found the kiosk useful for health self-management, with 94% stating that they would use the kiosk again.

Conclusion: This study showed that health kiosks are accepted among African Americans in community settings such as churches and community centers. Participants found the kiosks easy to use and an overall useful tool to help manage their health. Future studies are needed to provide a better understanding of health kiosk acceptance among minority populations and in community settings.

Keywords

health kiosks, community health, health-care services, technology

Introduction

The growth of kiosk use is constantly evolving with the primary role of providing members of the community who do not have direct access to health care a more accessible way to take control of their health and health information.¹⁻⁴ Access to health services is particularly important for underserved communities due to the barriers they experience with accessing health information.⁵ Most kiosks are portable, interactive, and deliver information through the use of a touch screen computer.⁴ They are usually placed in clinical or community settings that are accessible to the public.⁴ According to a systematic review by Yvonne Chan et al,⁶ many studies found that kiosks have been shown to be effective educational tools regardless of the education level, age, or sex of the population.⁶ One study concluded that 90% of kiosk users learned something new about their overall health.⁷ Health kiosks can help to

disseminate knowledge such as users' vital signs, health information, or references to outside services like free clinics or rehabilitation centers.⁶⁻⁸

According to a systematic review conducted by Joshi and Trout,⁴ most research studies on health kiosks have been conducted in urban, clinical settings, with few examining their

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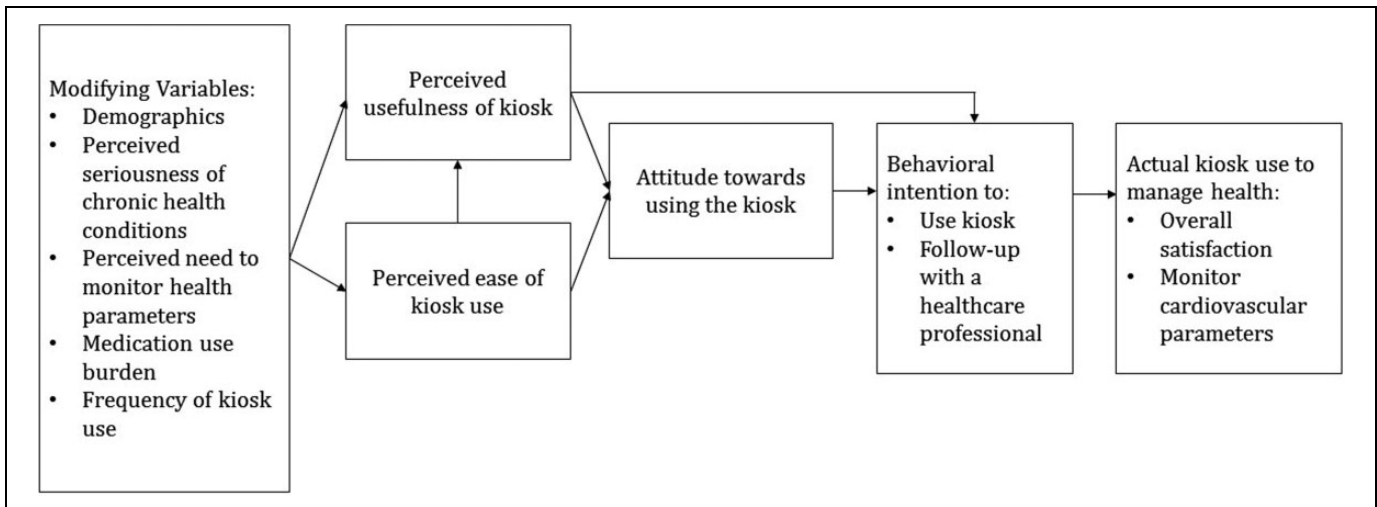


