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Initial Impressions of Community-Dwelling Older Adults and Case Managers about Community-Based Telehealth Kiosks

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Abstract

Community-based (multi-user) telehealth interventions may be beneficial for older adults, but there is little research regarding community-based telehealth. We used a qualitative descriptive approach to examine the acceptability and perceived value of community-based telehealth kiosks with regard to current health self-management practices of community-dwelling older adults as a first step in feasibility assessment. Participants included residents (n=6) and community agency case managers (n=3) of a HUD-subsidized senior apartment building. Both positive impressions and concerns of each group are presented. Findings helped guide the plans for future telehealth kiosk implementation and training.

Keywords

Telemedicine; Aging; Senior Congregate Housing; Nursing; Informatics

Telehealth refers to a range of technologies that bridge geographic distances in health care delivery (Demiris, 2004), by enabling patients to “virtually visit” providers; conduct remote monitoring of health status (Finkelstein, Speedie, & Potthoff, 2006) or receive disease-specific information (Kleinpell & Avitall, 2005; Vincent, Reinhartz, Deaudelin, Garceau, & Talbot, 2006). Mounting evidence suggests that telemonitoring technologies, in particular, are user-friendly and beneficial when used in private homes among individual patients (Finkelstein, et al., 2006; Kleinpell & Avitall, 2005; Louis, Turner, Gretton, Baksh, & Cleland, 2003; Mahoney & Tarlow, 2006). However, little is known about the acceptability and effectiveness of such interventions in community or multi-user settings. Exploring the feasibility of these

interventions is important because community-based telehealth applications that can be shared among a group of users may be economically preferable to individually-based applications, especially among older adults who have financial or mobility related limitations on their access to healthcare services. This brief report describes older adults' and community case workers perspectives' as gathered as a first step for feasibility assessment of a Viterion 500 telehealth kiosk device, with blood pressure and weight monitoring capabilities, to be placed in a common area of a Housing and Urban Development (HUD)-subsidized, senior apartment building in Pittsburgh, PA.

Methods

Setting and Sample

With approval from the Institutional Review Board, we recruited residents of a HUD-subsidized senior low rise apartment building who receive free care management through a community program that connects older adults with the support services they need to "age in place" (Cheek, Nikpour, & Nowlin, 2005; Marek, et al., 2005; Rantz, et al., 2005). As part of usual care, program participants receive monthly blood pressure checks and health education. Through the planned telehealth kiosk implementation project, program staff would have remote access to blood pressure and weight measurements taken via the telehealth kiosk by residents. Both residents and staff had a brief opportunity to view and handle the kiosk at information sessions that took place prior to data collection. These information sessions were not designed to be comprehensive training sessions. Rather, information derived from pre-implementation focus groups and interviews was used to develop formal training sessions.

Six residents participated in two separate focus groups. Eligible residents had to be over the age of 70 and have at least one self-reported chronic health condition. Residents who did not speak English, had a clinical diagnosis of dementia, or scored less than 22 on the Mini Mental State Exam (MMSE) were not eligible to participate. Focus group participants included a convenience sample of 5 women and 1 man; their ages ranged from 73 to 89 years and all were Caucasian. During recruitment, it was emphasized that both individuals who were planning and not planning to use the kiosk were invited to participate. Participants had between 8 and 14 years of education and their MMSE scores ranged from 22 to 30. On a 5 point Likert scale from "Poor" to "Excellent," two participants rated their overall physical health as "Good" and four rated their overall physical health as "Fair." All participants estimated their annual income to be less than \$20,000 and reported that it is either "somewhat" or "very" difficult to pay for basics like food, housing, and medical care.

All three community service agency staff (one nurse and two social workers) who worked with the residents of this apartment building participated in individual interviews.

Data Collection

All interviews and focus group sessions were audio recorded for verbatim transcription. Interview guides with semi-structured questions were used in both interviews and focus groups.