Figure 1. Conceptual framework for assessing kiosk use: adaption of the technology acceptance model (TAM).^{10,11}

acceptability in community settings.⁴ Findings showed that previous studies have used many different theoretical frameworks to develop interventions using health kiosks (ie, health belief model, cultural tailoring, behavioral, cognitive, and humanistic theories); however, none have used the technology acceptance model (TAM), which guided data collection and analysis for this study.⁴ The majority of past kiosk studies in the United States targeted all races and ethnicities; consequently, there is limited research on the acceptability of health kiosks in African American communities.⁴ African Americans in particular have a higher burden of hypertension than any other racial group.⁹ Additionally, high-stress environments such as low socioeconomic status have been shown to increase blood pressure (BP) among African Americans.⁹ Consequently, this study aims to examine the acceptability, ease of use, and usefulness of a health screening kiosk that measures BP, weight, body mass index (BMI), and heart rate in low-income African American community settings.

Methods

Conceptual Framework

The TAM was adapted and used as a guiding framework for this study to develop the survey that examined kiosk acceptance, perceived usefulness (PU), and perceived ease of use (PEOU; Figure 1). The TAM is an adequate, reliable, and one of the most common information technology models that assesses the acceptance of technology and use by consumers.¹⁰⁻¹⁴ The TAM proposes that the actual use of a system can be predicted or explained by motivation, which is a result of external variables.¹⁵

Setting

Two health kiosks (Figure 2) were implemented for 1 year in 2 locations in Western Pennsylvania. Both kiosks were located in low-income areas of an urban city where one was placed in a

minority community center and the other at an African American church. Both kiosks were placed in low income areas of an urban city where one was located in a community center and the other at a predominantly African American church.¹⁶ The church is located in a predominantly African American low-income neighborhood. In each setting, the kiosk was placed in an area that was easily accessible.

Data Collection

Health kiosk flyers were distributed to people at each setting and those aged 18 years and older were recruited to participate in the use of the health kiosk and an accompanied postuse survey. Written consent was obtained from all participants before kiosk use and survey completion. The survey was distributed to any returning users 6 months after the initial implementation of the kiosks. Survey questions addressed the following categories: frequency of kiosk use, kiosk satisfaction, reason for kiosk use, kiosk usefulness, kiosk ease of use, kiosk service improvement, medication use, post-kiosk follow-up with a health-care provider, and demographics. Data were collected from a total of 31 survey participants from November 2016 to February 2017. No compensation was provided to the participants. This study was approved by the institutional review board of University of Pittsburgh.

Data Analysis

Survey data were analyzed using descriptive statistics. Microsoft Excel was used for content thematic analysis of text survey data.

Results

The sample was predominantly female with a 4:1 female to male ratio. Educational attainment ranged from 29% obtaining some college, 26% obtaining a high school diploma/General Educational Development (GED), and 23% obtaining a



Figure 2. An example of the kiosk that was used in this study.

graduate or professional degree as their highest level of education. Most (42%) earned an annual household income between US\$25 000 and US\$74 999, followed by 32.3% earning less than US\$25 000 per year. The age ranged from 26 to 71, with 37.8% aged 60 to 69 years old (Table 1).

Among the 31 participants, 29 (94%) claimed they would use the health kiosk again if given the opportunity. Thirty (97%) of the participants found the kiosk easy to use and 29 (94%) stated they would recommend using the kiosk to a friend or family member. Of the 31 participants, 25 (81%) noted that based on their current technological/computer skills, they could operate the kiosk without any difficulty and 100% of participants claimed they were physically able to use the kiosk comfortably. A large portion (29/31, 94%) stated that learning how to operate the kiosk software was easy and 27 (87%) participants found it easy to navigate the kiosk. Overall, almost 90% of participants responded “satisfied” or “very satisfied” to the question “Overall, how satisfied were you with using the kiosk?”