Two pre-implementation focus groups (n=6) and individual interviews with program staff (n=3) were conducted addressing the acceptability and perceived value of the telehealth kiosks with regard to residents' current health self-management practices. Table 1 includes the primary questions from the focus groups. The focus group and staff interviews had parallel sets of questions, although in some instances the phrasing was slightly modified for the audience or administration format (group vs. individual interview). Focus group sessions lasted 60 to 90 minutes and interviews lasted an average of 20 minutes.

Analysis

Transcribed data from focus group and interview sessions were analyzed separately to generate a qualitative description (Sandelowski, 2000) of both older adults' and case managers' perceptions of benefits and concerns regarding the technology. Credibility was established by using within group member checks in which participants were asked to review the findings and to validate whether or not these interpretations reflected their own experiences.

Findings

Case Managers

In response to questions about their global impressions of kiosk implementation, case managers consistently reported deriving a sense of pride from the selection of their particular site for device pilot testing. Although they acknowledged that certain health conditions are more conducive to use of the kiosk than others, they felt that overall the advantages of the kiosk were substantial. They also felt certain that the kiosk would not interfere with their relationships with the residents; in fact, they believed the kiosk would enhance their relationships and the kiosk would provide “*another set of eyes*” for them in caring for the residents. Case managers' reservations regarding the kiosk focused primarily on potential resident reactions to the kiosks. Case manager concerns can be classified as relating to: 1) the device (kiosk), 2) resident reactions to kiosk-generated data and, 3) the physical environment in which the kiosk would be located.

Concerns about the Kiosk—Regarding the kiosk itself, case managers expressed concerns that various factors could influence residents' ability to use the kiosk independently. “It depends on how good their vision is, their motor control, their patience to go down and sit in front of it (kiosk).” Case managers were concerned that the kiosk may be viewed as a computer, triggering anxiety. “I think to some residents who are fearful of using a computer item. Even though this isn't a computer, they look at it that way and this generation isn't used to computer.”

Concerns about the Residents' Reactions to Kiosk-Generated Data—Case managers discussed potential resident reactions to seeing their health care data. They were worried that residents might inappropriately focus on their measurements, “you know some people may become obsessed with going down and checking ,” or overreact to mild abnormalities in their data “and maybe when the numbers are a little bit higher they will start to panic.” Another issue was the potential for residents to use the kiosk for replacement of regular or urgent healthcare.

Concerns about the Environment in which the Kiosk is Located—The physical placement of the kiosk was also identified as a potential issue. It was felt that having other residents nearby in the community room might deter some residents from using the kiosk. “There's a couple of residents there who are very private and probably wouldn't want to go down and use it when other people are around.”

Residents

Usual Health Management Practices—Residents' descriptions of their health management activities and interactions with the health care system were punctuated by expressions of dissatisfaction with care delivery. Expressions of dissatisfaction with healthcare were pervasive and focused on problems noted within two key domains: *communication* and *quality of care*.

Concerns about health-related communication spanned multiple levels of communication including patient-doctor, patient-nurse, and provider-provider. In one instance, such concerns were tied to technology as illustrated by the statement “they put a machine on, and it seems like they don’t want to answer the phone anymore” made by a woman describing repeated unsuccessful attempts to contact her primary care provider. Her peers strongly supported her observation with one individual describing a “hatred” of complicated voicemail systems. Residents’ narratives reveal the potential for communication problems to fracture provider-patient relationships.

Like poor communication, concerns about care quality were also reported to negatively impact provider-patient relationships, yield interruptions in care-seeking behaviors, or cause excessive utilization of healthcare resources. Overall, the residents’ powerful portrayals of their recent and current experiences with the healthcare system provided a backdrop against which to evaluate their perceptions regarding the telehealth kiosk.

First Impressions—Resident attitudes toward the kiosk were generally positive as illustrated by statements such as “*I think it’ll be great for me.*” Residents placed a particularly high value on blood pressure monitoring in managing health. As a result, the kiosk blood pressure monitoring capability was cited as personally valuable. “I think it’s a good idea, yeah. Yeah. My, um, primary care is always worried about my blood pressure. It tends to go up and down, up and down.” Residents also expressed an understanding that the kiosk could be beneficial in drawing early attention to signs and symptoms of serious medical events. One resident stated “*It could warn you*”. However, participant statements suggest the potential for residents to have false reassurance of blood pressure as a global marker of health status (e.g. “*Blood pressure determines a lot of things. It does.*”).

Several residents described self-monitoring of blood pressure through the kiosk as a possible means to improve their co-management of health conditions with their health care providers. One resident described how currently her blood pressure was only checked every few months and she expressed concern that this interval could be too long for making appropriate medication adjustments. The kiosk was seen as a mechanism that could enable more frequent monitoring and therefore ultimately lead to better management of her hypertension. “I go every four months and now maybe the medicine’s not working right, so that way you could find out if you’re medication isn’t working.”

Several residents indicated they believed their primary care providers would be supportive of their use of kiosk and self-monitoring. “Do you know, I think I saw when my primary care a couple weeks ago when this was announced, I told her we were having one [kiosk], she said, ‘Oh, that’s a good idea!’”. Others were not as confident about the involvement of their primary care providers. “*Oh he probably won’t care.*”

Residents also saw the use of the kiosk as potentially reducing unnecessary visits to their primary care providers. One resident’s statement: “Save ten dollars, besides the trip itself. You can save the trip itself” illustrates the value placed on both time and money savings by avoiding unnecessary medical visits. Given the difficulty our participants expressed in paying for basic items such as food, rent and medications, avoiding even a modest visit co-payment such as ten dollars may be a substantial benefit of kiosk use.

Concerns about the Kiosk—Despite an overall favorable impression of the kiosk, resident participants expressed a number of psychosocial and logistical reservations about using the kiosk.

Psychosocial Concerns: Issues regarding communication and sharing data with their health care providers were of concern among participants, stemming perhaps from negative past experiences with the healthcare system. They questioned how the kiosk data would be shared with their providers. “I’d rather know how, how they’re gonna tell what your pressure is on that machine. Is that gonna to go to the office?” Residents also expressed skepticism that their providers would utilize the data. “Are they gonna wanna to do that you know? They’re pretty busy up there. I can’t get ‘em, when I call ‘em I can’t get ‘em.”

Residents were also concerned about looking foolish or unintelligent when using the kiosk. These concerns were sometimes expressed in resident preferences for individualized training as illustrated by one resident’s statement: “You know, everybody’s different. That way we don’t have a lot of people that find out how stupid you are. Just be between you and the person who is teaching it.” In contrast to staff concerns regarding privacy and stigmatization, residents’ concerns about these issues were overshadowed by worries related to provider communication and the physical security of the kiosk.

Logistical Concerns: Physical security of the kiosk device was a prominent logistical concern. Participants shared a number of stories of theft and questioned whether they might be asked to oversee the kiosk. “Does somebody have to be there as a, like, guard of it or something? You know .” In addition to their security concerns, participants in one focus group expressed worry that residents may inadvertently damaging the kiosk or themselves be hurt while using it. For example, “Well, the machine would go off if the electric go off, but the fact is, would it affect us? Would it hurt us?”

Discussion

Older adult and case manager participants expressed a wide range of potential benefits and drawbacks to implementing a multi-user telehealth kiosk device for vital sign monitoring in the common area of a HUD-subsidized building. While both groups primarily viewed the kiosks in a positive light, they raised concerns that directly influenced the design and content of training sessions to prepare other residents for subsequent kiosk implementation. For example, during training we were careful to emphasize what the kiosk does and does not measure or identify. To address case manager concern regarding residents’ potential over-reliance on blood pressure as a global health status indicator, we provided a user action guide for interpreting blood pressure readings and recognizing serious signs and symptoms (for heart attacks and strokes) requiring immediate evaluation regardless of blood pressure readings. The logistical preferences of focus group participants affected the location of kiosk and the availability schedule (hours of the day). In response to their privacy concerns and their concerns about the potential theft of the kiosk, the kiosk was 1) placed in the community room where it was not immediately visible from the lobby, and 2) secured in a locked room when not available to residents. One of the residents volunteered to take responsibility for setting up the kiosk and securing the kiosk each week day. This was not part of the original implementation plan, but the adaptation was readily incorporated into the implementation plan.