Respondent input was also gathered on the topic of health kiosk improvement. One recurring recommendation from

Table 1. Demographics of Participants.^a

Sample Characteristics	Frequency, n (%)
Gender	
Male	6 (19.4)
Female	24 (77.4)
No response	1 (3.2)
Age range	
20-29	1 (3.2)
30-39	1 (3.2)
40-49	6 (19.4)
50-59	8 (25.8)
60-69	12 (38.7)
70-79	1 (3.2)
No response	1 (3.2)
Ethnicity	
Not Hispanic or Latino	26 (83.9)
Hispanic or Latino	1 (3.2)
No response	4 (12.9)
Race	
Black or African American	25 (80.6)
White	2 (6.5)
Other	2 (6.5)
2 or more races	2 (6.5)
Highest level of education	
High school diploma/GED	8 (25.8)
Some college	9 (29.0)
4-year college degree	6 (19.4)
Graduate or professional degree	7 (22.6)
No response	1 (3.2)
Annual household income	
Less than US\$25 000	10 (32.3)
US\$25 000-US\$74 999	13 (41.9)
US\$75 000-US\$124 999	4 (12.9)
US\$125 000 or more	1 (3.2)
No response	3 (9.7)

^aN = 31.

participants was to add a voice recording of their results and be provided with attached headphones. Participants also listed many other different locations they would like the kiosks to be placed. Common examples were easily accessible locations including grocery stores or supermarkets, pharmacies, schools, and health clinics. When asked about which health measurement was the most helpful, the majority of people answered BP and weight. However, most people recommended that additional health screenings such as blood sugar testing should be implemented to make the kiosk more useful.

The remaining survey questions revealed that 14 (45%) participants expressed interest in following up with a health-care professional after using the kiosk. The health-care professionals that participants felt the most comfortable following up with included a physician (n = 26, 84%), nurse (n = 8, 26%), pharmacist (n = 7, 23%), and a physician’s assistant (n = 7, 23%). A question asked if participants would be interested in talking with a pharmacist about their medications and most people (n = 26, 84%) indicated that they were not interested in following up with a pharmacist after using the kiosk.

Discussion

Health kiosks are a low-cost way for people with limited access to health-care services to monitor their health.⁴⁻⁶ The main purpose of this study was to examine the acceptability, PU, and PEOU of the kiosk in predominantly African American community settings. Study findings indicate that, in general, users were accepting of the health kiosk. Findings suggest that 94% of users found the kiosk easy to use and 97% of users found the feature and functions of the kiosk useful. Overall, the 90% satisfaction kiosk user rating confirms what similar studies have conducted in that most people are accepting of health kiosks.^{8,17} Another study finding that is consistent with previous research is that more women used the kiosk than men.⁵

Another relevant study revealed that beyond their success in increasing user knowledge, health kiosks have become potential facilitators in bridging the patient-provider engagement gap. In the study, 2 of the 37 questions asked whether users would be interested in following up with a health-care professional. Results indicate that the majority of users (n = 14, 45%) showed an interest in following up with a health-care professional. Most users have an interest in following up with physicians and some are also interested in following up with providers such as nurse practitioners, pharmacists, and physician assistants. This discovery is particularly noteworthy because like other studies, this study has shown that almost half of the kiosk users were more inclined to talk to physicians about various health-related topics after use.¹⁸ Therefore, these parallel conclusions support the notion that interactive health kiosks not only provide access to physical health parameters but also serve as conversation starters between physicians and patients.^{4,17,19-21}

As of today, most kiosks focus on general health parameters such as BMI, BP, and weight. Research has shown that one route health kiosks could take is to make the services they provide more selective.²² Targeted kiosks could specialize in particular screenings, honing in on certain areas such as cardiovascular health or smoking cessation.^{18,22,23} Consequently, there are multiple opportunities for the future development of health kiosks.

Conclusion

This study indicates that overall, health kiosks are accepted by the majority of participants, perceived as easy to use, and beneficial for obtaining health-related information. Although findings from this study showed mostly positive kiosk feedback, they may not be generalizable to the African American population due to the small sample size. Future research on a larger scale is needed to examine kiosk acceptability among African Americans in urban, low-income community settings.

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Declaration of Conflicting Interests

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