While the details of participants’ perspectives on the implementation of multiuser telehealth devices are likely to be site specific, our findings demonstrate that there is clear value in the early engagement of key stakeholders in community-based telehealth projects. Unique issues arise when translating to community settings interventions that were first tested on individual patients. Attention to these issues will likely be critical for ensuring that those who may benefit most from community-based telehealth applications actually adopt them.

Conclusion

Community-based telehealth may be a useful strategy to address health disparities and the digital divide by bringing telehealth services to underserved individuals who have limited access because of cost, experience, and training. Findings from this study suggest that such persons and those who provide outreach services to them are generally receptive to multiuser telehealth technologies, but have specific concerns that should be addressed to early in the implementation process.

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References

- Cheek P, Nikpour L, Nowlin HD. Aging well with smart technology. *Nurs Adm Q* 2005;29(4):329–338. [PubMed: 16260997]
- Demiris G. Electronic home healthcare: Concepts and challenges. *International Journal of Electronic Healthcare* 2004;1(1):4–16. [PubMed: 18048200]
- Finkelstein SM, Speedie SM, Potthoff S. Home telehealth improves clinical outcomes at lower cost for home healthcare. *Telemed J E Health* 2006;12(2):128–136. [PubMed: 16620167]
- Kleinpell RM, Avitall B. Telemanagement in Chronic Heart Failure: A Review. *Disease Management & Health Outcomes* 2005;13(1):43–52.
- Louis AA, Turner T, Gretton M, Baksh A, Cleland JG. A systematic review of telemonitoring for the management of heart failure. *Eur J Heart Fail* 2003;5(5):583–590. [PubMed: 14607195]
- Mahoney D, Tarlow B. Workplace response to virtual caregiver support and remote home monitoring of elders: The WIN project. *Studies in health technology and informatics* 2006;122:676–680. [PubMed: 17102349]
- Marek KD, Popejoy L, Petroski G, Mehr D, Rantz MJ, Wen-Chieh L. Clinical outcomes of Aging in Place. *Nursing Research* 2005;54(3):202–211. [PubMed: 15897796]
- Rantz MJ, Marek KD, Aud MA, Tyrer HW, Skubic M, Demiris G, et al. A technology and nursing collaboration to help older adults age in place. *Nursing Outlook* 2005;53:40–45. [PubMed: 15761399]
- Sandelowski M. Whatever happened to qualitative description? *Research in Nursing and Health* 2000;23:334–340. [PubMed: 10940958]
- Vincent C, Reinharz D, Deaudelin I, Garceau M, Talbot LR. Public telesurveillance service for frail elderly living at home, outcomes and cost evolution: a quasi experimental design with two follow-ups. *Health Qual Life Outcomes* 2006;4:41. [PubMed: 16827929]

Table 1

Focus Group Sample Questions

Primary Questions from Focus Groups	
1	Please describe how you manage your health here as a resident.
2	What are your feelings about using the telehealth kiosk here at Greenfield Terrace?
3	What factors might make people want to use the kiosk?
4	What factors might make people not want to use the kiosk?
5	How do you think this kiosk could be useful in managing your health or the health of other residents you know?
6	How do you think this kiosk might not be useful in managing your health or the health of other residents you know?
7	How do you think using the telehealth kiosk could affect your health?
8	How do you think using the telehealth kiosk could affect your relationship with UPMC Living at Home program staff?
9	How would you like to be able to access the kiosk here at Greenfield Terrace?
10	How would you like to learn about how to use the kiosk?
11	We've talked a lot today about being a resident here and managing your health with the telehealth kiosk. Is there anything else you want to add that we haven't covered?